



Minnesota Board of Water and Soil Resources.
Minutes.

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October 1998

**BOARD OF WATER AND SOIL RESOURCES
COMMUNITY CENTER, COUNCIL CHAMBERS
202 PARKWAY SOUTH
LANESBORO, MINNESOTA 55949
OCTOBER 29, 1998**

BOARD MEMBERS PRESENT: Kathleen Roer, Barb Uppgaard, Paul Krabbenhoft, Jim Dahlvang, Marv Tripp, Ginny Imholte, Rod Sando, Barb Cobb, Dwain Otte, Glenn Annexstad, Allan Oehlke, Jim Anderson, Jerry Heil for Sharon Clark, Rod Massey, Pat Bloomgren

BOARD MEMBERS ABSENT: Lee Coe, Darrell Bruggman

STAFF PRESENT: Ron Harnack, Jim Birkholz, Jeff Nielsen, Al Kean, Dave Peterson, Mary Kells, Tom Fischer, Wayne Zellmer, Jim Haertel, Mary Jo Anderson, Derek Fisher

OTHERS PRESENT:
Kevin Scheidecker, Fillmore County

Chair Roer welcomed everyone to Lanesboro and called the meeting to order at 9:00 a.m.

Adopt Agenda - Chair Roer announced that Wally Sparby is not present at the meeting today, so he will not be recognized on his retirement at this meeting.

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98-68

Minutes of September 23, 1998 - Moved by Marv Tripp, seconded by Barb Uppgaard, to approve the minutes of September 23, 1998, as circulated. Motion passed on a voice vote.

Chair's Report - Chair Roer reported that she had a busy month. She attended two EQB meetings. At the September meeting, EQB approved the scoping document for feedlot GEIS. EQB met early this week and reviewed and discussed the airport expansion environmental impact statement. EQB postponed the airport EIS adequacy decision until the November meeting. EQB will meet again in November and December.

Chair Roer attended the environmental cluster meeting. Discussion at the meeting included the process of transitional plans for this administration and the next.

Chair Roer attended the DRC meeting; she also attended the BWSR's budget meeting with Jim Birkholz and Doug Thomas. This budget meeting included the Governor's staff and the Department of Finance, more information on the budget and the economic forecast after November.

Chair Roer attended an NACD meeting hosted by Dwain Otte. This was a national meeting held in Farmington on October 26. Dwain Otte thanked Jim Birkholz, Chair Roer, Ginny Imholte, and Allan Oehlke for coming to Dakota County.

Chair Roer attended the first enrollment acre ceremony for the Conservation Reserve Enhancement Program (CREP) on the Dallenbach farm in Redwood Falls. A total of 150 acres enrolled. Governor Carlson and Congressman Minge were present. This event was organized by Kevin Lines; it was a great event, about 100 people attended.

Executive Director's Report - Ron attended the environmental cluster meetings; discussions on the eight cluster budget initiatives. Ron has attended the Red River mediation sessions. Ron reported that BWSR information management staff have been working on upgrading the agency computer network. He briefly reported on the budget and fiscal management, will have more information on this in. Ron stated that Jim Birkholz is working with other state agencies regarding co-location options.

Ron Harnack stated that the Drainage Forum will be held November 19-20 in at the Civic Center in St. Cloud. There's a lot of interest in this session. Rod Sando suggested holding public meetings to give the general public an opportunity for input on this topic. Chair Roer asked that board members planning to attend the Drainage Forum should contact Ron.

Chair Roer stated that board members received a copy of "Soundings - A Minnesota Water Plan Assessment" from the EQB. She strongly encouraged members to read the document. Ron stated that EQB will be invited to the December meeting to talk about this document.

Committee Reports

Dispute Resolution Committee (DRC) Report - Marv Tripp reported that one appeal has been withdrawn and this is DNR versus the City of Byron, so there are presently four appeals pending. All the appeals are WCA appeals. One appeal is BWSR vs. the City of Rochester, which is set for the DRC to hear on December 7 and it should be on the December BWSR meeting agenda. Then there are two appeals concerning the same project. The St. Paul Chapter of the Audubon Society and the ABC League of Women Voters have appealed a decision made by the Rice Creek Watershed District. About a year ago, the BWSR heard this appeal and remanded it to the District. The last appeal concerns the City of Mound but that will not be moving forward until it has been brought before the city council.

Education and Public Relations Committee Report - Barb Uppgaard stated that the committee has not met. Jeff Nielsen introduced Derek Fisher, newly hired agronomist, joint education position with Minnesota Extension Service.

Agency Reports

Jim Anderson, Minnesota Extension Service (MES), reported that he's happy to have the joint BWSR/MES education positions in place. Jim reported that he's been working with Doug Thomas and Paul Burns on the drainage issue. Jim invited board members to attend the "MAST" summit conference, July 6-8, 1999, in St. Paul. This is an opportunity to meet with agricultural leaders worldwide; he encouraged board members to attend.

Pat Bloomgren, Department of Health, reported that things are on hold regarding the budget forecast until after the election.

Jerry Heil, Department of Agriculture (MDA), reported that MDA conducted a gypsy moth survey in 68 counties. The gypsy moth affects trees, they found more moths than anticipated. Most of the individual moths are located in southeastern Minnesota, but have also been located in Hennepin County. Jerry stated that a more intensive survey is scheduled for next summer, with implementation of biological research on control of the gypsy moth. Pat Bloomgren stated that the Department of Health would be interested in assisting with this problem. Jerry reported that MDA has two new fact sheets regarding biogas, eligibility criteria and accepting applications for biogas. Jerry stated that biogas is an attempt to deal with waste in a different fashion.

Rod Massey, Pollution Control Agency, reported that Reed Larson has been appointed as manager of the Brainerd office. Rod stated that PCA is working with southern Minnesota on permitting, no discharge facility, non-point training for phosphorus.

Rod Sando, Department of Natural Resources, reported that the North Shore state parks have been very busy. Waterfowl migration has been held up due to warm temperatures. Rod stated that the deer hunting season looks good; deer are delivering triplets, this is a good sign of recovery in northern Minnesota. Rod stated that a new land use map that has just been produced, digitized. This map is the completion of an eight year project. The Science Museum and AMC are distributing the maps to each county. Rod reported that the Mille Lacs Indian Treaty case will be heard by the U.S. Supreme Court on December 2. DNR has a forestry initiative; they are trying to get an enhanced forestry program.

Committee Recommendations

Watershed Management Plan Amendment, Brown's Creek Watershed District - Metro Water Planning Subcommittee - Barb Cobb reported that the metro subcommittee met and recommends approval of the plan amendment. Moved by Barb Cobb, seconded by Dwain Otte, to accept and approve the order for the Brown's Creek Watershed District Watershed Management Plan Amendment. Motion passed on a voice vote.

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98-69

Old Business

Review of Tour and Local Issues Forum - Chair Roer thanked Dave Peterson, Mary Kells and Jeff Nielsen of BWSR; Kevin Scheidecker and Darrell Brekke, Fillmore SWCD; Donna Rasmussen, Fillmore County; and Bev Nordby, Mower SWCD for organizing a fantastic tour. She thanked the presenters: Duane Johnson, Dodge County Planning Director; Bob Hurd, Architectural Environments; Todd Bram, Winona County Planning Director; Matthew Opat, Fillmore County Attorney; and Bob Baarsch, farmer, who provided tour of his farming operation. She thanked Allan and Audrey Oehlke for providing a wonderful lunch. She thanked Mary Jo Anderson for assisting

with details and organizing the stay in Lanesboro. Chair Roer and board members appreciated the opportunity to tour southeastern Minnesota.

Chair Roer called for a break in the meeting at 10:00 a.m. The meeting reconvened at 10:15 a.m.

State Cost-Share Rule Amendment for Farmstead Windbreaks - Wayne Zellmer explained that in 1997 the Minnesota legislature adopted statutes section 103C.501, subd. 6 as follows: The rules may provide that cost-sharing may be used for farmstead windbreaks and shelterbelts for the purposes of energy conservation and snow protection. The BWSR has not amended such rules. On September 23, 1998, the Cost-Share/Soil Conservation Committee convened to provide to the BWSR their recommendation on amending the State Cost-Share Program Rule to provide cost-sharing on farmstead windbreaks.

The Committee Recommendation is:

- 1) The BWSR should enter into the rule amending process only if additional funds are legislatively appropriated.
- 2) The allocation policy should remain as it is. BWSR would give blanket approval for SWCDs to spend any part of their 20% technical and administrative portion on low priority erosion and water quality improvement projects, which presently includes farmstead windbreaks.
- 3) The BWSR would support a MASWCD legislative cost-share funding initiative for additional program funding.

****** Moved by Allan Oehlke, seconded by Dwain Otte, to amend the committee recommendation to strike #2. Dwain Otte explained that #2 is null and void because water quality and erosion control does not qualify. Discussion followed. Roll call vote: Opposed: Tripp, Anderson, Dahlvang, Roer, Uppgaard, Sando, Bloomgren, Massey, Heil. Affirmative: Otte, Annexstad, Oehlke, Krabbenhoft, Imholte, Cobb. Motion failed.

****** Moved by Marv Tripp, seconded by Jim Anderson, to adopt #3. Discussion followed. Motion withdrawn. There are numerous demands on the Cost-Share Program from urban and lakes; that is water quality and erosion control related and new requests would better focus there than on other areas.

****** Moved by Pat Bloomgren, seconded by Marv Tripp, to adopt Alternative A, (attached) that BWSR should not enter into the rule amending process to provide cost-share for farmstead windbreaks. The focus of the program must remain on soil conservation and water quality improvement and protection. Motion passed on a voice vote.

NASCA Meeting Update - Jim Birkholz reported that Minnesota hosted the NACD North Central Region NASCA meeting last week in Rochester. Approximately 50 people attended from six states. Jim stated that it this was an opportunity for an active meeting process, hope for many good benefits, good partnering.

New Business

Dispute Resolution Committee Joubert vs. Helena Township, WCA Appeal - Chair Roer introduced Dave Iverson, Attorney General's Office; and Mark Covin, attorney for Helena Township. Jim Haertel explained the appeal. Discussion followed. Ron Harnack stated that BWSR has the authority to affirm or not affirm the decision of the local unit of government. Ron stated that the DNR has the direct authority of restoring the wetland. Chair Roer stated that BWSR can affirm the township decision, but hold in abeyance, give 90 days for restoration to occur, then go to DNR for appropriate legal enforcement. Rod Sando suggested that BWSR proceed with 60 days and DNR will oversee restoration. Moved by Rod Sando, seconded by Barb Cobb, that BWSR affirm the township decision, on both resolutions, #264a and #264b. Motion passed on a voice vote. Rod will direct DNR staff to assist in negotiation. Need to amend order and memorandum to affirm both resolutions.

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98-71

1999 Natural Resources Block Grants (NRBG) - Wayne Zellmer explained that the NRBG provides assistance to local governments to implement state natural resource programs. In previous years these programs have been the Comprehensive Local Water Planning, the Wetland Conservation Act, DNR Shoreland Management, and the MPCA Feedlot Permit Program. For 1999, the MPCA Individual Sewage Treatment Systems (ISTS) Program will be added. The NRBG is a composite base grant generally formulated to reflect need/activity of these programs in all counties. This grant is not competitive and all counties are eligible to apply. A county may apply for any or all of the five grant program components. Moved by Allan Oehlke, seconded by Dwain Otte, to authorize BWSR staff to allocate these grants to counties meeting the NRBG program requirements. Motion passed on a voice vote.

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98-72

Minnesota Wetlands Conservation Plan Memorandum of Agreement - Elizabeth Carlson reported that the Conservation Plan has been completed and signed by DNR, MNDOT, PCA, AG, and BWSR. She explained the phases of the plan and summarized the features of the Minnesota Wetlands Conservation Plan. Ron thanked Beth for her efforts in finalizing the plan and memorandum of agreement. Rod Massey also thanked her for her persistence on this project.

Ginny Imholte invited board members to attend the MAWD annual meeting, December 3-5, at the Radisson Arrowwood in Alexandria. Chair Roer asked board members to contact Mary Jo Anderson if they plan to attend the AMC annual meeting, November 30 - December 2, at the St. Cloud Civic Center in St. Cloud, and the MASWCD annual meeting, December 6-8, at the Radisson South in Bloomington.

Advisory Comments

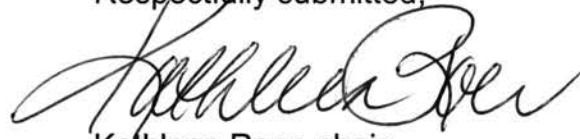
Kevin Scheidecker reported that he's stepping down as MACDE director. He stated that's always been nice to work with BWSR, staff have always been there. He thanked Jim Birkholz for always attending the MACDE meetings.

Chair Roer stated that the next BWSR meeting will be held on December 16 in St. Paul.

Jim Birkholz addressed staffing transitions in the metro region. Bruce Sandstrom has transferred from the metro region supervisor to the wetland banking coordinator, effective October 28. Matt Moore has been promoted to the LARS position; Char Sokatch has taken a promotion to RIM easement processor. Jim stated that for the immediate future Phil Belfiori and Doc Snyder will cover vacant board conservationist areas. Jim stated that he will work closely with the metro region. A new hiring list for the board conservationist has been opened. Jim asked board members to contact him if they know of good applicant for the regional supervisor position.

Chair Roer adjourned the meeting at 12:10 p.m.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Kathleen Roer', written in a cursive style.

Kathleen Roer, chair

BOARD OF WATER AND SOIL RESOURCES
ATTENDANCE ROSTER

	NAME	AFFILIATION	PHONE #
1.	Tom Fischer	MN BWSR - New Ulm	
2.	Jeff Nielsen	BWSR - New Ulm	
3.	Pat Blomgren	MDA	
4.	Al Kean	BWSR	
5.	Jerry Heil	MDA	
6.	Dave Peterson	BWSR	
7.	Elizabeth Carlson	DNR	651-297-5889
8.	Dave Iverson	AGO	651-296-0687
9.	DEREK FISHER	BWSR - NEW ULM	
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Minnesota Board Of Water And Soil Resources
One West Water Street, Suite 200
St. Paul, Minnesota 55107

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Jerald and Cathy Joubert,

BWSR File No. 98-2

Appellant.

vs.

ORDER

Helena Township and Minnesota
Department of Natural Resources,

Respondents.

This is an appeal by Jerald and Cathy Joubert ("Jouberts") from an exemption determination made by the Helena Township Board of Supervisors ("Township"). In April of 1997, the Jouberts applied to the Township for a certificate of exemption to drain wetlands on their property by excavation of a ditch. On May 1, 1997, the Township granted the certificate of exemption without prior input from the Technical Evaluation Panel ("TEP"). However, the Township failed to provide notice to the Minnesota Department of Natural Resources ("DNR") and other public agencies and individuals as required by Minn. R. 8420.0210 (1997). In reliance upon the certificate of exemption, the Jouberts completed the excavation and did additional excavation beyond that authorized by the certificate of exemption.

In early 1998, DNR and the Scott County Soil and Water Conservation District ("SWCD") became aware of the excavation and notified the Township that it had failed to provide the required notice and as a result, the certificate of exemption was not final. On February 24, 1998, the Township reissued its certificate of exemption to the Jouberts in order to correct technical errors. The TEP then performed a site inspection and filed a Report with the Township dated March 19, 1998, and amended this Report on March 30, 1998. The amended Report recommended revocation of the certificate of exemption and restoration of the site.

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An initial appeal was timely filed by DNR with the Minnesota Board of Water and Soil Resources ("BWSR") on April 1, 1998. See Record ("R") -64. A pre-hearing conference was held on May 4, 1998 at which time BWSR, by agreement with the parties, suspended the appeal for an expanded TEP inspection. R-71. The TEP met on the Jouberts' property on May 11, 1998, which resulted in a further recommendation to the Township that the site be restored and the certificate of exemption be revoked. On May 26, 1998, the Township by resolution (Resolution # 264A) revoked its certificate of exemption, determining that the wetlands were not exempt from the requirements of the Wetland Conservation Act ("WCA"). R-98. By separate resolution (Resolution # 264B), the Township adopted the TEP Report requiring restoration of the site. R-97. The Jouberts filed a timely appeal of the Township's action to BWSR on June 9, 1998. R-102. BWSR has jurisdiction over this appeal under Minn. Stat. § 103G.2242, subd. 9 (1996) and Minn. R. 8420.0240, subps. 1 and 3 (1997).

On October 1, the Dispute Resolution Committee ("DRC") of BWSR heard oral arguments. The Jouberts appeared pro se. Peter B. Tiede of Murnane, Conlan, White & Brant, 1800 Piper Jaffray Plaza, 444 Cedar Street, St. Paul, Minnesota 55101 appeared on behalf of the Township. William A. Szotkowski, Assistant Attorney General of the Minnesota Attorney General's Office, 900 North Central Life Tower, 445 Minnesota Street, St. Paul, Minnesota appeared on behalf of DNR.

The parties disagreed as to the adequacy of the record upon which the Township based its decision. The Township provided a bound volume of documents, sketches, and aerial photographs it claimed was the entire record before the Township. The Jouberts contended that the Township failed to include within the record a number of photographs that the Jouberts allege were provided to the Township's engineer. After due consideration by the DRC, a motion to supplement the record with the additional photographs failed for lack of a majority, and the record as submitted by the Township was accepted for purposes of this appeal.

Following oral arguments on the merits, the DRC adopted a resolution recommending that the Township's Resolution #264A revoking the certificate of exemption be affirmed, but that the Township's Resolution #264B requiring the restoration of the Jouberts' property to pre-excavation conditions be remanded for further consideration.

At its regularly scheduled meeting on October 29, 1998, BWSR adopted the recommendation of the DRC and authorized the Chair of BWSR to issue this Order. Based upon the entire record of this proceeding, BWSR makes the following:

ORDER

1. The Helena Township Board of Supervisors Resolution #264A dated May 26, 1998, which revoked its earlier certificate of exemption is affirmed.
2. The matter is remanded to the Township for further consideration of Resolution #264B dated May 26, 1998, which required the Jouberts to restore their property to its previous condition.
3. The attached Memorandum is incorporated by reference and made a part of this Order.

Dated: _____

Board of Water and Soil Resources

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Its Chair

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MEMORANDUM

Pursuant to Minn. R. 8420.0250, subp. 3, our standard of review is as follows:

The board will affirm the local government unit's decision if the local government unit's findings of fact are not clearly erroneous; if the local government unit correctly applied the law to the facts, including this chapter; and if the local government unit made no procedural errors prejudicial to a party. Otherwise, the board will reverse the decision, amend it, or remand it with instructions for further proceedings.

The landowner has the burden of proving that the proposed project qualifies for an exemption under WCA. Minn. R. 8420.0210 (1997). In this case, the Jouberts failed to prove that their proposal qualified for an exemption. As a result, we find that the Township correctly applied the law to the facts in its May 20, 1998 resolution which rescinded its earlier certificate of exemption. Therefore, we affirm that portion of the Township's action. However, the Township's resolution adopting the May 20, 1998 TEP Report which included the requirement that the Jouberts restore the property, apparently at the Jouberts' expense, is remanded for further proceedings. It is clear from the record that the Jouberts were prejudiced due to the improper application of WCA rules by the Township in granting a certificate of exemption.

While initially citing the incorrect rule provisions, the Township issued a certificate of exemption to the Jouberts on May 1, 1997 based upon the following provisions:

1. Minn. R. 8420.0122, subp. 1 (B)(1) related to activities in agriculture land;
2. Minn. R. 8420.0122, subp. 2 (B) related to drainage activities which have not been existence for more than 25 years; and
3. Minn. R. 8420.0122, subp. 5 (C) related to actions which create incidental wetlands

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But, the Township then failed to provide the notice required by Minn. R. 8420.0210 (1997) and, as a result, neither DNR nor the SWCD were aware of the Township's actions or had the opportunity to appeal. As a result, the certificate of exemption did not become final. Minn. R. 8420.0250 (1997). Nevertheless, in reliance upon the certificate of exemption granted by the Township, the Jouberts undertook and completed the project.¹

The completed excavation ultimately came to the attention of the SWCD and DNR which resulted in a detailed inquiry on the part of the agencies to determine the basis of the Township's actions. Subsequent review by the TEP of the circumstances surrounding the issuance of the certificate of exemption resulted in a determination that all three exemptions were granted in error. In its Report dated March 19, 1998, and amended on March 30, 1998, the TEP recommended to the Township that the certificate of exemption be revoked and that restoration of the site be required.

On April 1, 1998, DNR filed a timely appeal of the Township's certificate of exemption. A pre-hearing conference was held May 4, 1998 which resulted in an agreement among the parties that an additional TEP meeting would be held at the Joubert property on May 11, 1998 for further consideration of the evidence. On May 20, 1998, the TEP issued additional findings supporting its earlier conclusion and once again recommending that the Township revoke the certificate of exemption and require restoration of the site.

¹ In fact, the Jouberts exceeded the specifications of their original project, excavating the ditch deeper than proposed and extending the excavation onto neighboring property. This additional work was not justified under the certificate of exemption, and therefore the Jouberts had no basis to rely upon the Township's earlier actions to perform such work. As a result, the Township is correct in ordering that the Jouberts restore such work at the Jouberts' own expense, and this Order is not intended to impact that portion of the Township's resolution.

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On May 26, 1998, the Township considered and passed two resolutions. Resolution #264A repealed the earlier certificate of exemption to the Jouberts. Resolution #264B accepted the recommendations of the TEP as amended by its May 20, 1998 Report, which included the recommendation that the Jouberts restore the project site to its earlier condition. There was no mention in either the TEP Report or the Township's resolution regarding how the restoration would be financed. The Jouberts timely appealed the Township's action to BWSR.

BWSR agrees with the findings of the TEP that the original certificate of exemption was granted to the Jouberts by the Township in error. The record does not support the Jouberts' contention that any of the three original exemptions apply in this particular case. The aerial photographs, Scott County Highway Department surveys, and other documents in the record reflect that this wetland has been in existence for many years and does not appear to have been ditched in the past. In addition, the Jouberts have not produced evidence which supports their contention that this is an incidental wetland. Based upon this record, BWSR can only affirm Resolution #264A which revokes the Township's original certificate of exemption.

Nevertheless, BWSR is troubled by the facts of this unique case. The record clearly shows that the Township's earlier action granting a certificate of exemption was relied upon in good faith by the Jouberts, resulting in the excavation at the site. The Township now expects the Jouberts, apparently at their own expense, to restore the site to its previous condition. At the hearing before the DRC, there was no mention by the Township of any willingness on its part to aid the Jouberts in this restoration.

Pursuant to Minn. R. 8420.0250, subp. 3, BWSR finds that the Township has made a procedural error in its implementation of WCA and that this error has prejudiced the Jouberts. As such, BWSR has the authority to "reverse the decision, amend it, or remand it with instructions for further proceedings." Minn. R. 8420.0250, subp. 3 (1997). We must reiterate our findings above that the Jouberts property does not qualify for any of the exemptions provided for in WCA or its rules and therefore, we affirm that portion of the Township's action. However,

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we find that the Jouberts have been put into an untenable position due to their reliance upon the initial actions of the Township and, as a result, we remand that portion of the Township's action for further consideration. BWSR strongly encourages the parties to enter into good faith discussions in an attempt to come to an amicable solution regarding the expense of this restoration. BWSR expects that if no agreement is reached within 90 days, the matter be resubmitted to BWSR by any of the parties for further consideration.

It is also apparent from the record that the Township does not at the current time have the resources or the necessary capacity to adequately administer WCA. The Township is directed to attain the necessary expertise to administer this important program by obtaining appropriate legal, technical, and administrative resources or, in the alternative, turn the responsibilities of the program over to Scott County. Pursuant to Minn. R. 8420.0260, BWSR directs the Township to provide a response to BWSR detailing those actions it proposes to rectify these concerns.

Lastly, the Jouberts may wish to consider applying for enrollment of their property, once the wetland is restored, in the wetland preservation area program as described in Minn. Stat. §§ 103F.612 - .613 (1996) and Minn. R. 8240.0400 (1997). If enrolled, this program may provide some property tax relief to the Jouberts.

STATE COST SHARE RULE AMENDMENT FOR FARMSTEAD WINDBREAKS

BACKGROUND

The 1997 Minnesota legislature, adopted statutes section 103C.501, subd. 6, as follows: *The rules may provide that cost-sharing may be used for farmstead windbreaks and shelterbelts for the purposes of energy conservation and snow protection.* The BWSR has not amended such rules. On September 23, 1998, the Cost Share/Soil Conservation Committee convened to provide to the BWSR their recommendation on amending the State Cost Share Program Rule to provide cost sharing on farmstead windbreaks.

ISSUES

- 1) The BWSR is inclined to not begin the rule amending process unless such amendments would affect the vast majority of SWCDs in a comprehensive manner. SWCDs were invited to respond by September 1, 1998, with their comments and suggestions regarding their views on using the State Cost Share Program to apply farmstead windbreaks. (See attachment: SWCD Responses...)
- 2) The rule amendment process takes a minimum of six to eight months. It can take much longer if there is controversy during review. There is a high probability of controversy. The amendment process may require a large BWSR staff, and SWCD staff and supervisor, time commitment.
- 3) Most SWCDs have active tree programs readily able to serve farmstead windbreak requests. Several existing programs already can provide cost sharing on farmstead windbreaks, such as: EQIP, WHIP, CRP continuous sign-up, and LWP initiatives.
- 4) Farmstead windbreaks are not well suited to meeting the State Cost Share Program statutory focus of soil conservation, and water quality improvement and protection. Their functions, by design--as compared to field windbreaks--focus on issues of energy conservation, wildlife habitat, and snow deposition. None of the State Cost Share Program practices currently approved are *for the purposes of energy conservation and snow protection*.
- 5) Other practices to address groundwater quality, forestry, urban, and limnology issues, have also been long-standing concerns of SWCDs. Proper Program administration cannot amend the rule to allow cost sharing on farmstead windbreaks, and ignore other concerns for "new" cost share practices. The Rule amendment process may precipitate a new allocation formula and the need to update formula data.
- 6) For FY 99, the BWSR had available \$4,173,060 for soil conservation, and water quality improvement and protection practices. FY 99 requests from SWCDs for these practices totalled \$9,019,060--\$4,846,000 in requests were unfunded. Allowing cost sharing on additional practices may increase this margin.
- 7) Farmstead windbreaks conserve energy and provide needed shelter for livestock and people. Many Minnesota farmstead windbreaks have deteriorated and lost function.

Alternatives

The BWSR Cost Share/Soil Conservation Committee considered several options. Among those considered were:

- adopted*
- (A) The BWSR should not enter into the Rule amending process to provide cost share for farmstead windbreaks. The focus of the Program must remain on soil conservation and water quality improvement

and protection.

B) The BWSR should enter into the Rule amending process to provide cost share for farmstead windbreaks and expand the focus of the Program to include energy conservation and snow protection.

C) The BWSR should enter into the Rule amending process to provide cost share for farmstead windbreaks and other practices, and expand the focus of the Program to include energy conservation, snow protection, and other SWCD concerns including groundwater quality, forestry, urban, and limnology.

D) The BWSR should enter into the Rule amending process only if additional funds are legislatively appropriated for specific SWCD concerns. The BWSR would support a MASWCD legislative cost share funding initiative for farmstead windbreaks.

E) The BWSR should not enter into the Rule amending process. The BWSR should provide an opportunity for SWCDs to cost share on farmstead windbreaks and other concerns by allocating 100% of the entire appropriation as base grants. (To comply with statutory requirements, 70% of the appropriation must be spent on high priority erosion or water quality improvement projects.) Ten percent or \$212,000 (\$2,330/SWCD ave.) could then be used for farmstead windbreaks and other SWCD low priority erosion or water quality improvement projects. The remaining 20% would be used for SWCD technical and administrative costs. This alternative would eliminate the Special Projects Program.

F) The BWSR not enter into the Rule amending process. The allocation policy should remain as it is. BWSR would give blanket approval for SWCDs to spend any part of their 20% technical and administrative portion on low priority erosion and water quality improvement projects, including farmstead windbreaks.

G) Other

Committee Recommendation

1) The BWSR should enter into the Rule amending process only if additional funds are legislatively appropriated. *for farmstead windbreaks*

2) The allocation policy should remain as it is. BWSR would give blanket approval for SWCDs to spend any part of their 20% technical and administrative portion on low priority erosion and water quality improvement projects, which presently includes farmstead windbreaks.

3) The BWSR would support a MASWCD legislative cost share funding initiative for additional Program funding.

SWCD RESPONSES RE: UTILIZING STATE COST SHARE FUNDS FOR FARMSTEAD WINDBREAKS

SWCD	PROPONENT	OPPONENT	COMMENTS
POPE	X		
COTTONWOOD	X		FARMSTEAD WINDBREAKS ARE VALUABLE TO REGION. MORE FUNDING OPTIONS WOULD INCREASE IMPLEMENTATION, BUT IF NO NEW \$, FEW WOULD BE FUNDED.
WRIGHT		X	SUFFICIENT FEDERAL FUNDS ALREADY EXIST TO FUND FARMSTEAD WINDBREAKS. IF FUNDING IS ALLOWED, MAXIMUM STANDARDS SHOULD BE USED.
MURRAY	X		STATE COST SHARE PROGRAM IS MORE LANDOWNER - FRIENDLY THAN FEDERAL PROGRAMS.
STEARNS		X	OTHER SUFFICIENT FUNDING PROGRAMS ALREADY EXIST. STATE COST SHARE PROGRAM \$ SHOULD NOT BE USED TO SUPPLEMENT SWCD TREE PROGRAMS.
MARSHALL	X		THE PUBLIC HAS REQUESTED THIS ASSISTANCE. FARMSTEAD WINDBREAKS ARE VALUABLE FOR EROSION CONTROL.
GRANT	X		ALLOWING STATE COST SHARE PROGRAM FUNDS TO BE USED FOR FARMSTEAD WINDBREAKS, WELL SEALING, AND SEPTICS, WILL ENCOURAGE MORE LEG. FUNDING.
OLMSTED	X		PROMOTES SWCD TREE PROGRAM AND WOULD HELP MARKET AN IMPORTANT CONSERVATION TOOL.
SHERBURNE	X	X	ONLY IF ADDITIONAL \$ BECOME AVAILABLE.
LE SUEUR		X	LE SUEUR COUNTY LANDOWNERS REQUEST COST SHARE FOR TERRACES.
FILLMORE		X	FARMSTEAD WINDBREAKS DO NOT FIT AS A PRIORITY FOR STATE COST SHARE FUNDING. ADDING FARMSTEAD WINDBREAKS COULD RESULT IN A LOSS OF FUNDS GOING TO SE MN.
MORRISON	X		RATE OF LIVESTOCK GAIN IN WINTER MONTHS IS DIRECTLY INFLUENCED BY PROTECTION FROM THE ELEMENTS. TREES PLANTED ANYWHERE HAVE WATER QUALITY BENEFIT.
BELTRAMI	X		STATE COST SHARE PROGRAM FUNDS ARE HARD ENOUGH TO COME BY.
DOUGLAS	X		NO CURRENT COST SHARE ON FARMSTEAD WINDBREAKS AVAILABLE VIA EQUIP. DISTRICT TREE PROGRAM HAS BEEN AFFECTED.
STEVENS		X	ONLY IN FAVOR OF IF THERE IS AN APPROPRIATION INCREASE.
CARLTON	X		
HUBBARD	X		THIS SHOULD BE AN OPTION THAT WOULD LOCALLY DIVERSIFY CONSERVATION PRACTICES. IF IT WERE ADOPTED NOW, IT WOULD BE IN PLACE WHEN MORE FUNDING IS APPROPRIATED.

SWCD RESPONSES RE: UTILIZING STATE COST SHARE FUNDS FOR FARMSTEAD WINDBREAKS

SWCD	PROPONENT	OPPONENT	COMMENTS
BIG STONE	X		MANY FARMSITES IN AREA NEED ADDITIONAL TREES OR REPLANTING.
BECKER	X		ADD ENERGY CONSERVATION TO THE PRIORITIES OF THE COST SHARE PROGRAM.
MOWER		X	RECENTLY, SIGNIFICANT DAMAGE HAS OCCURRED TO MANY FARMSTEAD WINDBREAKS IN NW MN. REPAIR AND REPLACEMENT WOULD BE FASTER IF SCSP FUNDS WERE AVAILABLE.
PENNINGTON	X		PROGRAM INTENT IS TO PREVENT SOIL EROSION. FARMSTEAD WINDBREAKS SELL THEMSELVES. COULD SUPPORT IF MORE MONEY. LEAVE COST SHARE PROGRAM ALONE.
FARIBAULT	X		NEED ADDITIONAL DOLLARS TO SUPPORT.
BROWN		X	OUR COST SHARE DOLLARS GO OUT AS FAST AS WE GET THEM IN.
ROSEAU	X		COST SHARING ON ADDITIONAL PRACTICES WILL FURTHER DILUTE AN UNDER FUNDED PROGRAM.
RENVILLE	X		
PIPESTONE		X	FARMSTEAD WINDBREAKS ADDRESS THE ISSUES OF SOIL CONSERVATION AND WATER QUALITY. FARMSTEAD WINDBREAKS SAVE COSTS TO GOVERNMENTS AND LANDOWNERS.
KANDIYOHI	X		AMENDING THE RULE TO ALLOW COST SHARING ON FARMSTEAD WINDBREAKS WOULD BE COUNTER PRODUCTIVE.
SWIFT	X		THE PROS OF THIS PRACTICE OUTWEIGH THE CONS. OTHER PROGRAMS ARE TOO RESTRICTIVE AND BURDENSOME. A GOOD FARMSTEAD WINDBREAK REDUCES THE EFFECT OF WINTER WINDS. THERE IS NO THER WAY OF GEETING COST SHARING TO ESTABLISH FARMSTEAD GROVES. LANDOWNERS WHO WANT TO REPLACE OLD GROVES NEED MORE OPTIONS.

1999 NATURAL RESOURCES BLOCK GRANT

The Natural Resources Block Grant (NRBG) provides assistance to local governments to implement state natural resource programs. In previous years, these programs have been: Comprehensive Local Water Planning, the Wetland Conservation Act, DNR Shoreland Management, and the MPCA Feedlot Permit Program. For 1999, the MPCA Individual Sewage Treatment Systems (ISTS) Program will be added to these programs.

The NRBG is a composite base grant generally formulated to reflect need/activity of these programs in all counties. This grant is not competitive and all counties are eligible to apply. A county may apply for any or all of the five grant program components.

1999 NRBG Schedule

October 29, 1998	BWSR requested to authorize the 1999 NRBG
November 16, 1998	NRBG Program announced in the State Register
	NRBG Application sent to all counties
January 15, 1999	NRBG applications due to Board Conservationists
February 1999	Grant Agreements sent to counties

Selected Program Highlights the 1999 NRBG:

Comprehensive Local Water Planning - \$2,614,648

This component is for implementing comprehensive local water plans. A local levy match is required. This levy is determined from a county's equalized taxable net tax capacity. The grant amount is derived from the formula of \$37,500 - local levy, but all counties are eligible for a minimum of \$18,750.

Wetland Conservation Act - \$1,739,790

This component is for the local administration of the WCA. A local 1:1 cash and/or in-kind match is required. The grant amount is derived from a base estimated amount of county WCA activity. SWCDs are entitled to receive at least \$5,000 of this grant for performing mandated WCA activities.

DNR Shoreland - \$518,000

This component is for the administration of state approved shoreland management programs. It is administered at the state level by the DNR. A local 1:1 cash and/or in-kind match is required. The grant amount is derived from a base estimated amount of county Shoreland activity.

MPCA County Feedlot Program - \$1,205,000

This component is for county administration of the MPCA Feedlot Program. All counties that have received delegation from MPCA to administer this Program are eligible to apply. A local 1:1 cash and/or in-kind match is required. The 1998 legislature adjusted the allocation formula to increase grant amounts.

MPCA County Individual Sewage Treatment Systems Program - \$114,000

This new component is for administration of local ISTS programs. Based on 1997 changes to Minnesota Statutes, all counties are required to pass ordinances regulating ISTS county-wide. All county ordinances are required to be in compliance by January 1, 1999. All counties that have enacted county-wide ordinances are eligible to receive this grant. No local match is required.

Proposed base grants for the 1999 NRBG are itemized on the enclosed spreadsheet.

Recommendation

On behalf of the BWSR, DNR, and MPCA staffs, the Board is requested to authorize the BWSR staff to allocate these grants to counties meeting the NRBG Program requirements.

**PROPOSED 1999
BWSR NATURAL RESOURCES BLOCK GRANT:
BASE GRANT BREAKDOWN BY PROGRAM**

	LOCAL WATER PLANNING		WETLAND CONSERVATION ACT	DNR SHORELAND	MPCA COUNTY FEEDLOT PROGRAM		MPCA COUNTY ISTS PROGRAM
COUNTY	REQUIRE LOCAL LEVY	CLWP BASE GRANT	WCA BASE GRANT	SHORELAND BASE GRANT	MPCA BASE GRANT		MPCA BASE GRANT
					LEVEL 1 INVENTORY	LEVEL 2 OR 3 INVENTORY	
AITKIN	\$4,946	\$32,554	\$19,200	\$12,375	\$9,040		\$1,310
ANOKA	\$79,282	\$18,750	\$40,500	\$3,000	\$3,320		\$1,310
BECKER	\$6,810	\$30,690	\$24,200	\$12,321	\$20,280		\$1,310
BELTRAMI	\$6,276	\$31,224	\$36,000	\$6,317	\$13,880		\$1,310
BENTON	\$7,239	\$30,261	\$36,000	\$3,771	\$19,640		\$1,310
BIG STONE	\$1,412	\$36,088	\$10,000	\$3,087	\$4,880		\$1,310
BLUE EARTH	\$16,109	\$21,391	\$19,200	\$3,722	\$10,640	\$23,650	\$1,310
BROWN	\$6,310	\$31,190	\$10,000	\$3,070	\$18,120	\$28,350	\$1,310
CARLTON	\$6,769	\$30,731	\$19,200	\$4,506	\$7,400	\$15,150	\$1,310
CARVER	\$20,553	\$18,750	\$36,000	\$3,000	\$18,000	\$22,600	\$1,310
CASS	\$12,127	\$25,373	\$51,000	\$12,275	\$14,280		\$1,310
CHIPPEWA	\$3,529	\$33,971	\$10,000	\$3,012	\$4,840		\$1,310
CHISAGO	\$9,959	\$27,541	\$26,700	\$5,671	\$7,880		\$1,310
CLAY	\$9,189	\$28,311	\$16,700	\$3,378	\$9,320		\$1,310
CLEARWATER	\$2,609	\$34,891	\$19,200	\$3,630	\$16,000		\$1,310
COOK	\$3,234	\$34,266	\$12,200	\$4,814	\$160		\$1,310
COTTONWOOD	\$3,775	\$33,725	\$10,000	\$3,181	\$10,840		\$1,310
CROW WING	\$23,337	\$18,750	\$36,000	\$21,946	\$8,360		\$1,310
DAKOTA	\$118,134	\$18,750	\$41,000	\$3,000	\$9,160		\$1,310
DODGE	\$4,099	\$33,401	\$16,700	\$3,069	\$10,200	\$19,700	\$1,310
DOUGLAS	\$9,627	\$27,873	\$19,200	\$9,803	\$19,040		\$1,310
FARIBAULT	\$4,850	\$32,650	\$10,000	\$3,138	\$9,040	\$20,450	\$1,310
FILLMORE	\$4,148	\$33,352	\$10,000	\$3,089	\$39,960	\$25,750	\$1,310
FREEBORN	\$7,546	\$29,954	\$10,000	\$3,602	\$12,720	\$25,650	\$1,310
GOODHUE	\$17,742	\$19,758	\$16,700	\$3,181	\$28,640		\$1,310
GRANT	\$2,134	\$35,366	\$13,980	\$3,507	\$4,760		\$1,310
HENNEPIN	\$449,438	\$18,750	\$36,000	\$0	\$5,680		\$1,310
HOUSTON	\$3,797	\$33,703	\$12,200	\$3,127	\$25,720		\$1,310
HUBBARD	\$6,116	\$31,384	\$26,700	\$9,677	\$5,960		\$1,310
ISANTI	\$6,500	\$31,000	\$26,700	\$4,595	\$4,720		\$1,310
ITASCA	\$15,066	\$22,434	\$36,010	\$11,596	\$6,720		\$1,310
JACKSON	\$4,148	\$33,352	\$10,000	\$3,455	\$10,960	\$25,000	\$1,310
KANABEC	\$2,397	\$35,103	\$26,700	\$4,693	\$10,960		\$1,310

**PROPOSED 1999
BWSR NATURAL RESOURCES BLOCK GRANT:
BASE GRANT BREAKDOWN BY PROGRAM**

	LOCAL WATER PLANNING		WETLAND CONSERVATION ACT	DNR SHORELAND	MPCA COUNTY FEEDLOT PROGRAM		MPCA COUNTY ISTS PROGRAM
COUNTY	REQUIRE	CLWP	WCA BASE GRANT	SHORELAND BASE GRANT	MPCA BASE GRANT		MPCA BASE GRANT
	LOCAL LEVY	BASE GRANT			LEVEL 1 INVENTORY	LEVEL 2 OR 3 INVENTORY	
KANDIYOHI	\$10,710	\$26,790	\$19,200	\$7,748	\$16,520		\$1,310
KITTSON	\$2,636	\$34,864	\$16,700	\$3,038	\$4,400		\$1,310
KOOCHICHING	\$2,924	\$34,576	\$19,200	\$3,123	\$3,080		\$1,310
LAC QUI PARLE	\$2,363	\$35,137	\$10,000	\$3,017	\$3,120		\$1,310
LAKE	\$3,070	\$34,430	\$16,700	\$5,295	\$0		\$1,310
LAKE OF THE WOODS	\$979	\$36,521	\$26,700	\$4,007	\$2,360		\$1,310
LE SUEUR	\$6,263	\$31,237	\$16,700	\$5,643	\$10,960	\$16,200	\$1,310
LINCOLN	\$1,743	\$35,757	\$10,000	\$3,176	\$13,560		\$1,310
LYON	\$6,529	\$30,971	\$10,000	\$3,141	\$14,760		\$1,310
MCLEOD	\$7,790	\$29,710	\$16,700	\$3,429	\$17,760		\$1,310
MAHNOMEN	\$963	\$36,537	\$12,200	\$3,855	\$4,320		\$1,310
MARSHALL	\$3,716	\$33,784	\$19,200	\$3,000	\$6,400		\$1,310
MARTIN	\$6,923	\$30,577	\$10,000	\$3,470	\$11,680	\$30,900	\$1,310
MEEKER	\$4,788	\$32,712	\$19,200	\$5,433	\$16,000		\$1,310
MILLE LACS	\$3,623	\$33,877	\$19,200	\$5,517	\$15,040		\$1,310
MORRISON	\$5,737	\$31,763	\$26,700	\$4,526	\$42,680	\$33,050	\$1,310
MOWER	\$8,206	\$29,294	\$12,200	\$3,746	\$15,640	\$45,450	\$1,310
MURRAY	\$3,184	\$34,316	\$10,000	\$3,696	\$14,360		\$1,310
NICOLLET	\$7,463	\$30,037	\$16,700	\$3,077	\$11,800	\$20,950	\$1,310
NOBLES	\$5,486	\$32,014	\$10,000	\$3,054	\$18,840		\$1,310
NORMAN	\$2,252	\$35,248	\$12,200	\$3,011	\$4,280		\$1,310
OLMSTED	\$31,718	\$18,750	\$26,700	\$3,614	\$23,480		\$1,310
OTTER TAIL	\$13,946	\$23,554	\$33,200	\$20,362	\$53,920		\$1,310
PENNINGTON	\$2,207	\$35,293	\$16,700	\$3,251	\$5,240		\$1,310
PINE	\$5,204	\$32,296	\$36,700	\$6,768	\$18,800		\$1,310
PIPESTONE	\$2,181	\$35,319	\$10,000	\$3,000	\$16,920		\$1,310
POLK	\$7,887	\$29,613	\$16,700	\$3,967	\$10,520		\$1,310
POPE	\$2,704	\$34,796	\$15,200	\$4,877	\$15,120		\$1,310
RAMSEY	\$149,571	\$18,750	\$26,700	\$0	\$80		\$1,310
RED LAKE	\$893	\$36,607	\$12,200	\$3,297	\$6,120		\$1,310
REDWOOD	\$5,196	\$32,304	\$10,000	\$3,000	\$14,920		\$1,310
RENVILLE	\$6,069	\$31,431	\$10,000	\$3,055	\$12,320		\$1,310
RICE	\$12,658	\$24,842	\$19,200	\$4,806	\$17,480		\$1,310

**PROPOSED 1999
BWSR NATURAL RESOURCES BLOCK GRANT:
BASE GRANT BREAKDOWN BY PROGRAM**

COUNTY	LOCAL WATER PLANNING		WETLAND CONSERVATION ACT	DNR SHORELAND	MPCA COUNTY FEEDLOT PROGRAM		MPCA COUNTY ISTS PROGRAM
	REQUIRE LOCAL LEVY	CLWP BASE GRANT	WCA BASE GRANT	SHORELAND BASE GRANT	MPCA BASE GRANT		MPCA BASE GRANT
					LEVEL 1 INVENTORY	LEVEL 2 OR 3 INVENTORY	
ROCK	\$2,730	\$34,770	\$10,000	\$3,000	\$16,240	\$32,050	\$1,310
ROSEAU	\$3,399	\$34,101	\$26,700	\$3,095	\$10,760		\$1,310
ST. LOUIS (2 SWCD'S)	\$39,996	\$18,750	\$36,700	\$22,873	\$6,320		\$1,310
SCOTT	\$25,178	\$18,750	\$36,000	\$3,000	\$11,600	\$14,300	\$1,310
SHERBURNE	\$24,757	\$18,750	\$36,000	\$5,591	\$5,360		\$1,310
SIBLEY	\$3,771	\$33,729	\$12,200	\$3,098	\$16,640		\$1,310
STEARNS	\$28,936	\$18,750	\$51,500	\$10,330	\$77,480	\$110,000	\$1,310
STEELE	\$8,914	\$28,586	\$12,200	\$3,290	\$12,320		\$1,310
STEVENS	\$2,552	\$34,948	\$10,000	\$3,130	\$6,160		\$1,310
SWIFT	\$2,600	\$34,900	\$12,200	\$3,149	\$7,280		\$1,310
TODD	\$3,215	\$34,285	\$19,200	\$5,660	\$40,600		\$1,310
TRAVERSE	\$1,910	\$35,590	\$10,000	\$3,218	\$2,080		\$1,310
WABASHA	\$4,441	\$33,059	\$12,200	\$4,037	\$22,560		\$1,310
WADENA	\$2,027	\$35,473	\$21,700	\$3,539	\$14,000		\$1,310
WASECA	\$4,846	\$32,654	\$12,200	\$3,450	\$7,400		\$1,310
WASHINGTON	\$66,829	\$18,750	\$36,000	\$3,000	\$5,200		\$1,310
WATONWAN	\$2,958	\$34,542	\$10,000	\$3,136	\$6,200		\$1,310
WILKIN	\$2,778	\$34,722	\$10,000	\$3,021	\$1,840		\$1,310
WINONA	\$10,219	\$27,281	\$12,200	\$3,043	\$27,400		\$1,310
WRIGHT	\$25,381	\$18,750	\$36,000	\$10,716	\$23,160		\$1,310
YELLOW MEDICINE	\$2,983	\$34,517	\$10,000	\$3,017	\$9,000		\$1,310
MARSHALL-BELTRAMI SWCD			\$5,000				
ST. LOUIS RIVER BD.				\$35,000			
NORTH SHORE MGMT. BD.				\$50,000			
TOTALS	\$1,487,212	\$2,614,648	\$1,739,790	\$518,000	\$1,173,200	\$509,200	\$113,970

NOTE: THE LOCAL WATER PLANNING BASE GRANT REQUIRES A LOCAL LEVY MATCH. THE WETLAND CONSERVATION ACT, DNR SHORELAND, AND MPCA FEEDLOT BASE GRANTS REQUIRE A 1:1 CASH/IN-KIND MATCH. THE MPCA COUNTY ISTS PROGRAM BASE GRANT DOES NOT REQUIRE A MATCH.

Minnesota Wetlands Conservation Plan (MWCP)

Version 1.01, 1997

SUMMARY OF FEATURES

Goal Statement

The goal is to maintain and restore the quality and diversity, and increase the overall quantity, of wetlands while taking into account regional differences in the character and health of the wetland resource, in order to promote ecologically, socially, and economically sustainable communities. The purpose of the Minnesota Wetlands Conservation Plan is to guide stewardship of wetlands toward that goal.

The Minnesota Wetlands Conservation Plan provides guidance for anticipating future choices and the consequences of alternative decisions by adding a geographic and coordinated approach to the existing wetland conservation system in Minnesota. In doing so, the plan addresses several basic challenges for the wetlands conservation system in Minnesota in the mid-1990s.

Framework for addressing regional differences

- Regional differences for 14 areas of the state are described, based on their ecology and general landscapes, watershed features, wetland characteristics, and major land use patterns. Management strategies that reflect regional differences are outlined, with the intent of "getting away from one-size-fits-all wetland policy."
- In addition, guidelines are provided for four different kinds of management settings that can be found in most regions of Minnesota, which have implications for wetlands decision-making (urban, rural, natural environment, and unique settings).

"Which boundaries" → watershed and ecological and administrative

- All of these boundaries have a purpose and utility. It isn't a matter of choosing just one kind of boundary; the plan shows that each is useful in its own way and together.

Shared responsibilities and the essential role for LGUs

- Another key feature is the recognition of the essential for local government units in wetlands decision-making → not only for WCA permitting but also in land use planning, water planning, and other local responsibilities. The management advice in the plan reflects how the responsibility for wetland conservation is, in reality, shared among many types of government and landowners.

Wetland replacement siting agreement

- Disputes among state and federal agencies about the section of the plan concerned with choosing the "best" location for replacement wetlands continued throughout 1997. In December 1997, an agreement was reached on a common set of guidelines that strikes a balance between addressing "on-site, in-kind" wetland losses and "historical" wetland losses.

Process: highly participatory and voluntary

- The plan was created as a voluntary initiative by a diverse group of local government staff, farmers and other business people, environmental advocates, and agency staff. The five sponsoring state agencies were: the Minnesota Departments of Natural Resources, Transportation, and Agriculture; Minnesota Pollution Control Agency; and Minnesota Board of Water and Soil Resources. The project was funded by a planning grant from the U.S. Environmental Protection Agency (EPA), under its *State Wetland Protection Development Grant Program* (Clean Water Act Section 104), and matching funds contributed by the sponsoring state agencies.

Distribution: over 2,000 copies distributed

- Use of the plan is voluntary and so it has been made available to a variety of potential users.
- Over 2,000 copies have been distributed since its publication in June 1997. Copies of the plan were mailed to the 1,100-record project mailing list and to BWSR's mailing lists for LGU coordinators, water planners, conservation districts, and watershed districts, and WMOs.
- The Minnesota Wetlands Conservation Plan can be viewed on the DNR web site at <http://www.dnr.state.mn.us>.

Next steps

- Use of the plan is voluntary. It provides good information and advice for anyone who finds it useful in their own situation.
- A Memorandum of Agreement has been signed by the sponsoring state agencies, committing to use the plan in their programs and activities.
- Staff in the sponsoring state agencies are working on their responsibilities for action items under regulatory simplification, databases, improving the wetland banking system, and so on. The plan can also help agency field staff and local government staff as they work on day-to-day wetland issues.
- Follow-up project: "Wetlands Guidance for the Anoka Sand Plain," to develop information, guidance, and decision tools customized for wetlands in this unique region of the state, one of fourteen "Wetland Ecological Units" identified in the plan.

For further information, contact:

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E-mail: John.jaschke@bwsr.state.mn.us

August 1, 1998

**MEMORANDUM OF AGREEMENT
FOR IMPLEMENTATION
OF
MINNESOTA WETLANDS CONSERVATION PLAN**

This Memorandum of Agreement is made and entered into this 1st day of August, 1998, by and among the Minnesota Department of Natural Resources, the Minnesota Board of Water and Soil Resources, the Minnesota Department of Transportation, the Minnesota Pollution Control Agency, and the Minnesota Department of Agriculture (collectively the "Sponsoring State Agencies"), and the U.S. Environmental Protection Agency, the U.S. Army Corps of Engineers, and the U.S. Fish and Wildlife Services (collectively the "Cooperating Federal Agencies").

WHEREAS, the development of the Minnesota Wetland Conservation Plan, Version 1.01, 1997 ("MWCP") was sponsored by the Sponsoring State Agencies and Cooperating Federal Agencies; and

WHEREAS, the MWCP, as referred to in this Agreement, consists of Version 1.01, 1997, attached as Exhibit A; as amended by the section entitled "Wetland Replacement Siting Criteria," dated December 1997, attached as Exhibit B; and the supplemental report entitled "Minnesota Wetland Banking Study," dated January 1998, attached as Exhibit C; and

WHEREAS, in the Charter for the MWCP signed in November 1995, the Sponsoring State Agencies identified the following needs and concerns for wetland conservation planning:

1. To create a wetlands conservation, restoration, and mitigation strategy that includes:
 - (a) up-to-date qualitative and quantitative information on statewide wetland resources;
 - (b) specific objectives for existing and former wetland resources across the state;
 - (c) a framework to guide public and private sector wetlands programs and priorities; and
 - (d) suggestions for improvements to Minnesota's wetland banking program.

2. To improve the wetlands permitting and management system; to coordinate regulatory efforts with public and private non-regulatory programs for wetlands conservation; and to assist local government units with their responsibilities for wetlands.
3. To clarify the statewide public benefits from wetlands conservation and benefits for individuals and communities; and to deal with the potential burdens of wetland conservation upon local government units and landowners which could be barriers to wetland conservation; and

WHEREAS, the Minnesota Department of Natural Resources, the Minnesota Board of Water and Soil Resources, and the Minnesota Pollution Control Agency were the responsible agencies for a planning grant from the U.S. Environmental Protection Agency ("EPA") under its State Wetland Development Grant Program (Clean Water Act, Section 104); and

WHEREAS, in addition to the proceeds of the planning grant from the EPA, state matching funds were used for the development of the MWCP; and

WHEREAS, the MWCP was developed as a voluntary initiative with the combined efforts and contributions of a diverse group of knowledgeable, experienced citizens and professionals throughout Minnesota; and

WHEREAS, the MWCP addresses four basic challenges for the State's wetlands conservation system in the mid-1990s:

- (1) To recognize and apply regional differences in wetlands policies and decision-making.
- (2) To simplify the permitting system and make it more accessible, responsive, and efficient.
- (3) To develop and deliver better information to people making decisions about wetlands.
- (4) To give resource agencies a common set of statewide strategies for conservation of wetlands.

WHEREAS, the MWCP provides guidance for anticipating future choices and the consequences of alternative decisions; and

WHEREAS, the MWCP sets forth, among other things, strategies for regional management, statewide management, regulatory simplification, and education and outreach; and

WHEREAS, the Sponsoring State Agencies and Cooperating Federal Agencies desire to enter into this Memorandum of Agreement to adopt the MWCP as a guidance document and set forth procedures to assist in the implementation of MWCP; and

WHEREAS, an Interagency Wetland Group was formed in 1991 by the Sponsoring State Agencies and Cooperating Federal Agencies to discuss, plan, and coordinate wetland management and regulatory issues and activities of common concern.

NOW, THEREFORE, the parties agree as follows:

1. The Sponsoring State Agencies approve the issuance of the MWCP as the final report of their wetland conservation planning project.
2. To the extent deemed appropriate by each of the Sponsoring State Agencies and Cooperating Federal Agencies, the Sponsoring State Agencies and Cooperating Federal Agencies will consult the MWCP for guidance in the improvement of their respective programs, plans, and activities pertaining to wetland conservation in Minnesota.
3. The Interagency Wetlands Group will be the primary forum for continuing discussion among the Sponsoring State Agencies and Cooperating Federal Agencies regarding the implementation of the MWCP.
4. The Sponsoring State Agencies shall each appoint one or more staff members who will be responsible individually and collectively for monitoring implementation of the MWCP and reporting from time to time to the Interagency Wetlands Group and the Sponsoring State Agencies on progress toward implementation of the MWCP.
5. The Sponsoring State Agencies and Cooperating Federal Agencies shall, from time to time, update any technical information and associated recommendations in the MWCP as new data, information, and commonly accepted developments in wetland science emerge.
6. Nothing in this Agreement or lack of compliance with it creates any cause of action for damages, bears upon the admissibility of evidence, provides the basis for the issuance

or non-issuance of a permit or other regulatory action or otherwise constitutes a defense to any regulatory or enforcement action.

7. This Agreement does not create rights enforceable by any party to this Agreement or any other person or entity.

8. Any party to this Agreement may withdraw from it upon written notice to all other parties.

SIGNATURE PAGE #1 FOR

Memorandum of Agreement
for Implementation of
Minnesota Wetlands Conservation Plan
dated August 1, 1998MINNESOTA DEPARTMENT OF
NATURAL RESOURCESBy: *Robert W. Smith*
Its: Commissioner
Date: August 18, 1998MINNESOTA BOARD OF WATER AND
RESOURCESBy: *Donald H. Hennrich*
Its: *Executive Director*
Date: *August 19, 1998*MINNESOTA DEPARTMENT OF
TRANSPORTATIONBy: *James N. Dunn*
Its: COMMISSIONER
Date: 9.18.98MINNESOTA POLLUTION CONTROL
AGENCYBy: *Lisa J. Sharwig*
Its: Deputy Commissioner
Date: August 31, 1998MINNESOTA DEPARTMENT OF
AGRICULTUREBy: *Gregory A. Johnson*
Its: Commissioner
Date: 9-1-98

EXHIBIT A

Minnesota Wetlands Conservtion Plan
Version 1.01

Dated: 1997

*An original copy of Verslon 1.01 of the MWCP is attached to the
signed original Memorandum of Agreement.*

EXHIBIT C

*Minnesota Wetland Mitigation Banking
Study*

Dated: March 1998

This final study report supplements pages 67-68 in the "Minnesota Wetlands Conservation Plan," Version 1.01, dated 1997.

An original copy of the study report is attached to the signed original Memorandum of Agreement.

For the purposes of this guidance, "reasonable, practicable and environmentally beneficial replacement opportunities" are defined as those that:

- Take advantage of naturally occurring hydrogeomorphological conditions and require minimal landscape alteration; and
- Have a high likelihood of becoming a functional wetland and remaining so in perpetuity; and
- Do not adversely affect other habitat types or ecological communities that are important in maintaining the overall biological diversity of the area; and
- Are available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

When reasonable, practicable and environmentally beneficial replacement opportunities are not available in the first "step" of the siting priorities listed above, then the search expands to the next step, and so on.

To facilitate this process, regulatory agencies, other entities involved in wetland restoration, and local governments will collaborate to identify potential replacement opportunities within their jurisdictional areas. A compendium of known, pending and proposed banking sites will be provided, along with a list of additional potential sites. Applicants will be encouraged to propose replacement that best matches the project impacts.

MANAGEMENT ACTIONS

NOTE: "LGUs" refers to Local Government Units under the WCA and "local government units" refers to any or all of the following: counties, cities, townships, watershed districts or WMOs, and SWCDs.

➤ TASKS: FACILITATING THE SEARCH FOR REPLACEMENT SITES

- Local COE, BWSR, DNR, and LGU staff, in collaboration with other agencies involved in wetland regulation will develop and annually update lists of potential wetland replacement sites within their geographic areas of jurisdiction, with a goal of developing a joint list that represents all the known potential restoration sites in a county for a given year.
- DNR will provide maps of minor watersheds to all LGUs and Soil and Water Conservation Districts.

Necessary or Potential Leader(s)

BWSR
DNR
COE
LGUs

Necessary or Potential Partners

MnDOT
Tribal governments
USFWS
USDA

Wetland Replacement Siting Criteria

This section provides guidance for identifying and selecting sites for compensatory mitigation. The objective is to establish a common understanding among regulatory agencies and project applicants of where compensatory mitigation should be located relative to wetland impacts, and the various factors that enter into such decisions. The result should be better coordination between regulatory agencies and increased predictability on permit decisions.

REPLACEMENT SITING PRINCIPLES AND CRITERIA

This guidance reflects two (sometimes competing) principles:

- To keep replacement of lost functions as close as possible to the wetland impact.
- To achieve the greatest overall environmental benefit for the state.

The first principle is based on the theory that the lost functions are most needed where they originally existed and are more likely to be replaced successfully there. The second principle is based on the theory that, when feasible, wetlands restoration should be done where it is most needed, considering historical wetland losses and the quantity and type of wetlands as well as the project-specific impacts. A concept common to both theories is that wetland restoration is generally preferred over wetland creation.

A list of preferences for siting replacement wetlands follows. They address the principles discussed above and are based on an analysis of the status and distribution of wetlands in the state. They also reflect certain provisions already established by the Wetland Conservation Act; however, full implementation of these criteria would require further amendments to the Act.

Preference for siting wetland replacement follows this priority order:

- 1) On-site or in the same minor watershed as the impacted wetland;
- 2) In the same watershed (81 USGS) as the impacted wetland;
- 3) In the same county as the impacted wetland;
- 4) In the same Wetland Ecological Unit (WEU) as the impacted wetland; and
- 5) Statewide, only for wetland impacts in "Greater than 80 Percent Areas" and for public transportation projects.*

* Except that wetlands impacted in a less than 50 percent area must be replaced in a less than 50 percent area, and wetlands impacted in the seven county metropolitan area must be replaced in the affected county, or, if no restoration opportunities exist in the county, in another seven-county metropolitan area county. This exception does not apply to replacement completed using wetland banking credits established by a person who submitted a complete wetland banking application to a local government unit by April 1, 1996.

APPLICATION OF REPLACEMENT SITING CRITERIA

The replacement siting criteria established above represent the preferences for compensatory mitigation. In practice, the ultimate location of replacement wetlands must be based on the availability of reasonable, practicable and environmentally beneficial replacement opportunities along with the consideration of the overall environmental significance of the impact.

The intent of the ultimate location of the mitigation siting process is to locate replacement as close to the impacted area as possible. On-site, in-kind replacement is generally preferred. If on-site replacement is not possible, practicable, or desirable (i.e., will not likely result in a functional wetland system that replaces lost functions of the impacted wetland), off-site replacement that is demonstrated to be environmentally beneficial may be considered. The responsibility for obtaining adequate wetland replacement rests with permit applicants, however, regulatory agencies will work with applicants to identify appropriate sites based on:

- a) The siting criteria established above;
- b) The availability of reasonable, practicable and environmentally beneficial replacement opportunities; and
- c) The functional significance of the impact.

EXHIBIT B*Wetland Replacement Siting Criteria*

Dated: December 1997

This text replaces pages 60-63 in the "Minnesota Wetlands Conservation Plan," Version 1.01, dated 1997, by agreement among the Sponsoring State Agencies and Cooperating Federal Agencies.



MEMORANDUM

October 20, 1998

One West Water Street
Suite 200
St. Paul, MN 55107
(612) 296-3767
Fax (612) 297-5615

Field Offices

Northern Region:

394 S. Lake Avenue
Room 403
Duluth, MN 55802
(218) 723-4752
Fax (218) 723-4794

3217 Bemidji Avenue N.
Bemidji, MN 56601
(218) 755-4235
Fax (218) 755-4201

217 S. 7th Street
Suite 202
Brainerd, MN 56401-3660
(218) 828-2383
Fax (218) 828-6036

Southern Region:

261 Highway 15 S.
New Ulm, MN 56073-8915
(507) 359-6074
Fax (507) 359-6018

40--16th Street SE
Suite A
Rochester, MN 55904
(507) 285-7458
Fax (507) 280-2875

Box 267
1400 E. Lyon Street
Marshall, MN 56258
(507) 537-6060
Fax (507) 537-6368

Metro Region:

One West Water Street
Suite 250
St. Paul, MN 55107
(612) 282-9969
Fax (612) 297-5615

TO: Board Members

Jim Haertel
FR: Jim Haertel, Water Management Specialist

PH: (651) 297-2906

RE: Plan Amendment, Brown's Creek Watershed District

Enclosed is the draft Order approving the Plan Amendment for the Brown's Creek Watershed District. It is on the agenda for the next Board meeting and was referenced in the summary for this item in the Board packet.

Please contact me if you have any questions.

Enclosure

c: Doug Thomas

An equal opportunity employer

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Minnesota Board of Water and Soil Resources
One West Water Street, Suite 200
St. Paul, Minnesota 55107

DRAFT

**In the Matter of the Amendment to the
Watershed Management Plan for the Brown's
Creek Watershed District pursuant to Minnesota
Statutes Section 103B.231, Subd. 9 and Subd. 11**

**ORDER AMENDING
BROWN'S CREEK
WATERSHED DISTRICT
MANAGEMENT PLAN**

Whereas, the Washington County Board of Commissioners, acting as the Brown's Creek Watershed Management Organization, submitted a Watershed Management Plan Amendment (Plan Amendment) for the purpose of flood relief in the Brown's Creek Watershed with the Board of Water and Soil Resources (Board) dated June 16, 1997, pursuant to Minn. Stat. § 103B.231, Subd. 11, and;

Whereas, during the review process of the Plan Amendment the Brown's Creek Watershed District was established with their Board of Managers continuing the Plan Amendment process started by the Washington County Board of Commissioners, and;

Whereas, the Board has completed its review of the Plan Amendment,

Now Therefore, the Board hereby makes the following Findings of Fact, Conclusions, and Order.

FINDINGS OF FACT

1. Chronology of Events:

- | | | |
|----|----------------|---|
| a. | April 15, 1997 | Washington County Board of Commissioners, acting as the Brown's Creek Watershed Management Organization, authorizes Plan Amendment. |
| b. | June 16, 1997 | Washington SWCD submits Plan Amendments to state review agencies and communities. |

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- c. July 10, 1997 to September 6, 1997 Comments received from Met Council, Department of Agriculture, Washington County Public Works, Department of Natural Resources, Board of Water and Soil Resources, and Pollution Control Agency.
 - d. October 7, 1997 Draft responses prepared and presented at public hearing on Plan Amendment.
 - e. October 22, 1997 Brown's Creek Watershed District established by Board of Water and Soil Resources.
 - f. October 28, 1997 Brown's Creek Watershed District holds first meeting.
 - g. November 24, 1997 Brown's Creek Watershed District reviews draft response to agency comments.
 - h. January 26, 1998 Brown's Creek Watershed District finalizes response to agency comments.
 - I. March 16, 1998 Brown's Creek Watershed District submits revised Plan Amendment to Board of Water and Soil Resources
 - j. October 6, 1998 Brown's Creek Watershed District submits final Plan Amendment to Board of Water and Soil Resources.
2. **Summary of Projects:** The Plan Amendment clearly states that the proposed outlet design for the School Section/Goggins Lake will be implemented ONLY after the relocation of a severely affected household, completion of the LCMR wetland/infiltration study, and a determination by the Brown's Creek Watershed District Board of Managers of what further actions are needed to address basin flooding problems. Then, if needed, the process for implementing a permanent outlet solution would include development of a concept plan, a further feasibility study, environmental review, preliminary and final designs, a minor watershed plan amendment (if necessary), development of plans and specifications, obtaining permits and easements, and construction. The proposed outlet design for Kismet Basin consists of a series of corrugated metal pipes, water courses, and wetlands that would drain into Brown's Creek.
3. **Summary of Review Process:**
- a. BWSR, MDNR, MPCA, MDA, and the Metropolitan Council all provided

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comments on the proposed Plan Amendment pursuant to Minn. Stat. § 103B.231, Subd. 7 and Subd. 8.

- b. Draft responses were prepared and presented at a public hearing held on October 7, 1997.
 - c. The Brown's Creek Watershed District finalized responses to agency comments on January 26, 1998.
 - d. A revised Plan Amendment was submitted to BWSR on March 16, 1998.
 - e. The state review agencies commented on the revised Plan Amendment.
 - f. A final Plan Amendment was submitted to BWSR on October 6, 1998.
-
- 4. The alternatives analysis includes the cost of property, structures, repair or relocation of septic systems and wells, and reconstruction of public roads, as well as the acquisition of property where needed.
 - 5. There is a need for the completion of an Environmental Assessment Worksheet or Environmental Assessment Worksheets, at a minimum, for both projects.
 - 6. An operation and maintenance program for the outlets has been developed.
 - 7. The Brown's Creek Watershed District will determine which Federal, state, and local regulatory programs apply to the implementation of the proposed outlet projects.
 - 8. Financing the proposed outlet projects is clearly defined in the Plan Amendment.
 - 9. Potential impacts to wetlands as a result of the proposed outlet projects has been discussed and the proposed School Section/Goggins Lakes Legislative Commission on Minnesota Resources (LCMR) project will create/restore wetland resources.
 - 10. BWSR agrees conceptually that a permanent solution to the School Section/Goggins and Kismet Basin flooding issues is necessary. A primary reason for establishment of the Brown's Creek Watershed District was resolution of existing flooding issues within the

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watershed.

11. BWSR recognizes the efforts of the Brown's Creek Watershed District Board of Managers to balance the needs of the residents for permanent solutions to flooding problems and the environmental resources of the watershed which includes a designated trout stream.
12. **Metropolitan Water Planning Subcommittee.** The BWSR Metropolitan Water Planning Subcommittee met on Tuesday, October 20, 1998, and decided to recommend approval of the Plan Amendment to the full board.

CONCLUSIONS

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1. The proposed Plan Amendment describes the problem and addresses the need for the proposed projects.
2. Analysis of alternatives indicates that the proposed Plan Amendment is cost effective as a solution to the high water problems.
3. The proposed Plan Amendment and the scope of the projects are consistent with the currently approved Brown's Creek Watershed District Watershed Management Plan.
4. The Brown's Creek Watershed District Watershed Management Plan Amendment, dated October 6, 1998 together with Appendices A-H from the original plan amendment dated June 16, 1997 incorporated by reference and made a part of this Order, describes water and water-related problems within the Brown's Creek Watershed District's boundaries, possible solutions thereto, general objectives and policies of the Brown's Creek Watershed District, and an implementation program.
5. An Environmental Assessment Worksheet or Environmental Assessment Worksheets, at a minimum, must be completed before either project is ordered.
6. BWSR staff have reviewed the proposed Plan Amendment dated October 6, 1998 together with Appendices A-H from the original plan amendment dated June 16, 1997, and have found the information to be sufficient to meet the intent of applicable sections of Minnesota Rules Chapter 8410. Minn. Stat. § 103B and Minn. Stat. § 103D.
7. The Plan Amendment has been reviewed according to Minn. Stat. § 103B.231, Subds. 7, 8, 9, and 11.
8. All relevant substantive and procedural requirements of law and rule have been fulfilled.
9. The Board has proper jurisdiction in the matter of approving an amendment to the

Brown's Creek Watershed District Watershed Management Plan pursuant to Minn. Stat. § 103B.231, Subds. 9 and 11, and Minn. Stat. § 103D.411.

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ORDER

1. The Board hereby approves the proposed Plan Amendment, dated October 6, 1998 together with Appendices A-H from the original plan amendment dated June 16, 1997, incorporated by reference and made a part of this Order, to the Watershed Management Plan for the Brown's Creek Watershed District for the purpose of reducing damage caused by high water levels.
2. It is mandatory for the Brown's Creek Watershed District to complete an Environmental Assessment Worksheet or Environmental Assessment Worksheets, at a minimum, before ordering either project.
3. The Brown's Creek Watershed District must submit to the Board proof of adoption of the Plan Amendment into the approved watershed management plan within 120 days of the date of this Order.

Dated this _____th day of October, 1998.

MINNESOTA BOARD OF WATER AND SOIL RESOURCES

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By: _____
Kathleen M. Roer, Chair

December 1998

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**BOARD OF WATER AND SOIL RESOURCES
CONFERENCE ROOM, ONE WEST WATER STREET
ST. PAUL, MINNESOTA 55107
DECEMBER 16, 1998**

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BOARD MEMBERS PRESENT: Kathleen Roer, Barb Uppgaard, Glenn Annexstad, Paul Krabbenhoft, Ginny Imholte, Barb Cobb, Jim Dahlvang, Darrell Bruggman, Lee Coe, Jim Anderson, Allan Oehlke, Dwain Otte, Ron Nargang (DNR), Mark Dittrich (Agriculture), Pat Bloomgren (Health), Rod Massey (PCA)

STAFF PRESENT: Ron Harnack, Mary Jo Anderson, John Jaschke, Jim Lemmerman, Jim Birkholz, Jim Haertel, Greg Larson, Doug Thomas, Al Kean, Wayne Zellmer, Ron Shelito

OTHERS PRESENT:

Dave Iverson, Attorney General's Office
Rick Reimer, Minnesota Association of Conservation District Employees (MACDE)
LeAnn Buck, Minnesota Association of Soil & Water Conservation Districts (MASWCD)
Tim Koehler, Natural Resource Conservation Service (NRCS)
Franklin Denn, Minnesota Association of Townships (MAT)
Marilyn Lundberg, Environmental Quality Board (EQB)
Andy Lukas, Brown and Caldwell
Jack Perry, Briggs & Morgan
Frank Kottschade

Chair Roer called the meeting to order at 9:00 a.m.

Adopt Agenda - Ron Harnack reported that a decision is needed to order a hearing regarding the City of Stewart petition for a boundary change between High Island and Buffalo Creek Watershed Districts.

Approval of Minutes of October 29, 1998 - Chair Roer reported that the following changes are needed: on page two, in reference to the Chair's Report, it should read, "EQB met early this week and reviewed and discussed the airport expansion environmental impact statement. The second change should read, "EQB postponed the airport EIS adequacy decision until the November meeting." On page six, in reference to the Dispute Resolution Committee Joubert vs. Helena Township, WCA Appeal, it should read, "Dave Iverson, attorney general's office." Barb Uppgaard stated that on page five, in reference to the State Cost-Share Rule Amendment for Farmstead Windbreaks, the last paragraph on the page, "to adopt Alternative A" needs to state that Alternative A is attached. Moved by Ron Nargang, seconded by Barb Uppgaard, to approve the minutes of October 29, 1998 as amended. Motion passed on a voice vote.

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Reports

Chair's Report - Chair Roer reported that she attended the environmental cluster meetings which dealt with transition issues; awaiting appointments of agency commissioners. EQB met in November and approved the airport expansion. Chair Roer attended two citizens advisory committee sessions relating to the generic Environmental Impact Statement (EIS) on animal waste management. EQB meets tomorrow to finalize the scoping for the EIS. Chair Roer attended the Drainage Forum in St. Cloud. She stated that the forum was very successful, participants brain stormed on issues, more education is needed on drainage issues. Chair Roer reported that she started the MES/MASWCD Leadership Session. This session is held over a two-year period, with participants from SWCD supervisors and staff; three attendees from BWSR; and facilitators from MES. Chair Roer attended the MASWCD convention. She also attended the DRC committee meeting and the wetland committee meeting.

Chair Roer read a note of thanks to Ron Harnack and Kevin Lines and also to Chair Roer, from Congressman Minge, regarding their efforts on the Conservation Reserve Enhancement Program (CREP) kick-off in Redwood Falls.

Executive Director's Report - Ron Harnack reported that the Drainage Forum was a good session, well attended. He stated that education/training, administration, and natural resources were the big issues. Training for ditch authorities was the priority as this would likely address the most of the administrative and natural resources issues

raised. A summary of the Drainage Forum will be distributed by Christmas to those attending the session. The forum was a good opportunity to communicate with those involved in drainage issues.

Ron reported that the Red River Mediation has reached consensus. Ron congratulated DNR, Ron Nargang; Cheryl Miller, Mark Ten Eyck, environment representatives; and the watershed district representatives for their willingness to look at the big picture and find consensus. They did an excellent job of finding compromise. Ron stated that implementation is now the biggest challenge. BWSR's role is a revised comprehensive water management plan for watershed districts. He anticipates a legislative initiative for a 15-year implementation strategy for flood reduction and natural resources.

Ron Harnack reported that he attended the AMC, MAWD, and MASWCD conventions. Ron complimented agencies for having booths at the conventions.

Ron stated that the Jourbert appeal has gone to the Court of Appeals. He stated that there's an appeal in Stearns County with a landowner on a wetland banking appeal. Also, a request for intervention on a water policy issue from the Headwaters Rural Utilities relating to a development in the City of Rockford.

Ron reported that he received a request from Stearns SWCD for a summer tour. It's the SWCD's 50th anniversary, Ron stated that it's an excellent opportunity to tour the area next summer and visit some of the special and pilot projects that have been initiated through the SWCD and WD's.

Ron announced the Farmland and Open Space Forum, October 29-30, 1999. Julie McSwain gave a presentation to the BWSR a few months ago regarding the forum. Ron Struss, of our staff, is working on planning committee.

Ron commented on the legislative report on pollution credits and wetland banking credits with PCA.

Ron distributed the draft legislative proposals for FY00-01.

Glenn Annexstad commended Ron Harnack for setting up the Drainage Forum; Lee Coe echoed the commendation.

Dispute Resolution Committee - Glenn Annexstad reported that the Audubon Society and League of Women Voters has an appeal, the hearing has not yet been scheduled.

Cost-Share/Soil Conservation Committee - Dwain Otte reported that a resolution on farmstead windbreaks passed at the MASWCD convention. The committee will review this after the first of the year.

Wetlands Committee - Darrell Bruggman stated that the wetland committee meeting minutes are in board members packets for review. The committee will meet in January. Ron Harnack stated that some key policy issues are coming to the wetlands committee including; amending the rules, wetland banking and pollution credits, future of the Wetland Heritage Advisory Committee.

Financial Oversight Committee - Ginny Imholte reported that she attended the MAWD convention. A resolution at the convention requests funding for drainage training and new watershed district managers training.

Feedlot Management Advisory Committee (FMAC) - Allan Oehlke reported that FMAC is working on the feedlot rules; interesting process. Rod Massey clarified the process and proposed rules. Allan would like to see nutrient management plans in the SWCDs.

Agency Reports

Jim Anderson, Minnesota Extension Service (MES) reported that the MES Water Quality Leadership Team met last Friday to plan some program efforts. The three MES/BWSR positions attended the meeting, Derek Fisher, Ron Struss and Kamal Alsharif. Jim stated that he and Al Kean work on a joint committee of MES/MDA/NRCS/BWSR staff that has planned sessions to address nutrient management plans. The sessions will be held January 27-28-29, in Marshall, St. Cloud, and Rochester.

Pat Bloomgren, Minnesota Department of Health (MDH), reported that a fire is burning out of control in Maple Grove. MDH is working with PCA and DNR to deal with the fire, which needs to burn out and smolder on its own. Directly putting the fire out in the gravel pits risks affecting the aquifer and contaminating the drinking water in the area. Smoke from the fire can pose a health threat to those with asthma, lung and heart disease. The situation is being closely monitored.

Mark Dittrich, Minnesota Department of Agriculture (MDA), reported that MDA is working with MPCA on an animal waste liability account. MDA will administer a licensing program for manure management. The Ag Land Preservation Program evaluation will be out in January. Mark reported that MDA is doing more animal composting; looking for more sites in northern Minnesota.

Rod Massey, Minnesota Pollution Control Agency (MPCA), reported that the agency made headline news in the Tribune. MPCA is taking this to heart. The issues are being addressed. Rod stated that MPCA met with Tribes on environmental issues affecting reservations and disputed lands. Rod reported that federally funded 319 clean water partnership nonpoint activities were appropriated an additional \$2 million.

Ron Nargang, Department of Natural Resources (DNR), stated that it took everyone's participation in the Red River Mediation to come to consensus. Ron commented on the U.S. Supreme Court's hearings regarding the Treaty. Ron reported that a decision from the Court is not expected until March 1999.

Ron report that DNR had appealed to the News Council regarding a Channel 5 news report. The News Council unanimously supported DNR.

New Business

City of Stewart Petition for Boundary Change Between High Island and Buffalo Creek Watershed Districts - Order Board Hearing - Doug Thomas presented the Order. He explained that the all relevant substantive and procedural requirements of law and rule have been fulfilled. The Board has proper jurisdiction in the matter of ordering a watershed boundary change hearing, scheduled for January 14, starting at 2:00 p.m. at the City of Stewart Community Center, to be heard by board members Glenn Annexstad and Dwain Otte. Moved by Ron Nargang, seconded by Ginny Imholte, to approve the Order of Boundary Change Hearing between the Buffalo Creek and High Island Watershed District. Motion passed on a voice vote.

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98-74

Mary Kells, BWSR, vs. Rochester Appeal - recommendation by the Dispute Resolution Committee - Jim Haertel explained the appeal of the City of Rochester's approval of the applicant's wetland replacement plan. The DRC recommendation is to reverse the decision of the City of Rochester. At issue was whether an adequate site plan had been submitted with the application. The TEP recommended further detailed information by provided on the site plan. There were also some items brought up by the applicant's attorney subsequent to the DRC hearing. Jim stated that the first three itmes had been heard by the DRC, but the fourth dealt with *ex parte* communication. Chair Roer asked if any Board members had *ex parte* communications. No board members responded in the affirmative. Jim also stated that the issue of requested information, in reference to Government Data Practices Act, was sent as requested, affidavit received on Monday, regarding communications. Moved by Glenn Annexstad, seconded by Ginny Imholte, that the full Board approve the recommendation of the Dispute Resolution Committee, to reverse the City of Rochester in this matter. The applicant's attorney asked if he could make a presentation to the Board before the

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98-75 decision. Chair Roer ruled that out of order. BWSR's attorney commented on the issue of *ex parte* communication. Motion passed on a voice vote.

**
98-76 Cook County Water Plan Update Extension Request - Doug Thomas presented the order for the extension request. Staff recommends approval of the request. Moved by Lee Coe, seconded by Barb Uppgaard, to grant an extension until June 1, 1999 for the Cook County Water Plan. Motion passed on a voice vote.

Board Member Recognition - Chair Roer presented Barb Uppgaard with a certificate of commendation from Governor Carlson, and a print from BWSR for her efforts and six years of service to BWSR. Chair Roer stated that it's with great sadness that Barb leaves the BWSR, she wished her well on her future endeavors. Barb stated that it's been a privilege to serve on the Board.

Chair Roer reported that Lee Coe has been appointed as citizen member replacing Barb Uppgaard based on her resignation. Two appointments have just been made: 1) Clair Nelson has been appointed to fill Lee Coe's county commissioner position for the remaining two years; and 2) Jerome Deal has been appointed to fill Marv Tripp's watershed district position for the remaining two years. Chair Roer stated that the terms of Ginny Imholte and Darrell Bruggman expire in January, both have reapplied, they will continue to serve until June, or until appointments are made. Lee Coe thanked BWSR for their support.

Chair Roer called for a break at 10:40 a.m. The meeting reconvened at 10:55 a.m.

Chair Roer stated that Marv Tripp resigned as board member, effective December 1, 1998. Lee Coe resigned effective December 17, 1998 and Barb Uppgaard resigned effective December 17, 1998. The BWSR appreciated their efforts and contributions, and service as a board member. Chair Roer presented Barb Uppgaard with a plaque and a commendation from Governor Carlson. Barb Cobb will replace Marv on the Dispute Resolution Committee.

**
98-77 Koochiching County Comprehensive Wetland Plan Development Agreement - Ron Harnack reported that Koochiching is proceeding with development of a comp wetland plan. A draft plan outline has been completed and will provide the framework for the final plan. A formal agreement with Koochiching County, BWSR, Koochiching SWCD, DNR, and MPCA was developed a working tool to show intent of the County and the agencies to work proactively and cooperatively to develop a local wetland plan. Moved by Allan Oehlke, seconded by Lee Coe, to approve the formal Koochiching County Comprehensive Wetland Plan Development Agreement. Motion passed on a voice

vote. Chair Roer, Ron Nargang, and Rod Massey signed the document. Rod Massey thanked BWSR staff for taking the initiative on this agreement.

Comprehensive Local Water Planning Program Plan - Doug Thomas explained the plan, which was submitted to all local water planners at their July conference and reviewed by staff of Board member agencies. Staff is seeking a formal endorsement from BWSR on this plan. Barb Cobb stated that this is an excellent document, and recommends endorsement. Allan Oehlke commended staff for letting locals do their job. Chair Roer stated that this is a very concise and direct outline for future use; she looks forward to having this document as a model to be used in the future. Doug stated that there was significant involvement with the local water planners focus group. Dwain
**
98-78
Otte stated that this is an excellent plan. Moved by Barb Cobb, seconded by Barb Uppgaard, to adopt the Comprehensive Local Water Planning Program Plan and commend these involved in the local water planners focus group. Motion passed on a voice vote. Ron Harnack stated that the third generation plans will use this as a model in the future. The final copy of the work program and 10 years of success documents will be sent to each county. Chair Roer thanked Doug for his good work on this effort. Doug distributed the 1999 State Water Planners Conference brochure, which will be held June 22-23, 1999 in Rochester.

Proposal to Award \$450,000 in Grants to SWCDs in the Minnesota River Basin for Locally Administering the Conservation Reserve Enhancement Program - Greg Larson explained the partnering on this program to increase the administrative and technical SWCD capacity for CREP. Board conservationists will work with SWCDs and CREP partners and develop a specific funding for individual or groups of SWCDs. The specific funding recommendations will be brought before BWSR at the February meeting for final action. Board conservationists will monitor the grants, do follow-up with SWCDs and annually recommend the continuation and/or amendment of the
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98-79
grants. Discussion followed. Moved by Ron Nargang, seconded by Glenn Annexstad, to approve the allocation of \$450,000 in grants to the Minnesota River Basin for CREP as recommended by staff. Motion passed on a voice vote.

Living Snow Fence Allocations - Wayne Zellmer introduced Jim Lemmerman, BWSR; Steve Prestin, Division of Emergency Management; and Dan Gullickson, Minnesota Department of Transportation. Wayne explained the allocation. Jim Lemmerman reported that East Polk should be excluded from the allocation as reported earlier because East Polk SWCD will work with West Polk SWCD, although the allocation will go to West Polk SWCD. Jim reported that the Interagency Living Snow Fence Task Force included: Dan Gullickson, Steve Prestin, Jim Lemmerman; Mike Majeski, USDA

Forest Service; Jim Lemmerman, BWSR; Terri Smith, Minnesota Division of Emergency Management; Dave Johnson, DNR; Dr. Scott Josiah, U of M; Jim Schafer, MASWCD; Rick Reimer, Kandiyohi SWCD; Dwight Robinson, MDA; and Gary Wyatt, U of M Extension. Dan Gullickson gave a slide presentation on the living snow fence program in Minnesota. Steve Prestin explained the living snow fence projects benefit/cost analyses. Wayne, on behalf of the Living Snow Fence Task Force, recommends BWSR approval of the allocation to the following five SWCDs: Kandiyohi SWCD, West Polk SWCD, Lyon SWCD, Wilkin SWCD, and Traverse SWCD. Moved by Allan Oehlke, seconded by Paul Krabbenhoft, to award the living snow fence allocations as recommended by staff to the five SWCDs. Motion passed on a voice vote. Chair Roer thanked the task force for their efforts.

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98-80

Ron Harnack presented a certificate of appreciation to Dan Gullickson, Steve Prestin, and to Jim Lemmerman. Each task force member will receive a certificate of appreciation from BWSR.

Grants to Red Lake and Wild Rice Watershed Districts for Professional and Technical Services Related to Acquisition of Pilot Flood Storage Easements - Al Kean distributed the status summary of the flood storage easements pilot program. Moved by Ginny Imholte, seconded by Lee Coe, to approve grants of \$10,000 each to Red Lake and Wild Rice Watershed Districts for professional and technical services related to acquisition of pilot flood storage easements. Motion passed on a voice vote.

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98-81

Project Selection - Conservation Easements for Sensitive Shoreland and Riparian Areas on Lakes - Ron Shelito distributed a summary of his presentation. Staff recommends allocation of \$228,959 of the lakeshore easement program funds to Cass SWCD to acquire two lakeshore easements. Moved by Barb Uppgaard, seconded by Darrell Bruggman, to approve the two lakeshore easement program funds to Cass SWCD based on the recommendation of staff. Discussion followed. Ron Harnack explained that this is LCMR funding. Motion passed on a voice vote.

**

98-82

Cooperative Training Effort - Ron Shelito introduced Joe Wiltsey, who explained the cooperative BWSR/NRCS training effort. The following training efforts were developed: partnership training database; an employee development plan; supervisor responsibilities; area training teams; and NRCS employee development committee and BWSR training team. Joe reported that by 1999 all courses will be listed on the internet. Joe distributed the 1998 area training team plans.

NRCS Recognition of BWSR Staff - Tim Koehler, on Bill Hunt's behalf, presented a plaque to Al Kean for providing leadership to Joe Wiltsey and Justin Jeffrey in the

partnership training effort. Tim also presented Greg Larson with an award for soil survey efforts.

"Soundings: A Minnesota Water Plan Assessment" - Marilyn Lundberg, Minnesota Planning, presented the water plan goals; integrated water management; focusing on the resource; protecting and conserving water resources; managing water's interconnections; areas where progress is limited; and the Next Step: The Minnesota Water Plan 2000. Marilyn requested that BWSR be involved. Chair Roer asked board members to assist by filling out the questionnaire and sending it to Minnesota Planning. Chair Roer thanked Marilyn for her presentation.

Advisory Comments

- Franklin Denn, MAT, stated that rural areas and townships are headed for tough times. Franklin announced that MAT's legal seminar will be held January 28-29.

-Tim Koehler, NRCS, stated that NRCS is receiving budget numbers, fairly positive, however, they will know more on Friday when they meeting with officials in Chicago. Tim stated that the training partnership with BWSR was a good effort. Tim requested that Howard Moechnig's partnership effort be highlighted at a future board meeting. Ron Harnack mentioned that additional training should focus on sexual harassment and diversity.

Rick Reimer, MACDE, reported that there was good attendance at the MASWCD convention. He congratulated Allan Oehlke for receiving the outstanding SWCD supervisor award. Rick stated that his four-year term as MACDE director has expired; he thanked BWSR for support during his term.

LeAnn Buck, MASWCD, also congratulated Allan Oehlke on receiving his award. LeAnn stated that resolutions have been formulated regarding governance, funding, and legislative issues. LeAnn announced that Sheila Vanney has been hired as MASWCD's communications/training coordinator. Sheila will be starting later this month. Chair Roer congratulated LeAnn on her new position as executive director of MASWCD. Chair Roer also congratulated Allan Oehlke on his award.

Upcoming Meetings

-The next BWSR meeting will be held January 27 in St. Paul.

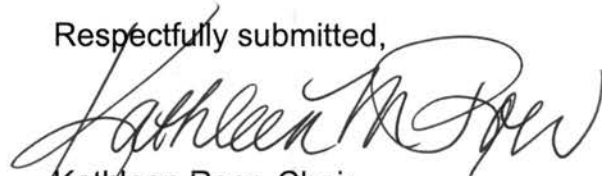
-NACD North Central Region Meeting, in Chicago, January 5-6. Ron Harnack and Jim Birkholz will attend.

BWSR Meeting Minutes
December 16, 1998
Page Ten

-NACD Annual Meeting, January 31-February 4, in San Diego. Dwain Otte and Allan Oehlke will attend. Bruce Sandstrom, staff, will also attend.

Chair Roer adjourned the meeting at 1:10 p.m.

Respectfully submitted,



Kathleen Roer, Chair

BOARD OF WATER AND SOIL RESOURCES ATTENDANCE ROSTER

	NAME	AFFILIATION	PHONE #
1.	Jack Perry	Brisp a Mng for Kottschke	(612) 334-8497
2.	Tim Koehler	USDA-NRCS	602-7857
3.	Rick Reimer	Kandiyahi Supv, Arcah Dir.	320 235-3906
4.	Andy Lukas	Brown and Caldwell	
5.	Mandy Lindley	EQB	2960676
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Farmland and Open Space Conference

Prepared for 12/16/98 Board of Water and Soil Resources Meeting

1. This event, endorsed by this Board, is progressing well



- Date and venue set

October 29 and 30, 1999

Radisson South Conference Center, Bloomington, MN

NOTE: The dates during harvest season are a concern, but through discussion thought best. Earlier would not work, and later gets into hunting seasons, other convention dates, the holidays, and bad weather.

- Active planning committee chaired by Julie MacSwain, NRCS, in place

Forty members +

Major state agencies, farm, and land use organizations represented.

✕ (Ron Struss, BWSR/UM Extension, is representing BWSR)

Sub committees formed and staffed.

- Linda Schroeder, conference planner experienced with natural resources sector, has been hired and is showing great leadership.
- \$26K in support money has been committed (\$2K from BWSR). An additional \$15K - \$20K in support money will be needed to make event affordable to attendees.

2. Focus will be what we know, Minnesota.

The debate was whether this should be a regional Upper Midwest or a state-wide Minnesota event. It will focus on Minnesota, but will be promoted regionally.

3. Focus will be both on farmland and open space

The event will draw strength by bringing together the interests of those interested in preserving farmland and those interested in preserving open and natural spaces.

4. Three step process . . .

Day 1: Why protecting farmland and open space is important to the public's welfare.

Day 2: Methods that can be used to preserve farmland and open space

Post-Conference: Follow up with attendees to provide encouragement and further assistance to get desired land preservation programs in place.

Minnesota Board of Water and Soil Resources
One West Water Street
Suite 200
St. Paul, Minnesota 55107

In the Matter of Extending the Comprehensive Water Plan
for Cook County (1995 Minnesota Session Law, Chapter 184
authorizing BWSR to grant extensions)

ORDER EXTENDING
COMPREHENSIVE
WATER PLAN

Whereas, the Cook County Board of Commissioners has a state approved Comprehensive Water Plan (Plan) that is effective until December 31, 1998 pursuant to M.S. 1990.301 and

Whereas, the Cook County Board of Commissioners requested an extension of the Plan to the Minnesota Board of Water and Soil Resources (Board) on November 10, 1998 pursuant to Minn. Session Law 1995, Chapter 184 Section 24 and

Whereas, the Board has authorization to grant extensions pursuant to Minn. Session Law 1995, Chapter 184 Section 24,

Now Therefore, the Board hereby makes the following Findings of Fact, Conclusions and Order:

FINDINGS OF FACT

1. On November 10, 1998 the Board received a resolution from Cook County requesting an extension of their Plan.
2. On December 1, 1998 the Board staff reviewed and recommended approval of the extension requested by Cook County.

CONCLUSIONS

1. All relevant requirements of law and rule have been fulfilled. The Board has proper jurisdiction in the matter of extending the Plan Cook County pursuant to Minn. Session Law 1995, Chapter 184 Section 24.

ORDER

The Board hereby approves the extension of the Cook County Plan until June 1, 1999. Dated at St. Paul, Minnesota, this 16th day of December, 1998.

MINNESOTA BOARD OF WATER AND SOIL RESOURCES

BY: Kathleen Roer, Chair

Red River Basin Flood Damage Reduction Work Group

DRAFT AGREEMENT

INTRODUCTION

This agreement is the product of eight months of consensus-based, mediated negotiations by the Red River Basin Flood Damage Reduction Work Group ("Work Group"). It responds to a mandate from the Minnesota Legislature to resolve gridlock over state permitting of flood damage reduction projects in the Red River Basin. The agreement is intended as the framework for a new, collaborative approach to implementing both flood damage reduction and natural resource protection and enhancement in the Red River Basin in ways that will benefit all Minnesota's citizens. The keys to this new approach are clearly identified goals, comprehensive watershed planning, early consultation and collaboration on flood damage reduction projects among stakeholders, and a cooperative approach to permitting of those projects.

The agreement is organized in seven parts, as follows:

Part I provides background information about the Work Group's genesis, its makeup, the Technical and Scientific Advisory Committee that provided support, and a summary of meetings and other activities that led to this agreement.

Part II identifies broad goals for flood damage reduction in the Basin, along with key principles.

Part III identifies natural resource goals for the Basin.

Part IV describes the comprehensive watershed planning process to serve as the vehicle for coordinating flood damage reduction and natural resource management strategies..

Part V addresses the new project review and permitting process developed by the Work Group.

Part VI covers the Work Group's decisions about a future entity to oversee implementation of this agreement and resolve conflicts.

Part VII addresses the funding needs for implementation of these goals.

Part VIII contains the signatures of Work Group stakeholders.

Appendix

- Board of Water and Soil Resources Watershed Planning Process
- Working Papers of Technical and Scientific Advisory Committee

PART I. BACKGROUND

A Chronology of Historic Factors

The Red River Basin was formed by glacial action. The melting of that glacier formed Lake Agassiz and as the glacier receded to the north, the lake drained, and in its place a vast region of grasslands and extensive marshes developed. Lakota, Ojibway, and Metis people are known to have lived and hunted in the region. European immigrants began settling in the Red River Basin in the 1840s, with the greatest influx occurring between 1870 and 1890. Earlier settlements have been documented in the northern areas dating back to the very early 1800s.

Documentation of major flooding began with journal entries by trappers, explorers, and early settlers recounting loss of lives, homes, and property beginning in 1824, 1825, and 1826. The 1826 event was in all probability the largest flood that has ever occurred in the Red River Basin. The floods of 1852, 1893, and 1897 were of nearly equal proportions, with the 1897 event the first to be officially recorded. Major events since that time occurred in 1914, 1919, 1950, 1974, 1975, 1978, 1979, 1985, 1989, 1993, 1996, and 1997. Significant flooding events with documented damages have occurred on the tributary rivers in equal or greater frequency than those recorded on the main-stem.

"Associations" of interested persons were initiated to address drainage and flooding beginning in 1870. A "Congress" of persons interested in water management convened annually until 1909. The "Tri-State Flood Control Association" convened in Fargo until 1919. The first discussions on upstream water retention progressed through these organizations. A "Tri-State Commission" was organized in 1937 and functioned until 1948. The installation of over forty water control structures for flood damage reduction, water supply, and hydro-power was accomplished in this time period.

In 1955 the Minnesota legislature authorized the formation of Watershed Districts, formed on tributary watershed boundaries, for the expressed purpose of managing water in a holistic manner. Eleven districts have been formed in the Red River Basin. In 1976 seven watershed districts, under jurisdiction of a Joint Powers Agreement, formed the Red River Watershed Management Board for the express purpose of funding flood damage reduction programs and projects. Two additional watershed districts have joined since that time. The watershed districts constructed thirty-five water control structures prior to 1992 ranging in control capability from under one hundred, to over thirty thousand acre feet of storage.

Flooding and a related problem, soil erosion, continues to plague the Red River Basin, therefore planning for flood damage reduction projects has continued.

Concern about the potential cumulative environmental effects of proposed watershed districts' flood control projects led the United States Army Corps of Engineers and Minnesota Department of Natural Resources to initiate a joint Environmental Impact Statement (EIS). The EIS was completed, designated as a Generic EIS for state purposes and subsequently challenged in state district court by the watershed districts and the Red River Watershed Management Board. In May 1997, the Minnesota Legislature authorized funding for a "Mediation" process to attempt resolution of the disputed issues that were addressed in the EIS, led to the court challenge, and resulted in gridlock on permitting issues.

The mediation was set up to seek resolution of the issues in a positive manner and allow for the implementation of the most effective and environmentally friendly alternatives that would accomplish flood damage reduction. This document includes the agreements that resulted from that mediation process.

Work Group Convening and Membership

Following the Legislature's mandate, the Minnesota Department of Natural Resources and the Red River Watershed Management Board jointly retained CDR Associates of Boulder, Colorado to mediate the negotiations, and worked with the mediators to convene a stakeholder group that represented all key interests associated with flood damage reduction and natural resource protection and enhancement in the Basin. In addition to the DNR and RRWMB, the Work Group ultimately included representation for federal and state agencies, public interest environmental groups, and a range of citizens from the Basin. One Native American tribe elected to participate as a special observer. Municipal governments along the Red River main stem also were invited to participate, but elected not to do so. The Work Group members are:

Ron Nargang, Minnesota Department of Natural Resources ("DNR")
Ron Harnack, Minnesota Board of Water and Soil Resources ("BWSR")
Don Ogaard, Red River Watershed Management Board ("RRWMB")
Dan Wilkens, Red River Watershed Management Board
Jerome Deal, Red River Watershed Management Board
Vernon Johnson, Red River Watershed Management Board
Gerald Van Amburg, Concordia College
Mark Ten Eyck, Minnesota Center for Environmental Advocacy ("MCEA")
Cheryl Miller, National Audubon Society
Rollin Siegfried and Jim Litzinger, U.S. Fish & Wildlife Service ("USFWS")
Keith Driscoll, local resident and farmer
Paul Borgen, local resident and farmer
Steve Zaiser, local resident
Jeff Lewis, Minnesota Pollution Control Agency ("MPCA")
Chuck Spitzack, U.S. Army Corps of Engineers ("USACE")

Purpose for the Mediation

The Work Group ultimately adopted the following statement of purpose for its negotiations:

To reach consensus agreements on long-term solutions for reducing flood damage and protection and enhancement of natural resources. Such agreements should balance important economic, environmental, and social considerations. Such agreements must provide for fair and effective procedures to resolve future conflicts related to flood damage reduction.

Technical and Scientific Advisory Committee

The Work Group relied on a Technical and Scientific Advisory Committee ("TSAC") to provide technical and scientific information and analysis in support of the mediation effort. The TSAC represented a range of disciplines, including hydrology, engineering, ecology, soils science, and economics. The TSAC developed a series of working papers to address key topics associated with flood damage reduction and modeled the use of different strategies for flood damage reduction. The TSAC did its work based on consensus, and its work products reflect consensus recommendations to the Work Group.

The TSAC includes:

Jim Solstad, DNR

Steve Apfelbaum, Applied Ecological Services, Inc.

Doug Eppich, Applied Ecological Services, Inc

Scott Jutila, USACE

Luther Aadland, DNR

Rick St. Germain, Houston Engineering (with support from Erik Jones)

Charlie Anderson, JOR Engineering

Larry Lewis, USFWS

Greg Larson, BWSR

Jeff McGrath, USACE

Summary of Meetings and Activities

The Work Group held ten (10) negotiating sessions from May to December, 1998. Many stakeholders took time out from their personal and professional lives to participate, without remuneration. Most meetings were held in Crookston, Minnesota. In addition, Work Group members took a group tour of the Wild Rice watershed, and spent numerous hours on conference calls and in smaller *ad hoc* meetings.

Use of Consensus to Reach Agreement

This agreement is the result of a consensus-based process. The Work Group did not use majority voting to make key choices, but relied on the commitment of

individual stakeholders to craft solutions that would accommodate diverse interests. The consensus process meant that no single stakeholder was able to impose its views on the Work Group, and stakeholders were able to build consensus solutions while holding different viewpoints. The result of this process, while not perfect for any stakeholder, represents the best agreement possible at this time.

PART II.

BROAD GOALS AND PRINCIPLES FOR FLOOD DAMAGE REDUCTION

The Work Group adopted eight broad goals for flood damage reduction in the Red River Basin. These goals reflect the Work Group's efforts to identify the key interests associated with flood damage reduction and make these interests the focus for policy choices. The goals reflect the differing perspectives of Work Group stakeholders that were examined and debated during the course of the Work Group's deliberations. They also reflect the difficult choices faced by the Work Group in setting realistic yet meaningful goals.

The Work Group also identified key principles to guide policymakers as they develop strategies to implement the broad flood damage reduction goals set out below.

Flood Damage Reduction Goals

The Work Group decided to differentiate between **prevention** of damage and **reduction** in the risk of damage in setting flood damage reduction goals. This approach reflects agreement that certain damages associated with flooding are so significant that everything possible should be done to **prevent** them from occurring. This means providing the maximum feasible protection and setting high priorities on actions needed to accomplish this goal. The Work Group also agreed that for other damages associated with flooding the focus should be on **reducing** the present risk that they will occur, but not on seeking to eliminate that risk. The Work Group agreed that breaking the disaster/repair cycle by implementing flood damage reduction projects is important.

The broad goals for flood damage reduction in the Basin are:

1. **Prevent** loss of human life.
 - a. Promote the development of community flood warning systems and emergency response plans.
 - b. Promote the development of flood plain management plans and land use ordinance administration and enforcement.
 - c. Ensure state oversight of project design and technical criteria.

2. **Prevent** damage to farm structures, homes, and communities.
 - a. Promote the construction of farmstead ring dikes built to a minimum of 2 feet of freeboard over the flood of record, or 1 foot above the administrative 100-year flood, whichever is greater.
 - b. Promote the construction of community setback levees and floodwalls built to the flood of record plus uncertainty (3 feet) or the 100-year flood plus uncertainty, whichever is greater.
 - c. Promote the acquisition and permanent removal of flood-prone structures and establishment of greenways within the 100-year flood plain.
 - d. Accelerate flood insurance studies, flood plain remapping and hydraulic/hydrologic studies in poorly defined or unmapped areas.
 - e. Accelerate comprehensive watershed and systems approaches to basin management.
 - f. Discourage the development of structures within the 100-year flood plain, with the exception of those approved in a community's flood plain ordinances.
3. **Reduce** damage to farmland by:
 - a. providing protection against a ten-year-summer storm event for intensively farmed agricultural land;
 - b. maintaining existing levels of flood protection when consistent with a comprehensive watershed management plan; and
 - c. providing a higher level of protection, e.g., 25-year-event, when feasible at a minimal incremental cost.
4. **Reduce** damage to transportation.
5. **Reduce** damage to water quality, including direct and chronic impacts, from floodwaters coming into contact with potential contaminants.
6. **Reduce** environmental damage caused by flood control projects.
 - a. When advancing a project that requires a permit, select the least environmentally damaging (or most environmentally enhancing), feasible and prudent alternative that accomplishes the water management goals.*
 - b. Design projects or packages of projects that provide net natural resource enhancement.

* "Project" means: Planning and development, construction, maintenance, repair, or improvement of a watershed district for a purpose for which the watershed district is established.

- c. A planned response to a flooding problem should take into account natural resource benefits, as well as negative impacts, in a watershed context (beyond the immediate project site).

7. **Reduce** social and economic damage.

8. **Reduce** damage to natural resource systems caused by flooding.

Explanation of Ten-year Storm Event

The Work Group had repeated, lengthy discussions about the different interests associated with the third goal listed above: reducing damage to farmland. These discussions covered, in part, the annual nature of agricultural flooding, the damages associated with that flooding, the fact that these damages are difficult to quantify and are not widely publicized, the important differences between spring and summer flooding events, the existing drainage infrastructure, and changes in land use. The Work Group ultimately set the "ten-year summer storm event" as the target for reducing flood damage to qualifying farmland. In technical terms, a ten-year event is defined as 3.57 inches of rainfall in a 24-hour period, or 6.39 inches of rainfall in a ten-day period, in a minor watershed, i.e., ten square miles or less. In terms of probability, for an eligible piece of farmland protection against a "ten-year event" means a ten percent chance in any single year of being flooded by runoff from another's property as a result of a summer storm event. For example, a conveyance system designed to a ten-year standard will be able to convey the ten-year runoff volume without overflowing and will allow for the drainage of adjacent lands to prevent crop damage.

The ten-year event target specifies how much protection flood damage reduction strategies should strive to provide as well as the level of risk that will remain. For example, a 25-year storm event will exceed the specified level of protection and cause damage to agricultural land. Given the unique hydrology and topography in the Basin, the ten-year-event goal will need to be flexible and site-specific in its application. Successful implementation will require accounting for reasonableness of costs, the need to be sustainable, and the need to incorporate other flood damage reduction principles/criteria.

Explanation of Intensively farmed land

The Work Group agreed that the ten-year level of protection should apply only to intensively farmed land. This means land that was planted with annually seeded crops or was in a crop rotation seeding of pasture grass or legumes in six out of the last 10 years; excluding land incorporated within flood protection works (e.g., between setback levees), regardless of whether this land has been or will be farmed.

Flood Damage Reduction Principles

The Work Group also agreed on certain flood damage reduction principles. These principles are consistent with the broad flood damage reduction goals and are intended to guide the efforts of policymakers and project proponents to implement those goals through the comprehensive watershed planning process and project planning, design, and permitting. The principles adopted by the Work Group are:

1. Reduction of overland flooding is needed; any solution will probably require on-site and upstream solutions.
2. Water resource problems should not be passed along to others. A solution for a watershed should not create a problem upstream or downstream.
3. Water should be stored/managed as close to where it falls as is feasible and practical.
4. A systems approach should be used to manage the timing of flow contributions from multiple minor watersheds.
5. Projects should be consistent with comprehensive watershed management planning.
6. Project cost responsibilities should be negotiated project-by-project based on flood damage reduction and natural resource benefits.
7. The responsibility for mitigation of negative environmental and cultural impacts rests with the project proponent.
8. If costs are incurred in connection with a project to produce an environmental gain for the project as a whole, it may be appropriate for alternative sources of funding (in addition to project money) to be used for that gain.
9. Existing laws and procedures should be the basis for compensation to landowners adversely affected by a change in the existing condition.
10. Incentives should be developed to encourage landowners to voluntarily manage their land to achieve flood damage reduction and natural resource goals in order to avoid the need for additional regulatory controls.
11. A natural resource project should not exacerbate flooding.

Flood Damage Reduction Strategies

Accomplishing the broad flood damage reduction goals described above will require consideration of a full range of structural and non-structural strategies. Specialized strategies such as adequate flood warning systems and ring dikes will help prevent loss of human life and damage to farm structures, homes, and communities. Meeting other goals will require strategies that reduce overland flooding, provide storage, and/or maintain or provide adequate conveyance. The Work Group agreed that a combination of strategies may be needed to maximize the effectiveness of any particular strategy. These strategies potentially include:

1. Wet dams

- A dam constructed to maintain a permanent pool of water, while providing temporary storage of stream flows for flood control, may also provide wildlife habitat and recreation.
- Can be designed with gated or automatic draw-down control outlet structures.
- A constant source of inflow is needed for pool maintenance.)
- A management plan incorporating downstream predicted peak-flows is essential to maximize flood damage reduction potential.

2. Dry dams

- A dam constructed for temporary storage of stream flows during flood events.
- Can be designed with gated or automatic draw-down control outlet structures.
- Duration of designed storage depends on downstream channel capacity.
- A management plan incorporating downstream predicted peak-flows is essential to maximize flood damage reduction potential.

3. On-stream storage

- A structure placed across the cross-section of a stream's topography causing flood flows to form a pool.
- Utilizes existing landscape features to maximize control capability.
- May cause alterations to pre-project plant communities in a summer storm event.
- Allows for control of flows from entire watershed above the point of construction.

4. Off-stream storage

- A storage structure placed adjacent to a water course to receive diverted flood flows.
- Potential for construction and effectiveness dependent on the area topography.
- Allows for maintaining a free flowing stream in non-flood flow conditions and can ensure a stream flow during flood events.

- Duration of storage can be extended to ensure maximum downstream benefits.
- Allows for control of flows from entire watershed above the point of construction.

Note: On/off stream storage can have either gated or un-gated outlet controls.

- with gated storage the project's management plan can adapt to future conditions.
- With fixed draw-down features, the release of stored water is fixed.

5. Flood storage wetlands

- An outlet control structure is constructed on previously drained wetland which may contain a permanent pool.
- Some natural wetland functions can be restored and maintained.
- Can reduce the run-off from a watershed's contributing area in direct relation to the size of the temporary pool created thereby reducing downstream discharges.
- Secondary goals may be wildlife enhancement, water quality improvement, stream flow stabilization, provide infiltration for groundwater recharge and reduce erosion.

6. Wetland restoration

- Wetlands restored to pre-drainage hydrology and appropriate native vegetation.
- May provide flood storage benefits based on hydrologic setting, outlet configuration, and antecedent moisture conditions.

7. River corridor restoration

- The area adjacent to a stream is restricted to non-rotational farming practices or within a city is designated as a green belt and zoned against building activity.
- Effectiveness based on degree of flow control accomplished.
- Can be effective in reducing stream-bank erosion and downstream sediment deposition.
- Provide a haven and travel route for wildlife.
- Reduces downstream flow velocities and allows for restoration of natural ecosystem.
- May provide additional floodplain storage during flood events.

8. Setback levees

- Levees (dikes) are built parallel to and a reasonable distance (e.g., meander belt width) away from water courses to contain flows and increase riparian storage of above-bank flows.
- Can prevent flooding of adjacent land and resulting cross-country sheet-flooding.
- May increase downstream flows by removing traditional routing and storage.
- May create an impediment to drainage of adjacent land and minor watershed outlets.

9. Riparian buffer strips
 - The land adjacent to streams is permanently seeded/planted to appropriate vegetation.
 - Reduces erosion and filter run-off from affected land.
 - Reduces cropland losses by taking land out of annual production.
 - Provides a haven/travel corridor for wildlife and access for stream maintenance.
10. Dredging and channelization
 - Channel modification or removal of accumulated sediment to increase channel capacity.
 - May increase downstream flows.
 - May reduce flooding due to increased channel flow efficiency and timing of discharge.
 - Disrupts stream ecology and equilibrium and may cause downstream erosion and sedimentation.
11. Storage easement
 - Compensation is paid to landowners for the public or private benefit of storing water on their land.
 - Offsets lost land value due to required land use change.
 - Provides an incentive for project development where needed.
12. Retirement of land
 - Converts land from agricultural production to permanent vegetation.
 - Reduces surface run-off during and/or after precipitation storm events.
 - Significantly reduces erosion of soil from affected area.
 - Provides for wildlife habitat.
13. Land use
 - Land use changes may alter downstream flows.
 - Increased areas of intensively cultivated crops may increase storm event run-off.
 - Land use changes are influenced by economics and federal, state, and local policy.
 - Flood plain land uses compatible with periodic flooding may accomplish flood damage reduction.
14. Best Management Practices
 - A practice or combination of practices that are determined to be the most effective and practicable means of treating a resource problem at levels compatible with environmental quality goals.
15. Gating ditches
 - Adjustable controls are placed on culverts in channels to regulate stream flow.
 - Topography of the affected area determines the technically appropriate control used.

16. Culvert sizing

- Graduated sizing of culverts within a ditch system to provide a degree of control.
- Equity is an important consideration.
- The smaller the drainage area is, the more effective culvert sizing can be in accomplishing meaningful, effective control.

17. Drainage

- Modification of the hydrology of the land by providing drainage-ways to convey surface or subsurface water from cultivated or occupied areas.
- Water conveyed by drainage of agricultural land in the higher elevation areas of a watershed may increase downstream flows.

PART III. NATURAL RESOURCE GOALS

This part of the agreement is intended to provide a clear statement from state, federal, and tribal agencies of goals for natural resource management in the Basin. It represents an effort by those agencies with natural resource management responsibilities to be proactive and explicit in identifying their goals. The natural resource agencies are conducting a comprehensive planning process, with residents and stakeholders of the Red River Basin, to develop water quality goals for the Basin. The resulting Plan, and goals, will be ready for implementation in September 1999.

The purpose of the natural resource goals is:

- to provide specific information about resource management objectives for incorporation in Watershed District comprehensive plans
- to assist Watershed Districts to seek balanced, integrated projects that serve multiple objectives and will provide flood damage reduction and natural resource and water quality improvement
- to facilitate permit decisions by having clearly stated natural resource and flood damage reduction goals
- to identify the benefits to natural resources that flood damage reduction activities can achieve. Such benefits should be recognized, quantified, and accounted for in evaluating net natural resource loss/gain.
- to promote clarity and agreement about the relationship between potential impacts on natural resources and impacts on flooding for individual flood damage reduction projects
- to provide guidelines for mitigation when damage to natural resources will occur as a result of a flood damage reduction action. To the extent that specific natural resource goals are articulated, acceptable mitigation can be more easily and realistically defined and identified.
- To promote appropriate cost allocation for projects according to potential benefits.

Natural resource management goals are necessarily fluid and dynamic. They will reflect variations among different watersheds as well as changes in natural conditions. Consequently, the goals identified in this agreement are subject to adjustment and refinement. They represent the best information available from the resource agencies at this time. Work Group members responsible for developing these goals commit to defining them as soon as possible for all watersheds in order to support the comprehensive watershed planning process.

Natural Resource Management Goals

1. Manage streams for natural characteristics.

a. **Natural stream characteristics**

- ☐ permanent vegetation in riparian corridor (meander belt width)
- ☐ channels with horizontal and vertical meanders
- ☐ stable bed load
- ☐ flow regimes that provide access to seasonably critical habitats for a variety of stream biota, with fish as a key indicator
- ☐ water free of chemical pollution
- ☐ connectivity from lower to upper reaches

b. **Bed stability objectives**

- ☐ establish a mix of bottom vegetation, substrates, pools and riffles consistent with natural fluvial processes and native biota needs (pools and riffles maintain oxygenation, provide resting, refuge and feeding areas for aquatic organisms, aid invertebrate production, and promote physical diversity)
- ☐ eliminate excessive degradation or aggradation of the channel slope
- ☐ eliminate the need for channel maintenance
- ☐ establish equilibrium of sediment transport throughout all reaches

c. **Habitat diversity objectives**

- ☐ maintain a self-sustaining, diverse biotic community that contains a variety of fish, mussels (critical indicator), birds and plants
- ☐ protect high-gradient (i.e., beach ridge area) reaches of streams
- ☐ maintain or reestablish connectivity of high gradient (i.e., beach ridge) streams with the mainstem Red River

d. **For unaltered (non-channelized) reaches of streams:**

- ☐ protect these reaches from alteration
- ☐ restore a more natural annual hydrograph
- ☐ maintain/establish connectivity with up- and downstream reaches
- ☐ maintain/establish riparian vegetation within the meander belt width

e. **For altered reaches of streams:**

- ☐ promote restoration toward natural characteristics
- ☐ increase or reestablish connectivity with up- and downstream reaches

f. **For ditches (no prior watercourse):**

- ☐ establish stable slopes and implement other measures to reduce sedimentation contribution
- ☐ maintain or establish minimum 1 rod buffer zone

2. Enhance riparian and in-stream habitats.

a. **Riparian corridor objectives**

- ☐ preserve and enhance riverine forest cover along _ 80% of riparian corridors, consisting of mixed native tree and shrub of various age and size classes
- ☐ protect and restore riparian wetlands and perennial vegetation within the meander belt width of streams
- ☐ perpetuate a component of prairie and savannah communities within riparian corridors, especially along less-meandering west banks historically exposed to wildfires
- ☐ provide a suitable complement of forest snags and large woody debris for wildlife habitats, soil nutrient replenishment, tree regeneration substrates, etc.
- ☐ manage for an unbroken riparian forest canopy, with only small gaps or patches left after harvesting trees
- ☐ preserve a substantial component of large, old trees in riparian forests
- ☐ establish native species of permanent vegetation along ditch, stream, and river banks to filter runoff, reduce erosion, and provide wildlife cover
- ☐ produce quality saw timber and other forest products from riparian forests; typical yields may be 2-4MBF/acre of saw timber and 5-15 cords/acre of firewood
- ☐ incorporate riparian areas into watershed-wide connective corridors among parks, wildlife management areas, and other natural areas
- ☐ establish permanent vegetative cover around wetlands and next to all ditches, drainages, and streams to filter runoff and provide some wildlife cover

b. **Fisheries management objectives**

- ☐ use DNR's Stream Management Plans as the basis for defining the fisheries management objectives for Basin streams
- ☐ modify the process of developing these plans to include additional input from other resource management agencies and appropriate stakeholders
- ☐ complete Stream Management Plans for all major drainageways in the Basin

3. Provide diversity of habitats (size, shape, connectivity) for stable populations to thrive over a long period of time.

a. **Wetland management objectives**

- ☐ develop wetland restoration goals based on primary wetland functions (e.g., fish and wildlife habitat, water quality, flood control) and location

- within the Basin (e.g., the northern or southern part of the Basin, and the valley floor, beach ridge and moraine areas of the subbasins)
- ☐ the North American Waterfowl Management Plan goals suggest that in order to restore wetland habitat functions 10 percent of the original wetland acreage should be restored (However, the percent wetland restoration goal for any subwatershed must be based on the specific hydrologic and land use characteristics and the management priorities for that area. Analysis of Basin streamflow data suggests that subwatersheds with no wetland storage can receive substantial flood control benefits if wetland storage is restored.)
 - ☐ restore or mitigate all drained wetlands on state lands
 - ☐ promote the restoration of drained wetlands on private lands
 - ☐ refer to 2a. above for restoration objectives for riverine wetlands
 - ☐ identify specific, quantitative goals for wetland restoration in concert with the development of comprehensive, watershed management plans
 - ☐ maintain a substantial component of diverse sizes and types of wetlands in large complexes across the Basin, including seepage zones within the beach ridge complexes

b. Prairie management objectives

- ☐ approximately 54,000 acres of native prairie and buffer lands in the Red River Basin are identified for protection under the National Tallgrass Prairie Project
- ☐ preserve remnants of native tallgrass prairie to ensure protection of unique plant communities, native fish and wildlife, and historic and cultural sites
- ☐ simulate natural disturbance patterns on the prairie complexes
- ☐ provide opportunities for native flora and fauna to disperse, migrate, colonize, and/or mix genetic varieties among prairie complexes in the watershed
- ☐ restore prairie vegetation in proximity to existing prairie tracts
- ☐ develop a series of large prairie complexes throughout the Basin (a few in each county), including both beach ridge areas and interbeach wet prairies
- ☐ enhance some of the best remaining degraded remnants of tallgrass prairie through management practices (burning, grazing, etc.) and interplanting or seeding of native species
- ☐ enhance associated natural wetland habitats including prairie wetlands, fens, wet prairie, and riverine areas
- ☐ reconstruct areas of tallgrass prairie using native plant species to buffer or connect native prairie tracts
- ☐ conserve, manage, and restore diversity and viability of native fish and wildlife populations associated with tallgrass prairie

- ☐ provide public areas for compatible wildlife-dependent uses, emphasizing increased public understanding of the tallgrass prairie
 - ☐ use technical assistance and cooperative partnerships between federal, state and local governments, non-governmental organizations, and private landowners
5. Provide connected, integrated habitat including compatible adjacent land uses.
- ☐ connect complexes of river, woodland, wetland and grassland habitat to promote biodiversity and genetic diversity of species
 - ☐ see 2a
6. Enhance or provide seasonal flow regimes in streams for water supply, water quality, recreation, and support of biotic communities.
- ☐ use Protected Flow Regime Package process to identify optimal base flow and low flows for Basin streams
 - ☐ increase the coordination among water management agencies and other appropriate stakeholders in setting flows using this process
7. Provide recreational opportunities.
- ☐ enhance recreation in tributary corridors and the Red River of the North main stem
 - ☐ reduce low head dam hazards
 - ☐ increase stream fishing opportunities
 - ☐ develop additional railroad grade trails
 - ☐ expand the grant-in-aid trail network in Norman and Clay Counties
 - ☐ develop canoeing infrastructure (e.g., access sites, camping, picnicking areas) in partnership with other agencies and organizations
8. Improve water quality, including
- ☐ reduce erosion
 - ☐ reduce toxics
 - ☐ reduce sediment
 - ☐ reduce nutrients
 - ☐ provide drinking water source protection
9. Protect groundwater.
- ☐ identify sensitive groundwater areas
 - ☐ establish sensitive groundwater area protection programs in conjunction with relevant state and local government agencies
 - ☐ establish and maintain suitable monitoring well networks where needed
 - ☐ establish and support improved methods for delineating aquifers and determining aquifer parameters
 - ☐ identify and protect sensitive aquifer recharge areas

10. Manage lakes for natural characteristics.

- ☐ enhance or restore aquatic vegetation
- ☐ minimize shoreland grading and alterations of topography to prevent soil erosion and nutrient entrapment, and to protect aesthetics
- ☐ maintain or restore a buffer of native vegetation, at a minimum, within the shore impact zone
- ☐ modify artificial barriers to promote fish migration where appropriate
- ☐ maintain or enhance aquatic populations appropriate to a lake's physical and chemical characteristics
- ☐ protect or enhance critical habitat for aquatic species (e.g., spawning habitat), nongame, and rare and endangered species
- ☐ promote operable controls (e.g., gated structures) to optimize fish and wildlife values on legally designated fish or wildlife lakes
- ☐ enhance or maintain wildlife habitats
- ☐ reduce nutrient loading, including from failing sewage treatment systems
- ☐ achieve fishability and swimability standards

PART IV.
COMPREHENSIVE WATERSHED PLANNING PROCESS

A comprehensive watershed planning process is essential for achieving the flood damage reduction and natural resource goals set out in this agreement. The next generation of comprehensive watershed plans for each of the Basin's nine watershed districts offers a unique vehicle for coordinating efforts to achieve these goals. The Work Group agrees to use this process, and to incorporate the following principles into the design of flood damage reduction strategies. A copy of the proposed administrative guidelines for the Red River Basin watershed district comprehensive planning process, administered by the Minnesota Board of Water and Soil Resources, is attached as an appendix to this agreement. These guidelines will be refined after further coordination with stakeholders.

Watershed Planning Principles

1. Comprehensive watershed management plans should be consistent with the goals and principles adopted by the Work Group.
 2. Comprehensive watershed management plans need to be practical and implementable.
 3. Comprehensive watershed management plans should propose goals/initiatives that are economically and ecologically sustainable over the long term and are culturally sensitive.
 4. Appropriate and consistent water quality and quantity models of all tributary watersheds are an essential tool for planning.
 5. Information used in the comprehensive planning process should be available and accessible to the public.
 6. The comprehensive watershed planning process should be used to address changes to the flow regime resulting from increased development and land use change.
 7. Comprehensive watershed planning should promote multiple natural resource benefits.
 8. Comprehensive watershed planning should identify flood damage problems to be addressed by flood damage reduction projects.
 9. Comprehensive watershed plans will include explicit flood damage reduction and natural resource goals and an annual process for evaluating and reporting progress toward those goals.
-

PART V. PROJECT REVIEW AND PERMITTING PROCESS

The Work Group has agreed on a comprehensive Project Review and Permitting Process. This new process is intended to stimulate fundamental changes in the way flood damage reduction projects are planned and in the system for permitting those projects. This process applies to projects that address substantial water management or resource management problems and/or that would benefit from early and on-going stakeholder communication and collaboration.

Flood damage reduction projects in the Basin are subject to a permitting system based on both state and federal law. The U.S. Army Corps of Engineers St. Paul District has federal regulatory authority and the Minnesota Department of Natural Resources and Minnesota Pollution Control Agency have state regulatory authority over most flood damage reduction and natural resource development projects in the Red River Basin. In addition, the Corps of Engineers has responsibility for adherence to National Environmental Policy Act requirements, and state and local agencies have responsibility for adherence to Minnesota Environmental Policy Act requirements as they apply to specific projects. The agencies as stated in the cumulative EIS (Section 6.4.1c) agreed to do joint processing for projects in the Red River Basin.

The Work Group recognizes that the permitting process for flood damage reduction projects has become a forum for conflicts over important interests and public policy goals in the Basin. Stakeholders perceive a lack of certainty and finality for permit requirements and experience costly delays in responding to information requests. Stakeholders seek clarity from state agencies about their policy goals and a commitment to permitting timelines. They also seek some mechanism for making informed decisions about resource allocation that reflect the likelihood of project approval by permitting agencies. Agencies seek cooperation from stakeholders in harmonizing natural resource protection and enhancement with flood damage reduction. Public interest groups have felt excluded from the project planning process in watershed districts and from state agency permit evaluation and decision making. These groups seek expanded involvement in the project planning and permitting process.

The U.S. Army Corps of Engineers must protect its regulatory independence, but recognizes the potential benefits of early coordination and planning of flood damage reduction projects that is consistent with federal law. Before the Corps of Engineers can issue a permit the applicant must clearly demonstrate that there are no other practical project locations or methods that would avoid or minimize environmental impacts such as wetland/water losses. After the avoidance and minimization criteria are satisfied, compensatory mitigation is usually required that would replace the unavoidable wetland area/value loss to

the maximum extent practical. Additionally, a permit cannot be issued if the Corps determines that the project would have a significant, adverse effect upon aquatic resources or is contrary to the public interest.

The new process is set out below.

BASIC ASSUMPTIONS

1. The mediation process will yield a set of broad goals for flood damage reduction and natural resource management in the Basin that will guide subsequent watershed planning, project development, and permit process decisions.
2. The project development, review, and permitting process will be preceded by established, coordinated watershed management plans. The next generation of these plans will incorporate the broad goals and other consensus agreements resulting from the mediation process and will be developed with full participation from all relevant stakeholders.
3. Involvement of all stakeholders in early coordination is essential to the success of the process. A key to success is partnering, a means for all the stakeholders to work together, to educate respective publics, and to obtain funds to make sure that an integrated plan works.
4. The identification of data and information needs for regulatory decisions must occur early in the process.
5. Federal, state, and tribal agency coordination must be improved.
6. Monitoring and evaluation is an essential component of the project review process.
7. A project team will work with the project from formation to the conclusion of either build or end. A project team consists of appropriate stakeholders (see Step 1B), including at least one designated contact person from each agency.
8. This process is designed to provide increasing likelihood of project approval as each step is completed.
9. The Corps of Engineers will participate in the early coordination conference by presenting information on Corps programs, presenting Corps studies ongoing in the basin, and participating in discussion of potential solutions to basin problems and of potential partnering arrangements. The Corps' regulatory process will run concurrently with the Project Review and Permitting Process. A Corps representative, as authorized by the District Engineer, will serve as liaison to the project team to ensure that the Corps regulatory process and that of the State run cooperatively and concurrent to the extent possible. The Corps in cooperation with its local sponsor will put forward its studies and projects located within the Red River Watershed Management Board geographic area to those portions of this process that are associated with project planning.

PROCESS STEPS

STEP 1: EARLY COORDINATION

- A. The Red River Watershed Management Board has agreed to modify the focus of its annual conference to serve as the workshop for the purpose of hearing presentations from watershed districts, resource management agencies, and non-governmental organizations regarding their top priority problem areas with flood damage or resource management needs that will be addressed by projects in the coming year. The focus is a holistic one concerning all aspects of watershed management and will be an opportunity to build partnerships among all participants.
- B. The participants will include the watershed districts, state, federal and tribal agency personnel, local government officials, affected landowners and interested citizens and interest group representatives. Agency personnel will be assigned participation as part of their position description.
- C. The Red River Watershed Management Board will consult with the Work Group to plan the conference.
- D. At least 30 days prior to the conference the conference sponsor will send to all invitees written material that describes the presentations to be made regarding problem identification and possible alternative solutions considered.
- E. Conference participants will be given the opportunity to discuss the problems or issues and the proposed alternatives for addressing them. In all cases participants must seek solutions consistent with the broad goals for flood damage reduction and natural resource management as defined in the mediation process and in watershed management plans.
- F. The outcome will be broad agreement on the problems to be addressed and the preliminary identification of feasible alternatives for further investigation. Concept documents, one for each problem area, will identify the problem to be solved, an array of potential alternatives, and a list of project team members.
- G. The conference may also include status reports on specific projects that are further along in the approval/implementation process.

STEP 2: PROJECT PLANNING

- A. The project team meets to evaluate alternatives identified in Step 1,

formulate new alternatives as necessary, and identifies their preferred alternative(s), using an evaluation process that is consistent with the flood damage principles identified in Part II. At this stage in the process, the Corps of Engineers will not be able to participate in selection of a preferred alternative.

- B. The project team identifies data and information needs for the environmental review associated with the review and permitting process. The use of "Information Required to Evaluate Most Impoundment Projects" and other sources or checklists will be used where appropriate and available.
- C. The project team collaborates with the Responsible Governmental Unit (RGU) to help prepare an environmental assessment worksheet (EAW) for the preferred alternative.
- D. The RGU publishes an EAW for the proposed project which includes the preferred alternative, other alternatives considered, proposed mitigation for any adverse effects, and operating plans, if the project involves on-going operation.
- E. Permit applications are submitted to regulatory agencies along with information and data needs identified in Step 2B.

STEP 3: PUBLIC REVIEW

- A. The EAW developed in Step 2 is processed through normal public review channels.
- B. Each watershed district with proposed projects will conduct public review meetings for all interested persons to hear and comment on engineers' and resource managers' preferred project alternatives. The watershed district will keep a formal record of the meeting. In some cases, a RGU-Federal-State joint public meeting will be held.
- C. The RGU consults with the project team at the end of the public review period to determine the need for an environmental impact statement (EIS).
- D. The RGU issues a negative declaration (Finding of No Significant Impacts, FONSI) or an EIS preparation notice.

STEP 4: PRELIMINARY ENGINEERING (EIS PREPARATION)

- A. Regulatory agencies identify additional information needs to supplement that identified and collected as a result of STEP 2B. The same tools are used to assist in this step. The project team meets with the project proponent to

reach a mutual understanding on information requirements.

- B. If an EIS is required for the project, the preparation of the EIS by the RGU is conducted during this time and runs parallel to the other elements of this step. The EIS will be consistent with federal environmental review requirements.
- C. Project proponents prepare draft preliminary engineers report with enough information and analysis to determine project feasibility.
- D. The project team reviews and comments on the draft preliminary engineers' report.
- E. Project proponents make necessary revisions to the preliminary engineers' report and resubmit it to the reviewing agencies for formal review and comment.
- F. The product of this step is concurrence of the project team on the adequacy of the preliminary engineers report and the adequacy of the Final EIS, if one is prepared.

STEP 5: PROJECT PERMITTING

- A. Notice by State Agencies. For certain classes of public waters projects, a preliminary decision on a permit is published in legal newspaper in the county where the project is proposed. The preliminary decision and a copy of the draft permit is distributed to those listed on an appropriate public mailing list by the regulatory agency. Projects developed through this planning and permitting process which are subject to this notice requirement include filling of over 200 cubic yards (excluding shore protection), excavation of over 200 cubic yards, new water level controls, and drainage ditch improvements or new public drainage ditches.
- B. State of Minnesota Contested Case Hearing. A request for a contested case hearing on the draft permit with supporting documentation may be made to the permitting agency. A contested case hearing will be held if:
 - 1) there is a material issue of fact in dispute concerning the matter pending before the agency;
 - 2) the agency has the jurisdiction to make a determination on the disputed material issue of fact; and
 - 3) there is a reasonable basis underlying the disputed material issue of fact such that the holding of a contested case hearing would allow the introduction of information that would aid the agency in resolving the disputed facts in making a final decision on the matter.

- C. Final decision. Regulatory agencies make final permit decisions. Decisions are based upon applicable statute and rule, and shall be consistent with existing flood damage reduction and resource management policy goals developed through the mediation process and approved watershed management plans to the extent authorized by the controlling law. Any permit requirements or project modifications should be reviewed by the project team before being finalized in the permit.

STEP 6: FINAL PROJECT DESIGN

- A. Project proponent prepares final engineers' report.
- B. For projects initiated by a watershed board, a public review meeting is held.
- C. Project proponent prepares final project design plans.
- D. Project proponent makes a final build/no-build decision.

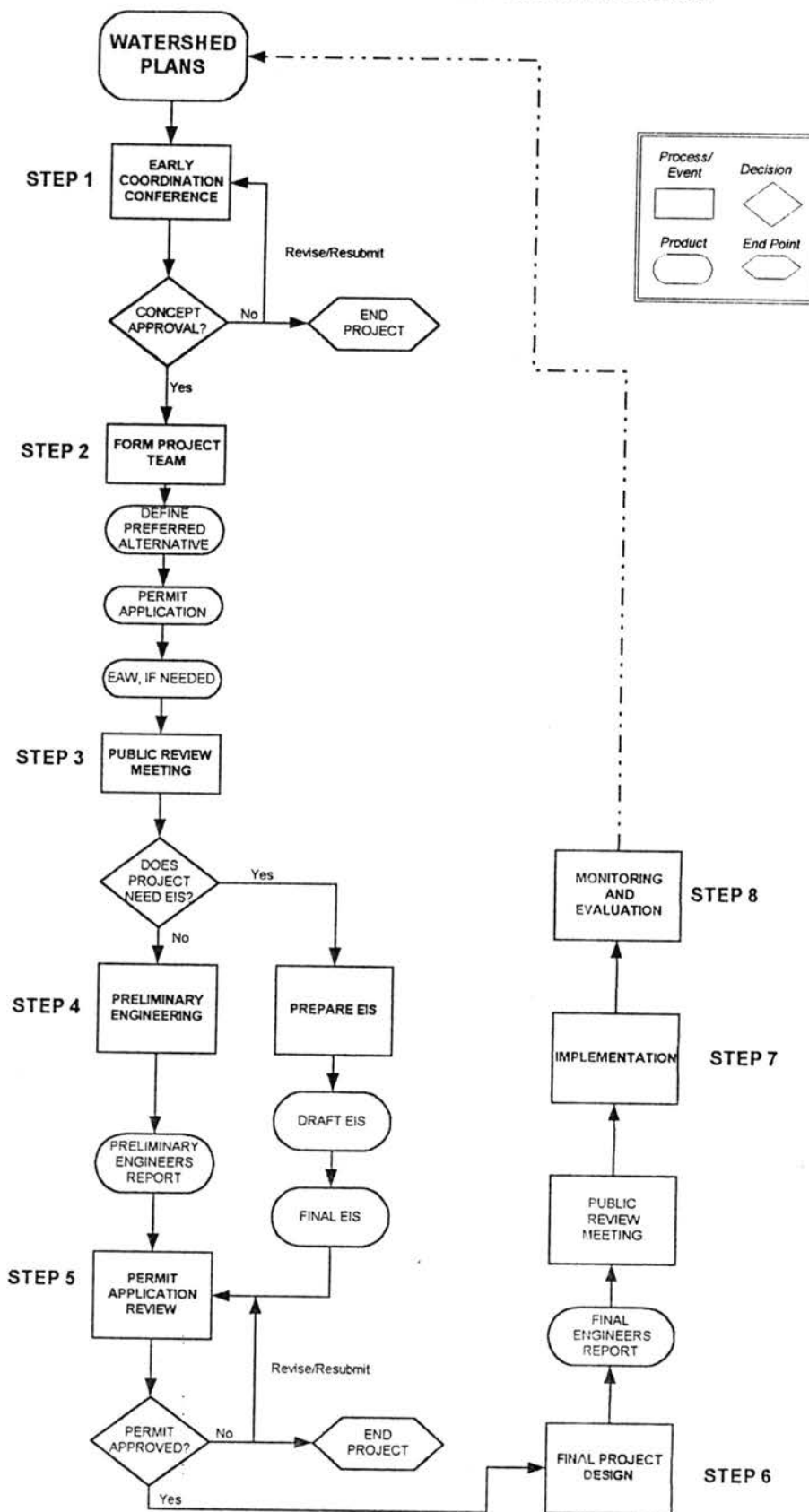
STEP 7: IMPLEMENTATION

- A. Project proponents constructs project.

STEP 8: MONITORING AND EVALUATION

- A. The project team should conduct construction monitoring and post-construction monitoring for the purpose of ensuring compliance with design parameters and measuring the effectiveness of the project in meeting the hydraulic and environmental goals initially identified. It includes responsibilities for maintaining and communicating the data developed during the monitoring process. All these activities will be defined during the permit process and incorporated in project permits.
- B. Project team recommends adjustments in any operating plans as necessary.

PROJECT REVIEW AND PERMITTING PROCESS



PART VI.

IMPLEMENTATION AND CONFLICT RESOLUTION

Implementation

The Work Group recognizes the importance of establishing a mechanism to ensure implementation of this agreement. With this goal in mind, the Work Group agrees to continue the current stakeholder group beyond the scheduled end of the mediation.

The continuing Work Group will be composed of current mediation Work Group members in order to promote continuity, build on the relationships established during the mediation, and benefit from the shared knowledge base of stakeholders. Leadership of the Work Group will be vested in co-chairs from the Minnesota Department of Natural Resources and the Red River Watershed Management Board, who will rotate responsibilities on a schedule to be determined

Meetings will be held, at a minimum, quarterly for the first year, beginning after the scheduled March 1999 Red River Watershed Management Board conference, and at the discretion of the Work Group thereafter.

The Work Group should arrange for independent technical and scientific consultation similar to that provided by the Technical and Scientific Advisory Committee to the mediation Work Group. While consultants may come from within state and/or federal agencies, such consultation should be independent of agency review and permitting processes and of agency policy constraints.

Funding for the Work Group must be addressed promptly. Reimbursement mechanisms for stakeholders may depend on formalization of the Work Group. Funding for support services and meeting space will be needed, as well as for technical and scientific support.

Conflict Resolution

One aspect of the agreed purpose for the mediation is to develop fair and effective procedures to resolve future conflicts related to flood damage reduction. The mediation Work Group believes the collaborative nature of negotiations leading to this agreement indicates that the continuing Work Group is an appropriate forum for fairly and effectively addressing conflicts over implementation of the agreement. The Work Group commits to using the following general approach for resolution of future conflicts associated with implementation of this agreement.

- ☐ Use the new planning and permitting process to prevent and resolve disputes.
- ☐ When existing or new procedures are not successful, bring issues to the Work Group for resolution.

PART VII.
PROPOSED FUNDING STRATEGIES

Accomplishing the flood damage reduction and natural resource management goals listed above will require an integrated, long-term funding program. The Work Group's preliminary estimate to achieve significant progress toward accomplishment of the flood damage reduction and natural resource goals within a fifteen-year period is \$250,000,000.

Based on this preliminary estimate, the Work Group believes that an initial biennial appropriation to begin the implementation should be \$9,000,000 for planning, flood damage reduction, natural resource management, and research and assessment. This proposed appropriation is intended to reflect a realistic schedule for project implementation in a two-year period. It is understood that state funds would be used in combination with standard local funding sources to achieve short-term objectives. The Work Group anticipates that future biennial requests will increase to achieve the fifteen-year goal.

The Work Group agrees to pursue a joint strategy in the Legislature in the coming Legislative session. In addition, the Work Group will continue to develop its fifteen-year strategy for implementation.

PART VIII.
SIGNATURES*

By their signatures, representatives of federal and state agencies and entities participating in the Work Group commit their respective agencies and entities to active support for this agreement and its implementation. Representatives of non-governmental organizations make the same commitment, and agree to support the agreement to their members and the broader NGO constituency. Stakeholders signing in an individual capacity also commit to active support for the agreement and its implementation.

Minnesota Department of Natural Resources

Ronald Hargrove

Red River Watershed Management Board [4]

Daniel Wilkins *Jerome Deal*
Donald Ogden *Kevin Johnson*

National Audubon Society

Chris Smith

Minnesota Center for Environmental Advocacy

Mark Ten Eyck

U.S. Army Corps of Engineers

Board of Water and Soil Resources

David Hornsby

U.S. Fish & Wildlife Service

Rollin Seyfried / for John Blankenship

Minnesota Pollution Control Agency

Jeff Lewis

Paul Bergen

Paul Bergen

Gerald Van Amburg

Gerald Van Amburg

* Three of the original Work Group members were unable to participate through the end of the mediation process.

(SECOND DRAFT -CONCEPT-12/7/98)
ACHIEVEMENT OF
FLOOD DAMAGE REDUCTION AND
NATURAL RESOURCES
GOALS

INTRODUCTION:

As the Flood Damage Reduction Work Group approached the latter stages of its work, concern surfaced on the fruitfulness of the mediation process in setting the stage for meaningful results. Is the agreement one that one should sign up to and support? How does one respond to inquiries as to what it means to them? How do we address the skepticism that is likely to surface? Four primary questions were identified relating to this concern. They are presented following this paragraph with brief answers. A more expanded discussion of a possible implementation strategy is then presented. This information is conceptual in nature and is not intended to be "The Implementation Strategy." The intent rather is to initiate discussion on implementation.

- ♦ Where are we today? If 1999 (or 2000) is considered the basis, from which progress toward the goals will be measured, then in a relative sense we are at ground zero. As part of implementation, the base condition should be defined (and projected into the future) so that progress toward the goals can be measured and a level of investment estimated.
- ♦ Where will we end up? Where we end up depends on several variables including definition of the desired future condition, the time period, priorities, and the intensity of investment. These variables need to be reasonable and compatible in accomplishment of both sets of goals. What is hoped is that the agreement initiates a process that is open-ended and flexible, one which will allow advocacy for fixing these variables as desired, but also for adjusting them to the reality of the cards dealt. Goals are refined or changed in response to new information or changed conditions. New objectives are established as current ones are achieved.
- ♦ How long will it take (and how much will it cost)? A rough estimate is fifteen years (2000—2015) at a cost of \$250 million to achieve a substantial bite of both sets of goals and put in place the data collection systems and tools for on going management. This would require timely fruition of an implementation strategy. Potential sources include:
 - Local tax revenues.
 - DNR Flood Damage Reduction Grants.
 - BWSR Flood Easement Program.
 - BWSR Watershed Planning Funds.
 - DNR Alternate Environmental Enhancement FDR.
 - Other Standing State Programs.
 - Standing Federal Programs - COE, FWS, NRCS, EPA, USGS.
 - Special State Authorization and Appropriation.
 - Special Federal Authorization and Appropriation.
 - Non-governmental funding sources.

A large investment (\$250 million) over a relatively short period of time (15 years) would provide the resources and intensity to address the full range of goals for both flood damage reduction and natural resources. Although this investment, even at this magnitude, would not fully accomplish all goals, it is substantial enough to significantly change the character of the region's response to floods and of the natural resources. It is recommended that over the next few months, first for presentation at the transition meeting in January and then for presentation at the annual meeting in March, more be done to define the level of investment needed to make substantial progress toward achievement of both sets of goals.

- ♦ How are we going to get there? The remainder of this paper describes one implementation scenario.

ELEMENTS OF IMPLEMENTATION:

The following are elements of implementation, which are followed by a discussion of implementation in terms of a fifteen-year timeline.

- ♦ Establish a process for on going planning and implementation. The agreement outlines one aspect of the process. Other aspects of the process exist or are being developed through other mechanisms, such as the RRWMB and the RRBB.
- ♦ Align to a common vision. Common vision is one where Red River parties see how their particular interests can be achieved within a broader context, one that has appeal to the full range of interests in the Red River Basin. The effort to build a common vision is never ending, but becomes more refined through on going experience, education, and communication. The vision should be reflected in each District Watershed Management Plan. The following are some of the contributors that shape the vision:
 - RRBB
 - TIC
 - RRWRC
 - RRWMB
 - Watershed Districts
 - Watershed Management Plans
 - Local and Tribal governments
 - IJC Study
 - Red River Mediation
 - Consensus Council
 - State and Federal Agencies – plans and programs
 - Government regulation
 - Special interests
 - Project initiatives
- ♦ Achieve consistent and compatible leadership at the local, state, and federal levels of government.
- ♦ Investigate achievement of the goals from two perspectives: (1) from the perspective of each watershed district, and (2) from the perspective of the whole basin. This aligns with the basic governmental unit responsible for planning and implementation, yet, recognizes that optimum results will require a basin approach as well.
- ♦ Use District Watershed Management Plans as the primary tool for guiding development. The Watershed Management Plans provide the means for coordinated and consistent development within the watershed and basin and in communicating with the numerous Red River interests.
- ♦ Understand the current (base) condition. Supplement currently available information/systems.
 - Inventory flood damage areas consistent with the flood damage reduction goals.
 - Inventory natural resources consistent with the natural resources goals.
 - Develop a decision support system.
 - Determine measurement needs.
 - Develop hydrologic models for each watershed subsystem and integrate with the main stem model.
 - Define the future condition if current conditions (trends) proceed without intervention.
- ♦ Define the desired future condition. Define the desired future condition in hard numbers consistent with the broad goals laid out in the agreement. Other parameters such as the time period, priorities,

and the intensity of investment, will also need to be determined so that they are compatible in achievement of the desired future condition.

- ◆ Seek commitment of resources toward achievement of the desired future condition. Use standing authorities and appropriations, supplemented with added State funds, to achieve early successes. Seek special authorization and appropriation to achieve a more intensive commitment over the latter ten years. During early years, projects, which use standing authorities and have worked themselves through the process laid out in the agreement, would be implemented. Concurrent with implementation of projects through standing authorities, more comprehensive initiatives would be initiated through Federal-State-Watershed partnerships. Reconnaissance and feasibility studies would be used to seek appropriation of Federal and State funds for implementation of projects. The studies would be structured to fill data gaps, develop or refine tools, define the base condition, define the desired future condition, design projects, and build partnerships. The last ten years would be an intensive implementation period paid largely through Federal and State funds. This would bring to closure the fifteen-year period with the hopes of a record of significant accomplishment. Progress toward the goals, however, would continue through other funding sources and initiatives.
- ◆ Achieve the desired future condition through projects derived from planning at multiple levels such as planning for local protection; minor watershed planning leading to several projects; major watershed planning leading to many projects; and a basin approach leading to larger projects having impact on the main stem.
- ◆ Achieve early results through concurrent action on the preceding elements and by building on the wealth of knowledge, accomplishments, and initiatives currently available in the basin. All elements can be started concurrently. Adjustments can be made as new information comes available.

TIMELINE FOR IMPLEMENTATION:

1999 - 2001:

- ◆ Complete a District Watershed Management Plan, which can be used as model for all Districts.
- ◆ Initiate individual projects using standing authorities.
- ◆ Request congressional authorization for a reconnaissance study or studies. The study would be funded at \$1+ million. The reconnaissance study in addition to laying out federal participation would be structured to serve as a useful product in and of itself by filling information needs and aligning to the nine watersheds. The outputs could include Watershed Management Plans for the remaining Districts. The reconnaissance study would lay the groundwork for a joint effort by the Watershed, State, Federal, and other Red River interests.

2001--2003:

- ◆ Continue work on projects through standing authorities.
- ◆ Complete reconnaissance study and use as a basis for requesting authorization for feasibility study.

2003--2005:

- ◆ Continue work on projects through standing authorities.
- ◆ Complete the feasibility study or studies. In addition to defining the degree of Federal participation during implementation, the studies would be structured to serve as a useful product in and of themselves by providing needed information and data, a decision support system, hydrologic systems models, NEPA compliance, and project designs consistent with local preferences. The feasibility studies would result in an update of the Watershed Management Plans.

2005—2015:

- ♦ Implement Watershed Management Plans consistent with State and Federal funding commitments.

Post 2015:

- ♦ The special authorization will have been fully executed.
- ♦ Assess the state of the basin relative to achievement of goals.
- ♦ Continue work toward goals through standing authorities at a reduced level of investment
- ♦ Establish new goals as warranted.

(SECOND DRAFT-CONCEPT-12/7/98)

DRAFT IMPLEMENTATION FUNDING

based on a 15 year - 250 million dollar effort (revised 12/11/98)

Assumptions:

- a) currently authorized projects not included
- b) does include urban and rural flood damage reduction efforts
- c) does include natural resources efforts
- d) does include planning efforts
- e) does include research and assessment efforts
- f) does include continuation of a technical & scientific team
- g) does not include potential federal funding

PLANNING:

- a) completion of 9 next generation plans in 5 years
\$200k per district - 50/50 state/district share;
2fte/BWSR \$ 310,000

FLOOD DAMAGE REDUCTION:

- a) 75% of effort for structural and nonstructural
damage reduction efforts; \$186M/15yrs
50/50 state/district share; \$12.4M/yr
\$6.2M state/yr-\$6.2M district/yr \$ 6,200,000

NATURAL RESOURCES:

- a) 25% of effort for natural resources;
75% state & 25% district share;
\$62M/15yr; \$46.5M/15yr state-\$3.1M/yr
\$15.5M/15yr district - \$1.0M/yr \$ 3,100,000

RESEARCH & ASSESSMENT

- a) technical & scientific advisory committee;
- b) research and assessment of technical and
scientific issues \$ 150,000

TOTAL/YR-STATE \$ 9,760,000

Other considerations:

- 1) This amount can be reduced by the amount that is "base" \$'s in DNR's & BWSR's current general or capitol budget for the Red River.
- 2) The Red River Watershed Management Board may be limited in thier capability meet thier match using a 15 year timeframe.
- 3) Federal program \$'s may be available for some specific projects.
- 4) DNR, BWSR and RRWMB will refine these numbers for inclusion in a biennial budget and capital budget request.

12/1/98

LAKES: RESOURCE AT RISK

Lakes are under tremendous pressure. Despite their abundance and value, Minnesota lakes face tremendous pressure from shoreland and watershed development, expanding uses and users, the spread of exotic species, and water pollution.

- * Shoreland/Watershed Development and Use - Shoreland and watershed development increases runoff, removes critical habitat which degrades water quality, impacts fish and wildlife and scenic qualities.
- * Exotic Species and Aquatic Plant Management - Exotic species displace native plants and animals and excess nutrients cause overgrowth of undesirable aquatic plants. This combined with pollutant inputs upsets the delicate balance required for a healthy lake.
- * Water Pollution - Excessive nutrients and sediments in runoff from cultivated lands, feedlots, urban storm water, and point source discharges contribute to degraded water quality in lakes. Atmospheric deposition on lakes and their watersheds is a primary source of toxic pollutants such as mercury and PCB's, which concentrate in the food chain.
- * Expanding uses and users - Increasing numbers of lake users and the ever-increasing variety of watercraft and competing recreational uses can lead to surface water conflicts, detract from natural values, and impair the overall ecology of lakes.
- * Lake economy - Minnesota's lakes generate 2 billion dollars per year for the state's economy. Lakes are the cornerstone of the recreation and tourism industry and a significant portion of many local economies. However, the State spends less than \$7 million per year directly on lake protection and management. Until now we have not focused resources on achieving a sustainable future for these valuable lake resources.

WHAT OCCURS IN THE NEXT 10 YEARS WILL DICTATE THE STATE OF MINNESOTA LAKES FOR THE NEXT 100 YEARS.

The strategy for the next ten years is:

- I. Define policy that supports a sustainable lake future;
- II. Streamline access to state agency lake protection services; and
- III. Build local capability and capacity to lead lake protection and management.

I. To define policies to sustain Minnesota lakes for the future, a Lakes Advisory Council will be established to advise on the development of a Lakes GEIS, recommend policies to sustain Minnesota lakes and provide a forum to advise the commissioners and other organizations on research, education and other lake management topics:

- \$1.64/.14 • The EQB will lead the development of a generic environmental impact statement (GEIS) on lakes to formulate State policy that will sustain and improve the quality of Minnesota's lakes.
- Review and recommend funding of research needs.
 - Recommend allocation of funds for lake assessment and management.
 - Recommend an education program for lake protection and improvement.
- The Lake Advisory Council would include representatives from local government, lake related interest groups, trade organizations, the U of M and state agencies.

II. To improve access and coordination state agency services and programs for lakes, the following actions will be taken:

- There will be a single consolidated application for state lake and watershed programs.
 - 5-6 regional interagency lake teams will be formed around the state.
 - Improve access to state lake and watershed data through a consolidated web site.
- \$.15/\$.15 • Complete geographic information system maps of lakes and watersheds.

III. To build local capability and capacity to lead lake protection and management efforts. This includes two parts: 1) Education and 2) Lake Assessment and Management.

- \$3.0/\$2.0 1. **Education** - building awareness, stewardship and capability through:
- Training focused on developing lake leaders.
 - Development and delivery of educational materials.
 - Professional training for future lake managers.
2. **Lake Assessment and Management** - providing financial and technical assistance to local governments to assess lake conditions, plan for lake protection and implement lake protection and management on a watershed basis.
- Lake assessment and management grants to local governments.
 - On-site wastewater grants to local governments.
 - Technical support to local governments from state agencies.
 - Financial and technical assistance to local governments for watershed based lake protection and improvement projects.
 - Shoreland and watershed best management practices cost-share.
 - Acquisition and preservation of critical shoreline.
 - Incentives for protection of undeveloped shoreline.
 - Control of exotic species such as Eurasian water milfoil and zebra mussels.
 - Improved management of shallow lakes.
 - Demonstration of lake-friendly agricultural management practices.
 - Research on lake related issues

\$37,290,000/\$27,790,000

Minnesota Board of Water and Soil Resources
One West Water Street, Suite 200
St. Paul, Minnesota 55107

In the Matter of Changing the Boundary of
the Buffalo Creek Watershed District in McLeod
County pursuant to Minnesota Statutes Section
103D.251 Subd. 6.

**ORDER
BOUNDARY CHANGE
HEARING**

Whereas, more than fifty (50) resident owners residing in the Buffalo Creek Watershed and City of Stewart in McLeod County filed a petition dated October 13, 1998 with the Board of Water and Soil Resources (Board) on October 16, 1998, to change the boundary of the Buffalo Creek Watershed District and the High Island Watershed District in the City of Stewart, pursuant to Minn. Stat. § 103D.251, and;

Whereas, the Board has completed its review of the Petition;

Now Therefore, the Board hereby makes the following Findings of Fact, Conclusion, and Order.

FINDINGS OF FACT

1. **Property Description.** The territory to be transferred from the Buffalo Creek Watershed District to the High Island Creek Watershed District is approximately 55 acres and is all located within the City of Stewart in McLeod County, Minnesota.
2. **Necessity for Boundary Change.** The petition alleges that the 55 acres in fact drains to the High Island Watershed District and that the area in question should in fact be regulated by the High Island Watershed District.
3. **Signatures.** The Boundary Change Petition dated October 13, 1998 was filed with the Board on October 16, 1998. The petition was signed by more than fifty (50) resident owners in the proposed boundary change area pursuant to Minn. Stat. § 103D.251 Subd. 4 (4). On December 7, 1998 the petition was mailed to the McLeod County Auditor for certification of signatures pursuant to Minn. Stat. § 103D.211. On December 9, 1998, Cindy Schultz County Auditor, pursuant to Minn. Stat. § 103D.211, certified that more than fifty (50) petitioners were resident owners within the proposed boundary change area.
4. **Filing.** The petition was filed with the McLeod County Auditor, the Commissioner of the Department of Natural Resources, and the Director of the DNR Division of Waters.

5. **Hearing Location.** The hearing should be held at the City of Stewart's Community Center, 551 Prior Street, Stewart, Minnesota. The facility is handicap accessible and located within the Buffalo Creek Watershed District.
6. **Hearing Panel.** Pursuant to Minn. Stat. § 103D.105 the hearing shall be presided over by Board members Glenn Annexstad and Dwain Otte.
10. **Hearing Time.** The principal people involved with the hearing have been coordinated with such that the hearing should be held on Thursday, January 14, 1999, starting at 2:00 PM. An alternate weather date of Tuesday, January 19, 1999 at 2:00 PM will also be noticed.

CONCLUSIONS

1. All relevant substantive and procedural requirements of law and rule have been fulfilled.
2. The Board has proper jurisdiction in the matter of ordering a watershed boundary change hearing.

ORDER

The Board hereby orders that the hearing on the boundary change between the Buffalo Creek Watershed District and the High Island Watershed District within the City of Stewart be heard by Board members Glenn Annexstad and ^{Glenn Annexstad}~~Dwain Otte~~ on Thursday January 14, 1999, starting at 2:00 PM at the city of Stewart Community Center, 551 Prior Street, Stewart, Minnesota. If the need arises to cancel the hearing due to weather an alternate hearing date of Tuesday, January 19, 1999, at the same time and location will be noticed.

Dated this 16th day of December, 1998.

MINNESOTA BOARD OF WATER AND SOIL RESOURCES

By: _____
Kathleen M. Roer, Chair

RECEIVED

DEC 16 1998

MUTUAL AGREEMENT
between the
COUNTY OF KOOCHICHING
and
THE MINNESOTA BOARD OF WATER AND SOIL RESOURCES
and
THE KOOCHICHING SOIL AND WATER CONSERVATION DISTRICT
and
THE MINNESOTA DEPARTMENT OF NATURAL RESOURCES
and
THE MINNESOTA POLLUTION CONTROL AGENCY

STATE OF PURPOSE

These parties along with the US Army Corps of Engineers agree to come together to assist the citizens of Koochiching County in developing a local wetland plan under the Wetland Conservation Act of 1991. Although each party has its respective resource responsibilities, they recognize the need to improve wetland permitting procedures in Koochiching County. The goal of this group is to utilize local wetland planning as a way to coordinate local, state, and federal regulatory efforts and reduce unnecessary redundancy. The state and local agencies listed above agree to participate in the plan's development as described by Minnesota Rule 8420.0650. While the Army Corps has declined to be a signature for administrative reasons, they are to participate in this planning effort.

IT IS UNDERSTOOD THAT:

This agreement establishes a framework for cooperation and assistance between the parties in the development of a local wetland plan. It realizes that the County has already expended efforts to identify desired flexibility and will use that information as the basis for initiating the plan. Further, it recognizes that Koochiching County by initiating this planning effort has the intent to manage its wetlands consistent with the local wetland plan provisions of the Wetland Conservation Act of 1991.

Signatories of this agreement recognize Koochiching County has a unique landscape situation. Large areas of the county are classified as wetland and are protected from impacts by public ownership. Additionally, the county is not densely populated and does not contain the threats to wetland resources found in other areas of Minnesota. Therefore, the planning effort will strive to offer more flexibility and coordinated regulatory responses to affected citizens while maintaining a no-net-loss of public values.

The target date for finalizing the plan is within five months of the signing of the agreement. However, the completion date may be extended if necessary to achieve an effective plan that meets the identified criteria.

The County agrees to establish a citizen participation process and the agencies will (within 30 days) assign staff to work with the county in finalizing a comprehensive wetland plan that addresses the County's unique situation.

Specifically, agencies will provide the following services to Koochiching County to implement the WCA:

- **BWSR:**
 - Assist in coordination of the planning process.
 - Provide GIS support for the plan.
 - Provide continued assistance in the administration of WCA.
 - Work with the County Environmental Services and Soil and Water District on technical matters related to a WCA/local wetland plan.
- **SWCD:**
 - Will coordinate the development of a local wetland plan in association with the County Environmental Services.
 - Serve on the Technical Evaluation Panel.
 - Administer the WCA/local wetland plan program.
 - Provide information on WCA/local Plan to county residents.
- **Minnesota DNR:**
 - Will participate through local staff with expertise in Koochiching County resources in the development of a local wetland plan as described by rule.
 - Assist the County when possible in obtaining resource information that is pertinent WCA/local wetland planning and administration.
 - Coordinate DNR responsibilities relating to wetlands or waters with the County.
 - Provide comments and technical assistance to the TEP and County on WCA/local plan issues.
- **U.S. Army Corps of Engineers:**
 - Will participate in the development of a local plan.
 - Coordinate Section 404 permits with the County when appropriate and desirable to reduce duplication of efforts.
 - Participate in TEP meetings where determined to be mutually appropriate and desirable.
- **Minnesota Pollution Control Agency:**
 - Coordinate 401 certifications with the USCOE.
 - Participate in the CoWProMP process.

This mutual agreement is a working tool designed to show intent of the County to work with the pertinent state and federal regulatory agencies to develop a local wetland plan. Because this agreement is a call to participate, nothing in this agreement or lack of compliance with it creates any cause of action for damages. This mutual agreement can be canceled or revised upon agreement by all parties.

Signed:

Koochiching County Date

Board of Water and Soil Resources Date

Koochiching SWCD Date

Minnesota DNR Date

Minnesota PCA Date

The Water Planning Partners of Southeastern Minnesota

invite you to

The 1999 State Water Planners Conference



CRACKS

Water Quality: Don't Let it Slip Through the

in

Rochester, Minnesota

June 22-23, 1999

Located in the scenic limestone blufflands of southeastern Minnesota and home to:

- ★ *beautiful springs - the state's finest caves - land of 15,000 sinkholes* ★
- ★ *highly vulnerable water resources* ★
- ★ *disappearing streams - disappearing sewage lagoons - disappearing cows* ★
- ★ *some of the state's finest parks - premier trout streams* ★
- ★ *eagles - wild turkeys - Ice Age snails* ★

Lakeshore Easement Presentation

December 16, 1998

Intro

-
- Here to present the details of a proposed easement package from Cass SWCD under the Pilot Lakeshore Easement Program.
- Funded out of Capitol Budget 1998 at \$250,000
- Purpose in Statute " for acquiring conservation easements for sensitive shore land and riparian areas on lakes.
- I'm here today to seek approval to allocate the \$228,959 Lakeshore Easement program funds to the CASS SWCD to acquire two lakeshore easements. I'll review the details of the Cass SWCD proposal.

Process

- Since last met, BWSR field staff and program staff met to develop easement criteria (p.2 and 3 of work plan)
- We reviewed this criteria with counties, SWCD and lake association folks and got feedback.
- We then consulted with DNR staff on the selection process.
- Decided to use shore land development permits as an indication of development pressure. Data from 94, 95, 96. 97 was not available.
- Took top five counties from these years Crow wing, Cass, Itasca, Otter Tail, Aitkin.
- August 20 mailed request for proposals to SWCDs and county water planners in these five counties.
- End date of October 15 received two proposals. Cass and Crow Wing.
- Consulted with regional DNR and MPCA staff and selected the Cass proposal.
- December 3, 1998 met with LCMR for Work Plan approval. LCMR set easement payment rate at 90 percent of assessed value.
- December 16, 1998 seek BWSR Board approval.

Cass SWCD Proposal

- Proposal contains three sites
 - Ten Mile Lake 99.8 acres, 4, 195 feet of shoreline, cost of \$191,340 .
 - Unnamed Lake 11.5 acres, 2,270 feet of shoreline, cost of \$7,029.

- Mule Lake 37 acres, 1,647 feet of shoreline, cost \$70, 650
- Total easement costs \$269,019 exceeds \$250,000 available so went with top two priorities Ten Mile and Unnamed lake near Wabedo.
- What are we buying?
Ten Mile Lake Site \$191,340
 - As I said 99.8 acres, 4,195 feet of shoreline.
 - Upland hardwoods, pines, open grasslands and wetlands.
 - Important fish spawning habitat.
 - Loon nest area.
 - 1926 plat for 24 lots. Property subject to intense development.
 - Headwaters of Boy river system.
 - MPCA studies near pristine water quality. Needs to be protected.
 - Ten Mile Lake Association long range plan promotes use of conservation easements.

Unnamed Lake Adjacent to Wabedo \$ 7,029

- 11.5 acres, 2,270 feet of shoreline
- Mixed hardwoods and wetlands.
- Small natural environment lake.
- Sensitive fish spawning and wildlife habitat areas that connect to Wabedo and Little Boy lakes, both popular recreation lakes.
- MPCA says buffer area on Wabedo lake less than two percent. This will help keep what buffer area they have.

Easement Acquisition

- The Cass SWCD will acquire and hold the easements. (103c.331 subd. 8 gives this authority)
- Acquisition costs will be based on 90 percent of assessed market value of the land.
- Must be a permanent easement.
- County attorney must sign off on easement documents.
- Costs
 - \$198,369 easement acquisition
 - \$ 26,590 professional and technical services.
 - \$ 4,000 title insurance.

Advantages of the Cass Proposal

- Strong local support from Ten Mile Lake Association and Leech Lake Project.

- Strong agency support from DNR and MPCA.
- Good connection to water plan priorities.
- Many demonstrated environmental benefits.
- Good mix of benefits IE water quality, loon nests, fish spawning habitat, and development issues.
- Will acquire a good deal of shoreline (6,465 feet)

Conclusion

- Locals tell us that lakeshore easements could be an important tool to help them protect lakes.
- They tell us that there could be a high demand for easements with many good parcels .
- Through this pilot BWSR in cooperation with Cass SWCD hope to show that:
 - easements are an effective, tool
 - establish that local governments can be effective in acquiring lakeshore easements and managing this type of program.
 - document costs of acquiring easements.
- - and we'll actually acquire 101.3 acres and 6,465 feet of shoreline in a permanent conservation easement.

FY 99
NATIONAL EMPLOYEE DEVELOPMENT CENTER
ENROLLMENT NRCS COST

COURSE TITLE	CODE	NAME (LAST, FIRST, MI)	POSITION	AGENCY	DUTY LOCATION	TRAINING LOCATION	TRAVEL	DATE
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MANAGING FOR EXCELLENCE	N111	DEXTER, MALINDA K	MANAGER	SWCD	WADENA SWCD	ABERDEEN, SD	\$ -	8/2-6/99
MANAGING FOR EXCELLENCE	N111	DITTERICH, DUWAYNE H.	SC	NRCS	WHEATON F.O.	ABERDEEN, SD	\$ 500.00	8/2-6/99
MANAGING FOR EXCELLENCE	N111	HELLERMAN, JEFFREY J.	SCT	NRCS	WILLMAR F.O.	CALLOWAY, MN	\$ 500.00	5/24-28/99
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FY 99
NATIONAL EMPLOYEE DEVELOPMENT CENTER
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MANAGING FOR EXCELLENCE	N111	CARLSON, GLENN J.	TECH	JPA	CHIPPEWA SWCD	DUBUQUE, IA	\$ -	5/3-6/99
MANAGING FOR EXCELLENCE	N111	COLE, STEVEN K.	SC	NRCS	OLIVIA F.O.	CALLOWAY, MN	\$ 500.00	5/24-28/99
MANAGING FOR EXCELLENCE	N111	DEXTER, MALINDA K	MANAGER	SWCD	WADENA SWCD	ABERDEEN, SD	\$ -	8/2-6/99
MANAGING FOR EXCELLENCE	N111	DITTERICH, DUWAYNE H.	SC	NRCS	WHEATON F.O.	ABERDEEN, SD	\$ 500.00	8/2-6/99
MANAGING FOR EXCELLENCE	N111	HELLERMAN, JEFFREY J.	SCT	NRCS	WILLMAR F.O.	CALLOWAY, MN	\$ 500.00	5/24-28/99
MANAGING FOR EXCELLENCE	N111	JUNGST, DAVID R	MANAGER	SWCD	STEVENS SWCD	ABERDEEN, SD	\$ -	8/2-6/99
MANAGING FOR EXCELLENCE	N111	LEDDY, SCOT D.	PROJ ENGR	JPA	MURRAY SWCD	CALLOWAY, MN	\$ -	5/24-28/99
MANAGING FOR EXCELLENCE	N111	PETERSON, LYNDA A.	MANAGER	SWCD	KANEBC SWCD	CALLOWAY, MN	\$ -	5/24-28/99
MANAGING FOR EXCELLENCE	N111	REIMERS, DENNIS W.	SC	NRCS	MORRIS F.O.	ABERDEEN, SD	\$ 500.00	8/2-6/99
MANAGING FOR EXCELLENCE	N111	SCHEIDECKER, KEVIN	MANAGER	SWCD	FILLMORE SWCD	DUBUQUE, IA	\$ -	5/3-6/99
MANAGING FOR EXCELLENCE	N111	SICKMANN, JASON B..	DC	NRCS	BLUE EARTH F.O.	DUBUQUE, IA	\$ 500.00	5/3-6/99
MANAGING FOR EXCELLENCE	N111	VO, HOA T.	SC	NRCS	LE CENTER F.O.	DUBUQUE, IA	\$ 500.00	5/3-6/99
MANAGING FOR EXCELLENCE	N111	VOIGT, KELLY M.	SC	NRCS	BAUDETTE F.O.	CALLOWAY, MN	\$ 500.00	5/24-28/99

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MANAGING FOR EXCELLENCE	N111	WING, DANIEL J.	SS	NRCS	VIRGINIA	CALLOWAY, MN	\$ 500.00	5/24-28/99
RC&D CONCEPTS	N745	SCHMIDT, JOHN	PROJ COOD	NRCS	PEMBINA RC&D	DALLAS, TX	\$ 1,000.00	3/22-26/99
RC&D CONCEPTS	N745						\$ 1,000.00	
SOIL BIOENGINEERING	N505	BARNES, GORDON	SCT	NRCS	MANKATO F.O.	FAIRMONT, MN	\$ 400.00	10/26-30/99
SOIL BIOENGINEERING	N505	BASILETTI, MARK	WATER RES	SWCD	SHERBURNE SWCD	FAIRMONT, MN	\$ -	10/26-30/99
SOIL BIOENGINEERING	N505	BECKER, STEVE	AE	NRCS	ST PETER A.O.	FAIRMONT, MN	\$ 400.00	10/26-30/99
SOIL BIOENGINEERING	N505	BEHRENS, MERLE				FAIRMONT, MN	\$ -	10/26-30/99
SOIL BIOENGINEERING	N505	BREAKER, STEVE	DC	NRCS	LE CENTER F.O.	FAIRMONT, MN	\$ 400.00	
SOIL BIOENGINEERING	N505	BRIDGLAND, PAUL	AE	NRCS	MARSHALL A.O.	FAIRMONT, MN	\$ 400.00	10/26-30/99
SOIL BIOENGINEERING	N505	BRONDER, BILL	SWCD TECH	SWCD	SHERBURNE SWCD	FAIRMONT, MN	\$ -	10/26-30/99
SOIL BIOENGINEERING	N505	DINDORF, CAROLYN J.	IMNOLOGIS	SWCD	HENNEPIN SWCD	FAIRMONT, MN	\$ -	10/26-30/99
SOIL BIOENGINEERING	N505	DONEUX, MARK J.	H2O QUAL	SWCD	WASHINGTON SWCD	FAIRMONT, MN	\$ -	10/26-30/99
SOIL BIOENGINEERING	N505	GETSFRIED, LEO	ENGINEER	DNR		FAIRMONT, MN	\$ -	10/26-30/99
SOIL BIOENGINEERING	N505	GIRALLOMO, DAN	DC	SWCD		FAIRMONT, MN	\$ -	10/26-30/99
SOIL BIOENGINEERING	N505	GOLL, WILLIS		NRCS	THIEF RIVER FALLS A.O.	FAIRMONT, MN	\$ 400.00	10/26-30/99
SOIL BIOENGINEERING	N505	GOSHEY, BONNIE E.	SWCD TECH	SWCD	CROW WING SWCD	FAIRMONT, MN	\$ -	10/26-30/99
SOIL BIOENGINEERING	N505	HELLERMAN, JEFFREY J.	CET	NRCS	WAITE PARK F.O.	FAIRMONT, MN	\$ 400.00	10/26-30/99
SOIL BIOENGINEERING	N505	JONES, DAVE	AE	NRCS	FERGUS FALLS A.O.	FAIRMONT, MN	\$ 400.00	10/26-30/99
SOIL BIOENGINEERING	N505	LEDDY, SCOT	JPB	SWCD	LYON	FAIRMONT, MN	\$ -	10/26-30/99
SOIL BIOENGINEERING	N505	LORENZ, ERIC	AG ENGR	NRCS	ROCHESTER A.O.	FAIRMONT, MN	\$ 400.00	10/26-30/99
SOIL BIOENGINEERING	N505	MAURICE, STEVE C.	DC	NRCS	FAIRMONT F.O.	FAIRMONT, MN	\$ 400.00	10/26-30/99
SOIL BIOENGINEERING	N505	NEVILLE, DARREN	SWCD TECH	SWCD	MARTIN SWCD	FAIRMONT, MN	\$ -	10/26-30/99
SOIL BIOENGINEERING	N505	PEARSON, MARK A.	AG ENGR	NRCS	ST PETER A.O.	FAIRMONT, MN	\$ 400.00	10/26-30/99
SOIL BIOENGINEERING	N505	SCHMIDT, LARRY A.	ARC	NRCS	ST PETER A.O.	FAIRMONT, MN	\$ 400.00	10/26-30/99
SOIL BIOENGINEERING	N505	SICKMANN, JASON B.	DC	NRCS	BLUE EARTH F.O.	FAIRMONT, MN	\$ 400.00	10/26-30/99
SOIL BIOENGINEERING	N505	SMITH, STEVEN F.	SCT	NRCS	WILLMAR F.O.	FAIRMONT, MN	\$ 400.00	10/26-30/99
SOIL BIOENGINEERING	N505	TRESSEL, DENNIS	ARC	NRCS	DULUTH A.O.	FAIRMONT, MN	\$ 400.00	10/26-30/99
SOIL BIOENGINEERING	N505	VOGT, KYLE		SWCD		FAIRMONT, MN	\$ -	10/26-30/99
SOIL BIOENGINEERING	N505	WALETZKO, LEANN R	SC	NRCS	LE CENTER F.O.	FAIRMONT, MN	\$ 400.00	10/26-30/99
SOIL BIOENGINEERING	N505	WENZEL, TOM	ENGINEER	BWSR	ST PAUL CENTRAL	FAIRMONT, MN	\$ -	10/26-30/99
SOIL SCIENCE INSTITUTE	N975	BECK, JOHN F.	ARSS	NRCS	ROCHESTER A.O.	NC STATE UNIVERSITY	\$ 3,500.00	3/1-26/99
SOIL SCIENCE INSTITUTE	N975	TUVE, CLINT W.	PROJ LDR	NRCS	VIRGINIA SS	NC STATE UNIVERSITY	\$ 3,500.00	3/1-26/99
SOIL TECH MEASURE & DATA EVAL	N956	HEMPEL, JONATHAN W.	SS	NRCS	ST PAUL S.O.	LINCOLN, NE	\$ 600.00	8/30-9/3/99
SUPERVISING FOR EXCELLENCE	N121	BAJUMPAA, DON R.	MANAGER	SWCD	WILKIN SWCD	NEBRASKA CITY, NE	\$ -	7/12-16/98
SUPERVISING FOR EXCELLENCE	N121	GLENDE, SUSAN M.	DC	NRCS	AUSTIN F.O.	NEBRASKA CITY, NE	\$ 700.00	7/12-16/98
SUPERVISING FOR EXCELLENCE	N121	JIRIK, JAMES R	DC	NRCS	WASECA F.O.	NEBRASKA CITY, NE	\$ 700.00	7/12-16/98
SUPERVISING FOR EXCELLENCE	N121	NEIGUM, AMY L.	DC	NRCS	ST JAMES F.O.	NEBRASKA CITY, NE	\$ 700.00	7/12-16/98
SUPERVISING FOR EXCELLENCE	N121	RUESCH, DERON J	DC	NRCS	BUFFALO F.O.	NEBRASKA CITY, NE	\$ 700.00	7/12-16/98
SUPERVISING FOR EXCELLENCE	N121	STRUS, BARBARA J.	BUDGET OFF	NRCS	ST PAUL S.O.	NEBRASKA CITY, NE	\$ 700.00	7/12-16/98
SUPERVISING FOR EXCELLENCE	N121	THOMAZIN, JAMIE W.	DC	NRCS	CLARKFIELD F.O.	NEBRASKA CITY, NE	\$ 700.00	7/12-16/98
SUPERVISING FOR EXCELLENCE	N121	ZIMMERMAN, GEORGE M.	DC	NRCS	DETROIT LAKES F.O.	NEBRASKA CITY, NE	\$ 700.00	7/12-16/98
WATER QUALITY RESOURCE ASSESS	N850	BOWER, CRAIG M.	DC	NRCS	GLENWOOD F.O.	SOUTH DAKOTA	\$ 700.00	5/4-7/99

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WATER QUALITY RESOURCE ASSESS	N850	DONEUX, MARK J.	WTR QUAL	SWCD	WASHINGTON SWCD	SOUTH DAKOTA	\$ -	5/4-7/99
WATER QUALITY RESOURCE ASSESS	N850	JIRIK, JAMES R.	DC	NRCS	WASECA F.O.	SOUTH DAKOTA	\$ 600.00	5/4-7/99
WATER QUALITY RESOURCE ASSESS	N850	KELLY, TERENCE T.	DC	NRCS	MANKATO F.O.	SOUTH DAKOTA	\$ 600.00	5/4-7/99
WATER QUALITY RESOURCE ASSESS	N850	ROSE, DAVID F.	DC	NRCS	LUVERNE F.O.	SOUTH DAKOTA	\$ 600.00	5/4-7/99
WATER QUALITY RESOURCE ASSESS	N850	RUESCH, DERON J.	DC	NRCS	BUFFALO F.O.	SOUTH DAKOTA	\$ 600.00	5/4-7/99
WATER QUALITY RESOURCE ASSESS	N850	SMITH, STEVEN F.	SCT	NRCS	WILLMAR F.O.	SOUTH DAKOTA	\$ 600.00	5/4-7/99
WATER QUALITY RESOURCE ASSESS	N850	STANGEL, JOSEPH M.	CON PLAN	SWCD	RENVILLE SWCD	SOUTH DAKOTA	\$ -	5/4-7/99
WATER QUALITY RESOURCE ASSESS	N850	THATCHER, JYNEEN E.	WET TECH	SWCD	WASHINGTON SWCD	SOUTH DAKOTA	\$ -	5/4-7/99
WATER QUALITY RESOURCE ASSESS	N850	WOZNEY, BRAD	SWCD TECH	SWCD	WRIGHT SWCD	SOUTH DAKOTA	\$ -	5/4-7/99
WORK EFFECT W/AMER INDIAN - EXEC	N350	HUNT, WILLIAM	STATE CONS	NRCS	ST PAUL S.O.	NEW YORK	\$ 1,500.00	4/26-30/99
WORK EFFECT W/AMER INDIANS - FIEL	N351	ANDERSON, CHUCK		FSA	AITKIN	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	APPEL, MIKE	ASC	NRCS	MARSHALL A.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	AYRES, JIM	ASC	NRCS	FERGUS FALLS A.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	BOUCHONVILLE, MITCH		FS	WALKER	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	CESAFSKY, DALE		RD	CAMBRIDGE	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	CLAUSSEN, JULIE		RD	DULUTH	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	CONNELLY, PAT		RD	WORTHINGTON	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	DAW, KEVIN	ASC	NRCS	DULUTH A.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	FOLSOM, JOE		RD	ST PAUL	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	FREDERICKSON, KAREN		FSA	THIEF RIVER FALLS	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	GORECKY, STEVEN E.	DC	NRCS	AITKIN F.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	HIGHBERG, HARLAN		FSA	BAGLEY	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	HILBRAND, STEVE		FSA	MORA	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	HOCKERT, DAN		FSA	ST PAUL S.O.	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	HOLEN, ROD		FSA	BEMIDJI	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	HUMPHERY, LORI		FS	CASS LAKE	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	HUNT, WILLIAM	SC	NRCS	ST PAUL S.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	JACKSON, LYNN		FS	CASS LAKE	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	JARVIS, SID		FSA	DULUTH	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	KAJEWSKI, GLEN	ASC	NRCS	THIEF RIVER FALLS A.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	KELLEY, JILL		FS	WALKER	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	KOEHLER, TIM	ASC	NRCS	ST PAUL S.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	KORTH, ROBERT L.	DC	NRCS	HINCKLEY F.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	KOZITKA, CURT		FSA	DETROIT LAKES	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	KRINKE, MARK		FSA	ST PAUL S.O.	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	KULAS, DINO		RD	ALEXANDRIA	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	KVISTERO, KEVIN		FSA	REDWOOD FALLS	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	LEE, LOGAN		FS	CASS LAKE	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	LEVASSEUR, ANDREA		FS	CASS LAKE	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	LORENZEN, WILLIAM E.	BIOLOGIST	NRCS	ST PAUL S.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	LUDWIG, JERRY		FSA	REDWOOD FALLS	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	MITCHELL, VALERIE		RD	BRAINERD	HACKENSACK, MN	\$ -	10/26-30/98

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WORK EFFECT W/AMER INDIANS - FIEL	N351	MURRAY, DOUG		OGC	ST PAUL	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	MUSSETTER, ROGER	ASC	NRCS	ST PAUL S.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	NELSON, LARRY M.	RC&D	NRCS	ONANEGOZIE RC&D	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	NEUFELD, TOM	SS	NRCS	FOND du LAC COLLEGE	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	OESTREICH, COLLEEN	RC&D	NRCS	GIZIBII RC&D	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	OJA, MICHAEL D.	DC	NRCS	GRAND RAPIDS F.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	PENNER, BERNIE		FSA	BRAINERD	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	PETRY, DAVID		FSA	AITKIN	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	QUADE, CLAYTON		FSA	BAGLEY	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	ROSE, MARK	DC	NRCS	REDWOOD FALLS F.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	SAMUELSON, KIM	RC&D	NRCS	LAURENTIAN RC&D	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	SANDSTROM, PAUL V.	DC	NRCS	DULUTH F.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	SELLA, MARGORIE A.	DC	NRCS	VIRGINIA F.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	STEGE, THOMAS J.	DC	NRCS	GOODHUE F.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	THOMAZIN, JAMIE	DC	NRCS	CLARKFIELD F.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	TRUAX, CHARLES	DC	NRCS	MAHNOMEN F.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	VANDEBOGART, CLAY		NAO	LAKEVILLE	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	VELDE, JIM		FSA	DETROIT LAKES	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	VOLTZ, LARRY	DC	NRCS	BEMIDJI F.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	VONGKHAMDY, PHOUKHAM	DC	NRCS	MILACA F.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	WALCHUK, DEB	DC	NRCS	BAGLEY F.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	WENDLAND, STANLEY P.	DC	NRCS	JORDAN F.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	WILTSEY, JOE	TRAIN COOP	NRCS	CROSSLAKE	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	WILTSEY, PAM	AM IND COOP	RD	CROSSLAKE	HACKENSACK, MN	\$ -	10/26-30/98
WORK EFFECT W/AMER INDIANS - FIEL	N351	ZIMMERMAN, GEORGE	DC	NRCS	DETROIT LAKES F.O.	HACKENSACK, MN	\$ 116.00	10/26-30/98
WORK EFFECT W/LIVESTOCK PRODUC	N765	MACSWAIN, JULIE A.	DC	NRCS	STILLWATER F.O.	FORT WORTH, TX	\$ 2,000.00	5/17-28/99
WORK EFFECT W/LIVESTOCK PRODUC	N765	SELLA, MARJORIE A.	DC	NRCS	VIRGINIA F.O.	FORT WORTH, TX	\$ 2,000.00	5/17-28/99
WORK EFFECT W/LIVESTOCK PRODUC	N765	ZIMMERMAN, GEORGE M.	DC	NRCS	DETROIT LAKES F.O.	FORT WORTH, TX	\$ 2,000.00	5/17-28/99
	N505	BREAKER, STEVE	DC	NRCS	LE CENTER F.O.	FAIRMONT, MN	\$ 400.00	10/26-30/99
							\$ 42,024.00	

FLOOD STORAGE EASEMENTS PILOT PROGRAM
STATUS SUMMARY
12-16-98, Al Kean

Objectives:

- 1) flood damage reduction
- 2) dispersed flood water detention
- 3) limited purchase of land rights (like a flowage easement)
- 4) erosion reduction and water quality protection
- 5) habitat improvement
- 6) determination of adequate payment rates and potential to expand to other areas of the state

Appropriation Language Components:

- 1) Up to \$250,000 can be used for pilot.
- 2) For acquisition of flood storage easements that allow haying, grazing, or other activities approved by the BWSR.
- 3) At least two LGUs must participate in pilot.
- 4) Easements must be for at least 10 years.
- 5) BWSR may acquire easements directly or provide grants to LGUs for acquisition of easements that conform to requirements established by the BWSR.
- 6) A payment system was proposed in the appropriation language, with provision for an alternative system determined by the BWSR, in consultation with DNR.
- 7) Up to 10 percent may be used for professional and technical services related to acquisition of the easements.
- 8) Report is due to the legislature by January 15, 2000.

State and Watershed District Partnering Concepts:

- 1) State pays a fixed percentage of assessed land value for the easement that relates to the land rights acquired, easement duration and state payment rates for other easement programs.
- 2) State pays a percentage of costs for construction necessary to store flood waters, up to a limit, on a per acre basis.
- 3) Watershed districts pay a variable additional amount depending on ability of the site to address program objectives, including flood storage capability, location in a watershed, etc.
- 4) Watershed districts acquire easements that conform with requirements approved by the BWSR.
- 5) Limited duration easements would be limited to sites with low construction costs for flood water storage.

Pilot Implementation Status:

- 1) Red Lake WD has identified some potential sites and is expected to identify additional sites via participation in a flood storage alternatives analysis in conjunction with a ditch repair project.
- 2) Wild Rice WD has identified potential site(s), is contacting landowners and is preparing to evaluate sites.
- 3) Both WDs plan to develop proposals in cooperation with BWSR staff that will be presented to the board for approval in early 1999.

MINNESOTA CONSERVATION PARTNERSHIP 1998 STATE TRAINING PLAN PROGRESS

COURSE TITLE	NO. SESSIONS	TRAINER	COMPLETED	PARTICIPANTS
WETLAND DELINEATION REG 4	1	BWSR	YES	60
WETLAND PLANT IDENTIFICATION	1	BWSR	NO	0
WETLAND RESTOR/DEVEL/ENHANCE II	1	BWSR	NO	0
WETLAND RETORE/EHNANCE/ MITIGATION	2	BWSR	NO	0
CIVIL RIGHTS	50	NRCS	YES	ALL USDA
CONSERVATION PLANNING	2	NRCS	YES	43
CULTURAL RESOURCES	2	NRCS	YES	70
EFFECTIVE FACILITATOR	2	NRCS	YES	40
HARMONY	1	NRCS	YES	55
HYDROGEOMORHIC MODEL (HGM)	2	NRCS	YES	65
PLANT MATERIALS CENTER TOUR	1	NRCS	YES	17
SERVICE CENTER SKILLS	79	NRCS	YES	1120
SOIL BIOENGINEERING	1	NRCS	YES	35
WINDBREAK TECHNOLOGY	1	NRCS	YES	6 MN
FILTER STRIP DESIGN	1	PARTNERS	NO	0
NEW EMPLOYEE ORIENTATION	1	PARTNERS	NO	0
AG WASTE MANAGEMENT SYS PLAN	2	PARTNERS JEFFERY	PLANNED	
CONSTRUCTION INSPECTION	2	PARTNERS JEFFERY	PLANNED	
FLEVAL	5	PARTNERS JEFFERY	YES	125
LAKESHORE PROTECTION DESIGN	2	PARTNERS CLARK	YES	40
STREAMBANK PROTECTION DESIGN	1	PARTNERS JEFFERY	YES	25
ARC VIEW	4	PARTNERS KROSKA	YES	40

1998 Area Training Team Plans

DISCIPLINE	COURSE TITLE	AREA	DATE	COMPLETE
ADMIN	FILE MAINT & DEPOSITION	7	3/31/98	YES
ADMIN	HOW TO USE DIRECTIVES	7	3/31/98	YES
ADMIN	INTERAGENCY PROGRAM OVERVIEW	1	?	
ADMIN	SWCD STATE COST SHARE	1	?	
ECS	AG WASTE PLANNING BASICS	3	?	
ECS	APPLIC FOR INVENTORY NAT RES	6	Jun-98	NO
ECS	BASIC PHOTO INTERPRETATION	2	Jan-99	
ECS	BASIC PHOTO INTERPRETATION	7	7/31/98	NO
ECS	BASIC PHOTO INTERPRETATION	5&6	3/30-4/2/98	YES
ECS	EQUIP AREA WORKSHOP	3	2/23/98	YES
ECS	FARM NUTRIENT MANAGEMENT	2	2/3/98	
ECS	FARM NUTRIENT MANAGEMENT	3	?	
ECS	FARM NUTRIENT MANAGEMENT	6	Nov-98	YES
ECS	FARM NUTRIENT MANAGEMENT	7	5/15/98	NO
ECS	FOCS PUBLIC INFORMATION	3	?	
ECS	INTRO DIGITAL REMOTE SENSING	6	Apr-98	NO
ECS	INTRO TO FOCS	7	3/29/98	YES
ECS	LONG TERM CONTRACTS FOCS	7	12/7/97	YES
ECS	MANURE APPLICATION PLANNER	7	5/15/98	NO
ECS	PLANT/TREE IDENTIFICATION	1	?	
ECS	PRESCRIBED BURNING	6	Jun-98	NO
ECS	RIPARIAN BUFFERS	1	?	
ECS	RUSLE UPDATE	7	5/15/98	NO
ECS	WATER QUALITY I	2	Apr-98	
ECS	WATER QUALITY I & II	7	7/31/98	NO
ECS	WATER QUALITY II	2	Nov-98	
ECS	WETLAND DELINEATION	1	?	
ECS	WIND & WATER EROSION	2	Feb-99	
ENGR	AG WASTE MGT SYS PLAN	2	Feb-99	
ENGR	FLEVAL	2	Apr-98	YES
ENGR	FLOOD ROUTING SHORT CUT	6	Apr-98	YES
ENGR	GRASS WATERWAY DESIGN I	6	Apr-98	YES
ENGR	GRASS WATERWAY DESIGN I	7	7/31/98	YES
ENGR	GRASS WATERWAY DESIGN II	7	7/31/98	YES
ENGR	HYDRO - MN HYRDO GUIDE, LEVEL I	4	Jan-98	YES
ENGR	HYDRO, OUT OF BANK FLOW	7	7/31/98	YES
ENGR	HYRAULIC DESIGN-PIPE DROP/HOODS	6	Aug-98	YES
ENGR	INTRO TO HYDROLOGY	7	Feb-Mar98	YES
ENGR	INTRO TOTAL SURVEY STATION	7	7/31/98	NO
ENGR	SIDE INLET STRUCTURES	7	7/31/98	YES
ENGR	SM I, ENG SOIL CLASSIFICATION	3	4/14/98	YES
ENGR	SM I, ENG SOIL CLASSIFICATION	3	4/15/98	YES
ENGR	SM I, ENG SOIL CLASSIFICATION	5	?	YES
ENGR	SOIL BIOENGINEERING	6	Oct-98	YES
ENGR	STAGE-STORAGE CURVE DEVEL	7	7/31/98	YES
ENGR	STRUCTURES	5	4/7-9/98	YES
ENGR	SURVEYING I DIFFERENTIAL LEVELS	3	6/9/98	
ENGR	SURVEYING I DIFFERENTIAL LEVELS	4	Jul-98	YES
ENGR	SURVEYING I DIFFERENTIAL LEVELS	6	Jul-99	
ENGR	SURVEYING I DIFFERENTIAL LEVELS	7	7/31/98	NO
ENGR	SURVEYING II HAND LEVELS, STAKING	3	6/9/98	
ENGR	SURVEYING II HAND LEVELS, STAKING	4	Jul-98	YES
ENGR	SURVEYING II HAND LEVELS, STAKING	6	Jul-00	
ENGR	SURVEYING II HAND LEVELS, STAKING	7	7/31/98	NO
ENGR	SURVEYING III TRANSITS/ THEODOLITE	6	JULY,2001	
ENGR	SURVEYING III TRANSITS/ THEODOLITE	7	7/31/98	NO

1998 Area Training Team Plans

ENGR	SUSURFACE DRAIN DESIGN	2	Feb-99	
ENGR	TERR & WSB DESIGN, MO TERR PROG	6	Apr-00	
ENGR	TERR & WSB DESIGN-MO TERR PROG	7	7/31/98	YES
ENGR	TERRACE DESIGN	2	Apr-98	
ENGR	TERRACE DESIGN	6	Jun-00	
ENGR	TERRACE DESIGN	7	7/31/98	YES
ENGR	UNDERGROUND OUTLET I	7	7/31/98	NO
ENGR	WASTE STORAGE POND DESIGN	2	Feb-99	
ENGR	WATER & SED CONTROL BASIN DESIG	2	Apr-98	
ENGR	WATER & SED CONTROL BASIN DESIG	4	3/11/98	YES
ENGR	WATER & SED CONTROL BASIN DESIG	7	7/31/98	NO
ENGR	DIVERSION DESIGN	4	Mar-98	YES
IRM	COMMUNICATIONS	5	3/24-26/98	NO
IRM	DOS I PC VIDEO & WORKBOOK	7	5/29/98	NO
IRM	DOS II PC VIDEO & WORKBOOK	7	5/29/98	NO
IRM	DOS III PC VIDEO & WORKBOOK	7	5/29/98	NO
IRM	EXCEL	1	?	
IRM	EXCEL SPREADSHEET	7	5/29/98	NO
IRM	EXCEL VIDEO	7	5/29/98	NO
IRM	INTRO TO INTERNET	7	3/31/98	YES
IRM	INTRO UNIX, DBE, VI, UNIX WORD	7	5/29/98	YES
IRM	IRM SECURITY	3	1/1/98	
IRM	LAN/WAN OPERATIONS	3	?	
IRM	NETSCAPE INTERNET ACCESS	3	?	
IRM	NETSCAPE INTERNET ACCESS	7	5/29/98	YES
IRM	PRELUDE GRAPHICS	3	?	
IRM	PRELUDE SPREADSHEET	3	?	
IRM	PRELUDE SPREADSHEET	5	3/9-13/98	
IRM	UNIX BASIC	5	3/26/98	
IRM	UNIX COMMUNICATIONS	7	5/29/98	YES
IRM	UNIX COMMUNICATIONS/TELEMAIL	7	5/31/98	YES
IRM	UNIX MSWORD	5	3/31-4/1/98	NO
IRM	UNIX MSWORD ADVANCED	2	Mar-99	
IRM	UNIX MSWORD ADVANCED	7	5/29/98	NO
IRM	UNIX MSWORD BASIC	2	Feb-99	
IRM	UNIX MSWORD BASIC	3	?	
IRM	UNIX MSWORD BASIC	7	5/29/98	NO
IRM	UNIX MSWORD INTERMEDIATE	7	5/29/98	NO
IRM	WINDOWS 3.1, COURSE I	7	5/29/98	NO
IRM	WINDOWS 95	1	?	
IRM	WINDOWS 95	5	2/23-27/98	YES
MGMT	EFFECTIVE FACILITATOR	3	3/9-10/98	
MGMT	EFFECTIVE FACILITATOR	3	3/11-12/98	
SAFETY	CPR	4	SPR 98	
SAFETY	CPR	7	3/31/98	YES
SAFETY	DEFENSIVE DRIVING	7	3/31/98	YES
SAFETY	MULTI MEDIA FIRST AID	7	3/31/98	YES
SOILS	HYDRIC SOILS	3	?	
SOILS	SOIL BORING FOR AG WASTE	7	4/1/98	YES



Natural Resources Conservation Service

St. Paul, Minnesota

State Conservationist: William Hunt

email: wh@mn.nrcs.usda.gov
Voice: (651) 602-7900
Fax: (651) 602-7914
375 Jackson Street, Suite 600
St. Paul MN 55101

The Natural Resources Conservation Service (NRCS), formerly the Soil Conservation Service, is the federal government agency that works hand-in-hand with the American people to conserve natural resources on private lands. Using our scientific and technical expertise, and our partnerships with soil and water conservation districts and others, we help people conserve all natural resources on private lands.

Things to do:

- [The 96 Farm Bill](#)
- [Conservation Partners Schedule Database](#)
- [Whitewater Watershed Plan](#)
- [Partner Training Database Program](#)
- [NRCS Performance and Results Measurement System](#)
- [General Information](#) about NRCS and SWCD Personnel in Minnesota
- [Minnesota Soils Information](#)
- [Region 10 MO](#) Information
- Information about the [National Resources Inventory](#) in Minnesota
- [Minnesota RC&D](#) Offices
- [Engineering](#) in Minnesota
- [Wildlife Habitat Incentive Program](#)
- Minnesota NRCS [Network Places](#) of Interest
- [Minnesota SWCD's](#).
- The [National Conservation Partnership](#) is the dynamic relationship between federal, state, and nonprofit groups that have pledged to jointly provide national conservation leadership.
- The [National NRCS Home Page](#)

Partner Training Database

Current Developments

Last modified Oct 1st, 1998

Training Needs Inventory needs requests are due into the Area office by Oct 30th 1998.

A Bulletin describing the Training Needs Process was distributed on Sept 8st. 1998.

Click [here](#) to get a copy of the bulletin.

The NRCS graduate studies program for FY99 has been extended to Nov 2nd 1998. For more information about this program, contact Joe or Liz (see **More Information** section below).

Entering Information

To add a person or add/update course information, send the completed forms to NRCS Area offices for NRCS and SWCD employees. NRCS State office employees, give the forms to your Secretarial or Office Automation support personnel. BWSR employees, send the forms to Char Sokatch.

Forms are available from this Web Site (in **Forms** section below), or by contacting Joe Wiltsey (see **More Information** section below).

Course information

Display [courses and descriptions](#) of the courses in the database.

The courses are coded using the first character of the SUBJECT column. The following is a list of current codes and what they mean (if the first character of the subject starts with the following letter, the course will be of the type described):

- A = Course offered by expertise within an NRCS Area
 - B = Training provided by BWSR
 - C = Conference
 - D = Training offered by the NRCS State Office
 - M = Module (NEDS)
 - N = NEDC course
 - O = Training offered by an outside trainer
 - V = Video (VHS) or CDROM based training
-

Forms

Printable Forms:

- [Worksheet #1](#)
 - [Worksheet #2](#)
 - [MN-PER 015](#) (proposed)
-

More information

More more information, questions or comments about this program contact:

Joe Wiltsey
Training Coordinator
joe.wiltsey@mn.usda.gov
Voice: (218) 692-4944
Voicecom: 8250
Fax: (218) 692-1088

Liz Fedoruk
liz.fedoruk@mn.usda.gov
Voice: (651) 602-7898
Fax: (651) 602-7914

September 8, 1998

MINNESOTA BULLETIN NO. 250-8-6

Subject: FNM - Training Needs Inventory

Purpose. To provide instructions about Minnesota Conservation Partnership Training Database.

Expiration Date. September 30, 1999.

Action Required by: October 30, 1998

MINNESOTA CONSERVATION PARTNERSHIP TRAINING: Training is an integral part of the total soil and water conservation program in Minnesota. Training provides each Minnesota Conservation Partnership employee the opportunity to gain the knowledge, skills, and abilities needed to succeed in their respective position.

Partnership Training Database: The Partnership Training Database (PTD) serves as an electronic catalog of courses available to all Minnesota Conservation Partnership employees and board members. The PTD is utilized by the seven Area Training Teams and the State Office Coaches to gather Training Needs Inventories each year in September. Plans are then formulated by the Area Training Teams and the State Office Coaches based on inventory requests. Area Training Teams and the State Office Coaches then provide training sessions based upon their available expertise. Requests not addressed by the Area Training Teams and the State Office Coaches are reviewed at the State level. The State Employee Development Committee responds to the predominant requests and refers those it cannot handle to the National Employee Development Center, colleges, technical schools or private vendors.

Employee Development Plans: Every individual should have an Employee Development Plan (EDP) which reflects the training needs of that person to grow and develop in their career to their full potential. EDP's need to be created with the employee's immediate supervisor. EDP's should be part of the performance appraisal process and training should be listed as an individual or part of a performance element. The Minnesota PTD allows each employee to keep a historical record of training requests and training completed. This historical portion of the PTD serves well as an individual EDP.

DIST: NRCS - AE

MN SWCD - One to each District Office

MN BWSR - 6 copies (one to each Regional Office)

Watershed Districts 1 copy to Ray Bohn, MAWD Coordinatorp

President, State Employee Association

LeAnn Buck, MASWCD

Employee Responsibilities: Employees are responsible for:

- Attending and participating in training sessions in which they are enrolled.
- Reviewing their training needs and accomplishments with their supervisors to determine valid and job-related training needs.
- Maintaining their historical data in the Partnership Training Database and maintaining a working copy of their EDP. All employees that have historical information in the data base should review and update historical data immediately after making Training Needs Inventory (TNI) requests.
- Filing PTD Worksheet #2 for each TNI request.
- Developing their abilities using their own initiative, in addition to opportunities provided by the Minnesota Conservation Partnership Agencies.

New employees are responsible for filing the PTD Worksheet #1 with the NRCS Area Administrative Coordinator or their respective State Office Secretary for initial entry into the PTD.

Supervisor Responsibilities: Supervisors are responsible for insuring each employee is afforded the opportunity to participate in available training events. Employees and supervisors are jointly responsible for creating an EDP that best reflects individual needs. If training needs in the EDP cannot be met through On The Job Training (OJT) then the employee needs to make TNI requests. Requests from the TNI will be addressed at the Area, State, or National Level. SWCD Managers please review TNI requests with your employees and your SWCD Boards for approval and budgeting. Courses listed on the training plan that begin with a Subject Code "N" are National Employee Development Center course and may be held out of state. A one week course can cost up to \$1500 for travel and per diem, two week courses \$2500 to \$3000, depending on location.

Area Training Teams: Area Training Teams around the State are comprised of Natural Resources Conservation Service (NRCS), Soil & Water Conservation District (SWCD), Board of Water & Soil Resource (BWSR), Minnesota Association of Conservation District Employees (MACDE), Watershed District (WD) employees, and Local Water Planners. The function of the Area Training Teams is to disseminate information, conduct training inventories, provide training, and maintain the PTD at the Area level.

NRCS Employee Development Committee and BWSR Training Team: The NRCS Employee Development Committee and the BWSR Training Team review statewide TNI requests. The NRCS Employee Development Committee and BWSR Training Team will then recommend a State Training Plan based upon requests from the Area Training Teams and PTD statewide inventories.

ACTIONS TO BE TAKEN:

1. Review course descriptions from the NRCS UNIX system: Log

into UNIX and type the following from your UNIX prompt:
ptdcourses; or

2. From the Internet - NRCS Home Page - this is the most up-to

-date listing of the courses. To view the courses from the Internet, use the following web page: <http://www.mn.nrcs.gov/ptd> Note: You may want to bookmark this address for future Internet access.

3. Print out Worksheet #1 for new employees that need to start a

training record in the database and Worksheet #2 for TNI requests.

4. Review TNI requests with your supervisor. Please complete

Worksheet #2 for each course requested.

5. NRCS/SWCD Field office employees forward approved worksheets

to the NRCS Area Administrative Coordinator. NRCS State Office employees enter TNI requests into the PTD. BWSR employees forward Worksheets #1 and #2 to:

Joe Wiltsey

HC 3, Box 98 FFF

Crosslake, MN 56442

Due Date: October 30, 1998

WHY IS THE TNI IMPORTANT?

1. Area Training Teams and State Training Teams will decide which courses to conduct based on the inventory.

2. Candidates for National Employee Development Center courses

will be taken from the inventory.

3. All employees need to document courses requested.

4. The historical portion of the PTD is a record of your Career

Enhancement and Development.

If you have any questions, please contact your Area Administrative Coordinator. BWSR questions may be addressed to Joe Wiltsey, NRCS training coordinator, at 218-692-4944 or to Rich Dougherty, computer programmer, at 651-602-7904.r

Partnership Training
Database Course Description

MN: DCRM

Discipline: Ecological Science

Title: Crop Residue Management

Provider: NRCS

Overview: To increase the knowledge, skills, and abilities of field personnel to be able to plan and assist farm operators in the application of crop residue management systems.

Objectives: Upon Completion of this course, participants will be able to:

1. Define crop residue management and the concept of managing crop residues to achieve an identified purpose.
2. Define the basic types of conservation tillage systems and considerations in managing each system.
3. Review residue reduction factors of various tillage implements and development of residue cover estimates.
4. Review field methods of measuring percent residue cover.
5. Review planting equipment and seedbed preparation techniques.
6. Demonstrate primary and secondary tillage implements and measure tillage depth and percent residue cover.

Prerequisites: None

Duration: One Day (3 hours classroom and 3 hours field)

Eligibility: DC's Soil Conservationists, SWCD Staff, & other partners

Comments: Field exercise will consist of measuring crop residue. It is recommended various types of tillage equipment be available to demonstrate the amounts of residue left by each implement. Time required for field exercise may be adjusted for the number of different types of tillage equipment available.

SOILS UNDEF

Undefined

The subject code "UNDEF" is used to enter a course, not listed on the SOILS course list, that falls within the SOILS discipline.

Enter UNDEF as the course subject and enter an appropriate course title not to exceed 40 characters.

Also provide the area training team a short description of what the course needs to provide to fulfill the requirements of your request. This description is needed to assist the training team to better understand the training need and be able to address it.

Partnership Training Database

Worksheet #1

(Add New Employee to Database)

1. Name: _____
 Last First Middle

2. _____
Social Security Number

3. _____
Title

4. _____
Office/County

5. _____
Agency

6. _____
Area (NRCS)

This Form should only be filled out if you are a new employee (not in the database) or if your status has changed (Job title, Location, etc).

13 July 1998

Partnership Training Database

Worksheet #2

(Training Needs Inventory)

-
1. Name: _____
 Last First Middle
2. _____
Social Security Number
3. _____ 4. _____ 5. _____
Discipline Subject (code) Course Title
6. _____ 7. _____ 8. _____
Method Trainer (Provider) Priority (High, Med, Low)
9. Description (Undefined Courses Only):

Block 6 - Insert Method of Training (Formal, OJT, Selfdev, etc)

Block 8 - Insert Priority:

High = Needed to perform my job according to my performance plan.

Med = Needed to perform my job according to my position description.

Low = All other training.

13 July 1998

PARTNERSHIP TRAINING DATABASE INFORMATION

Please fill out and return this form to the training instructor for certification of training completed. It is important that each participant submit the information requested on this form for their training record.

Participants Name

Social Security Number

Agency (NRCS, SWCD, BWSR, WD)

AREA (1 - 7)

Discipline(Eng, ECS, etc)

Course Title

Subject Code (From Course Description)

Course Evaluation Rating

Circle one: A B C

A = Highly Recommended To Others

B = Recommended To Others

C = Not Recommended To Others

Start Date

Complete Date

Number of Hours

Method (OJT, Formal, Informal)

Trainer

Trainer Description (Agency, Institute, etc)

MN-PER 015

Partnership Training Database Course listings

Discipline	Subject	Course Title
-----	-----	-----
ADMIN	<u>BBT</u>	SWCD Bookkeeping Training
ADMIN	<u>BBTT</u>	SWCD Board Treasurer Training
ADMIN	<u>BSCT</u>	SWCD Clerical Training
ADMIN	<u>BSFM</u>	SWCD Financial Management
ADMIN	<u>BYECT</u>	Year-End Closeout Training
ADMIN	<u>NM1</u>	Administrative Support (TIER III)
ADMIN	<u>UNDEF</u>	Undef
ECS	<u>ARUSLE</u>	RUSLE - Water Erosion Equation
ECS	<u>AWEQ</u>	WEQ - Wind Erosion Equation
ECS	<u>BJDW</u>	Jurisdictional Delineation of Wetlands in Minnesota
ECS	<u>DCA</u>	Conservation Application
ECS	<u>DCPC</u>	NRCS CONSERVATION PLANNING COURSE
ECS	<u>DCRII</u>	Cultural Resources II
ECS	<u>DCRM</u>	Crop Residue Management
ECS	<u>DFP</u>	Forest Land Planning
ECS	<u>DFPI</u>	Forage Plant Identification
ECS	<u>DFSG</u>	Forage Suitability Groups
ECS	<u>DFSI</u>	Forest-Soil Interpretations
ECS	<u>DFSPP</u>	Forest Stewardship Plan Preparation
ECS	<u>DLS</u>	Living Snowfence
ECS	<u>DNMP</u>	Basic Nutrient Management Planning
ECS	<u>DPAF</u>	Predicting Available Forage in Prescribed Grazing Systems
ECS	<u>DPPGS</u>	Planning Prescribed Grazing Systems
ECS	<u>DPPM</u>	Principles of Pest Management
ECS	<u>DRB</u>	Forest Riparian Buffer
ECS	<u>DSRWC</u>	Short Rotation Wood Culture (Hy. Poplar)
ECS	<u>DUWHM</u>	Upland Wildlife Habitat Management
ECS	<u>DWD</u>	Windbreak Design
ECS	<u>DWE</u>	Field Windbreak Economics
ECS	<u>DWECS</u>	Wind Erosion Control Systems
ECS	<u>DWR</u>	Windbreak Renovation
ECS	<u>N211</u>	Economics of Conservation Planning
ECS	<u>N402</u>	Landscape Architecture
ECS	<u>N505</u>	Soil Bioengineering
ECS	<u>N610</u>	Forestry/Agroforestry Soil-Based Interps
ECS	<u>N620</u>	Forest Water Quality
ECS	<u>N630</u>	Forestry-Windbreak Technology
ECS	<u>N705</u>	Plant-Herbivore Interactions
ECS	<u>N765</u>	Working Effectively with Livestock Producers
ECS	<u>N780</u>	Introduction to FOCS
ECS	<u>N785</u>	Conservation Planning with FOCS
ECS	<u>N806</u>	Prescribed Burning
ECS	<u>N816</u>	Rangeland Ecology
ECS	<u>N818</u>	Pastureland Ecology
ECS	<u>N850</u>	Water Quality-Resource Assessment
ECS	<u>N885</u>	Wetland Restoration and Enhancement
ECS	<u>N900</u>	West-Wide Snow Survey Training School
ECS	<u>NIWQ</u>	Introduction to Water Quality
ECS	<u>NM22</u>	Introduction to Ecological Principles
ECS	<u>NM23</u>	Natural Resources Conservation Course
ECS	<u>NM4</u>	Cultural Resources Training
ECS	<u>OBLP</u>	Building Local Partnerships
ECS	<u>ODCT</u>	Decision Case Teaching
ECS	<u>OECOS</u>	Ecosystem Relationships: Who Cares?
ECS	<u>OEVAL</u>	Evaluating Decision before Spending Time and Money
ECS	<u>OFPLAN</u>	Financial Planning for Resource Managers
ECS	<u>OGAL</u>	Goal Setting for Large Groups
ECS	<u>OHDWM</u>	The Human Dimension of Watershed Management
ECS	<u>OHRM</u>	Intro to Holistic Resource Management
ECS	<u>OHYD100</u>	Hydro 101 - Why Manage Water Resources by Watershed?

ECS	<u>OKLW</u>	Getting to Know your Local Watershed
ECS	<u>OKYW</u>	Watershed Planning
ECS	<u>OLCOM</u>	Lerading and Communicating for Watershed Partnerships
ECS	<u>OMGCON</u>	Managing Conflict
ECS	<u>OMSA</u>	Monitoring for Success and Accountability
ECS	<u>OWMP</u>	Putting together a Watershed Management Plan
ECS	<u>UNDEF</u>	Undefined
ENGR	<u>AAWMS</u>	Ag Waste Mgt Systems (AWMS) Planning
ENGR	<u>ACBRD</u>	Cost-Benefit Determination
ENGR	<u>ACMS</u>	Construction and Material Specifications
ENGR	<u>ACS</u>	Construction Safety
ENGR	<u>ACSD</u>	Conduit Spillway Design
ENGR	<u>ACULV</u>	Hydraulic Design of Culverts
ENGR	<u>ADAMS2I</u>	Introduction to DAMS2
ENGR	<u>ADD</u>	Diversion Design
ENGR	<u>ADHD</u>	Dry Hydrant Design
ENGR	<u>ADRAFT01</u>	Introduction to Drafting
ENGR	<u>AEFI</u>	Earth Fill Inspection
ENGR	<u>AES001</u>	Surveying I
ENGR	<u>AES002</u>	Surveying II
ENGR	<u>AES003</u>	Surveying III
ENGR	<u>AESD</u>	Emergency Spillway Design
ENGR	<u>AESWPD</u>	Excavated Stock Water Pond Design
ENGR	<u>AEWPD</u>	Excavated Wildlife Pond Design
ENGR	<u>AFLETL</u>	FLEval-A Low Cost AWMS Solution Tool
ENGR	<u>AFLEVL</u>	FLEval
ENGR	<u>AFS</u>	Filter Strip Design
ENGR	<u>AGWW01</u>	"Grassed Waterway Design, Level I"
ENGR	<u>AGWW02</u>	"Grassed Waterway Design, Level II"
ENGR	<u>AHPC</u>	Hewlett-Packard Calculator
ENGR	<u>AHYG00</u>	"Hydrology-Eng Field Hndbk, Chpt 2 (EFH2)"
ENGR	<u>AHYG01</u>	"Hydrology-MN Hydrology Guide, Level I"
ENGR	<u>AHYG02</u>	"Hydrology-MN Hydrology Guide, Level II"
ENGR	<u>AHYG03</u>	Hydrology-Est Mag & Freq of MN Floods
ENGR	<u>ALPTR2</u>	Lakeshore Protection Design-MN TR-2
ENGR	<u>AMATH001</u>	"Engineering Math, Level I-Arithmetic"
ENGR	<u>AMATH002</u>	"Engineering Math, Level II-Geometry"
ENGR	<u>AMATH003</u>	"Engineering Math, Level III-Algebra"
ENGR	<u>AMATH004</u>	"Engineering Math, Level IV-Trigonometry"
ENGR	<u>AMOT</u>	Terrace & WASCOB Design-MO Terrace Prgrm
ENGR	<u>APCC</u>	Pre-Construction Conference
ENGR	<u>APDH</u>	Hydraulic Dsn-Pipe Drop/Hood Inlet Spillways
ENGR	<u>APP</u>	Polar Planimetering
ENGR	<u>ARCI</u>	Reinforced Concrete Inspection
ENGR	<u>ASB</u>	Sediment Basin Design
ENGR	<u>ASCFRP</u>	Flood Routing-Short Cut Procedure
ENGR	<u>ASDD</u>	Subsurface Drain Design
ENGR	<u>ASDFDD</u>	"Surface Drainage, Field Ditch Design"
ENGR	<u>ASPD</u>	Sump & Pump Design for Ag Waste Systems
ENGR	<u>ASPTR3</u>	Streambank Protection Design-MN TR-3
ENGR	<u>ASSCD</u>	Stage-Storage Curve Development
ENGR	<u>ASSIST</u>	Requesting NRCS Engineering Assistance
ENGR	<u>ATAAE</u>	Technical Approval Authority (Eng)
ENGR	<u>ATD</u>	Terrace Design
ENGR	<u>ATS</u>	Technical Standards
ENGR	<u>AUERC</u>	Urbanization Effects and Runoff Characteristics
ENGR	<u>AUOD01</u>	"Underground Outlet Design, Level I"
ENGR	<u>AUOD02</u>	"Underground Outlet Design, Level II"
ENGR	<u>AUSSI</u>	Using Soil Survey Information
ENGR	<u>AWSB</u>	Water and Sediment Control Basin Design
ENGR	<u>AWSP</u>	Waste Storage Pond Design
ENGR	<u>AWSP2I</u>	Introduction to WSP2
ENGR	<u>AWSS</u>	Waste Storage Structure Design
ENGR	<u>BWRDE01</u>	Wetland Restor/Develop/Enhance-Level I
ENGR	<u>BWRDE02</u>	Wetland Restor/Develop/Enhance-Level II

ENGR	<u>CASAE</u>	ASAE Conference
ENGR	<u>CMECA</u>	MECA Conference
ENGR	<u>CWR</u>	Water Resources Conference
ENGR	<u>DCI1</u>	Construction Inspection 1
ENGR	<u>DCI2</u>	Construction Inspection 2
ENGR	<u>DCI3</u>	Construction Inspection 3
ENGR	<u>DCI4</u>	Construction Layout
ENGR	<u>DFCD</u>	Design & Install Flexible Conduits-TR77
ENGR	<u>DGSM01</u>	"SM-1, Engineering Soil Classification"
ENGR	<u>M101</u>	Introduction to Hydrology
ENGR	<u>M102</u>	Precipitation
ENGR	<u>M103</u>	Runoff Concepts
ENGR	<u>M104</u>	Runoff Curve Numbers
ENGR	<u>M105</u>	Runoff Computations
ENGR	<u>M106</u>	Peak Discharge
ENGR	<u>M107</u>	Hydrographs
ENGR	<u>M111</u>	Reservoir Flood Routing
ENGR	<u>M116</u>	Watershed Yield
ENGR	<u>M151</u>	EFH2 Microcomputer Program
ENGR	<u>M201</u>	Hydrology and Hydraulics in NRCS
ENGR	<u>M206A</u>	Time of Concentration
ENGR	<u>M206B</u>	TR-55 Peak Discharge
ENGR	<u>M206D</u>	Peak Discharge
ENGR	<u>M251</u>	TR-55 Computer Program
ENGR	<u>N110</u>	Construction Contract Admin.
ENGR	<u>N115</u>	Concrete Fundamentals
ENGR	<u>N125</u>	Construction Inspection
ENGR	<u>N185</u>	Designing with Geosynthetics-Ag Wastes
ENGR	<u>N250</u>	Hydrology Level III
ENGR	<u>N260</u>	Hydrology Level IV
ENGR	<u>N800</u>	Advanced TR20
ENGR	<u>N810</u>	Basic TR20
ENGR	<u>N895</u>	Hydrology Tools for Wetland Determination
ENGR	<u>OACI01</u>	ACI Concrete Field Testing Tech-Grade I
ENGR	<u>OACI02</u>	"Concrete Inspector, Level II"
ENGR	<u>OTSSI</u>	Introduction to Total Survey Station
ENGR	<u>UNDEF</u>	Undefined
IRM	<u>DAVI</u>	Arcview Beginning
IRM	<u>DAVII</u>	Arcview Intermediate
IRM	<u>NM2</u>	Advanced C Programing
IRM	<u>NM3</u>	C Language Programming
IRM	<u>NM36</u>	UNIX System Administration
IRM	<u>NM37</u>	UNIX System Fundamentals
IRM	<u>NM38</u>	UNIX System Security
IRM	<u>NM39</u>	UNIX System Shell
IRM	<u>NM40</u>	UNIX System Quick Start
IRM	<u>NM41</u>	VI Editor
IRM	<u>NM5</u>	ed Editor
IRM	<u>UNDEF</u>	Undef
IRM	<u>VACCESS</u>	Access Database v2
IRM	<u>VEXCEL</u>	Excel Spreadsheet v5
IRM	<u>VPP4</u>	Powerpoint v4
IRM	<u>VWIN95</u>	Microsoft Windows 95
IRM	<u>VWORD6</u>	Microsoft Word v6
MGMT	<u>BEG</u>	Effective Grantsmanship
MGMT	<u>BML1</u>	Management Level I: Introduction to Managing a SWCD
MGMT	<u>BML2</u>	Management Level II
MGMT	<u>BOLI</u>	Orientation Level I (SWCD)
MGMT	<u>BPM</u>	Personnel Management
MGMT	<u>BRCSA</u>	Resource Conservation for SWCD Administrators
MGMT	<u>BSL1</u>	Supervisor Level I: Introduction to Managing a SWCD
MGMT	<u>DSISCEP</u>	NRCS Student Intern & SCEP
MGMT	<u>N101</u>	Introduction to NRCS
MGMT	<u>N111</u>	Managing For Excellence
MGMT	<u>N121</u>	Supervising For Excellence

MGMT	<u>N131</u>	Leading For Excellence
MGMT	<u>N135</u>	Civil Rights Compliance in Program Delivery
MGMT	<u>N141</u>	Effective Interpersonal Skills
MGMT	<u>N151</u>	Team Training
MGMT	<u>N301</u>	Image Processing: Basics
MGMT	<u>N311</u>	Image Processing: Advanced Techniques
MGMT	<u>N910</u>	The Effective Facilitator
MGMT	<u>N915</u>	Managing Quality Workshop
MGMT	<u>N920</u>	Capitol Hill Workshop
MGMT	<u>N930</u>	Roadmap to Problem Solving Workshop
MGMT	<u>NM24</u>	Orientation for Engineers, Geologists, and Landscape Architect
MGMT	<u>NM25</u>	Sociological Training
MGMT	<u>SALU</u>	Annual Legislative Update
MGMT	<u>SLNC</u>	Leadership for the Next Century
MGMT	<u>UNDEF</u>	Undef
SAFETY	<u>UNDEF</u>	Undef
SAFETY	<u>VAIDS</u>	AIDS
SAFETY	<u>VBA</u>	Back in Action
SAFETY	<u>VCP</u>	Safety on the Job: Causes and Prevention
SAFETY	<u>VCSHH</u>	Chemical Safety - health Hazards
SAFETY	<u>VCSPH</u>	Chemical Safety - Proper Handling
SAFETY	<u>VDD</u>	Digging Dangers
SAFETY	<u>VDDII</u>	Digging Dangers II
SAFETY	<u>VDDTT</u>	Drinking and Driving: The Toll, The Tears
SAFETY	<u>VFRCS</u>	Fools Rush In Confined Spaces
SAFETY	<u>VGPE</u>	Waterloo, Iowa - Gas Pipeline Explosion
SAFETY	<u>VICDA</u>	Introduction to Chemical Dependency Awareness
SAFETY	<u>VMLH</u>	Manual Lifting and Handling
SAFETY	<u>VNU</u>	Nutrition
SAFETY	<u>VPPE</u>	Personal Protective Equipment
SAFETY	<u>VPW</u>	Right to Know - Pesticides in the Workplace
SAFETY	<u>VRK</u>	Right to Know - Hazard Communication in the Workplace
SAFETY	<u>VSF</u>	The Ride of Your Life (Seat Belts)
SAFETY	<u>VSBS</u>	It'll Never Happen To Me (Seat Belt Safety)
SAFETY	<u>VSFAM</u>	Standard First Aid Multimedia
SAFETY	<u>VSM</u>	Safety - A State of Mind
SAFETY	<u>VTP</u>	Think Prevention - A Response to Alcohol and Drug Abuse
SAFETY	<u>VTG</u>	Tractor Safety Begins With You
SAFETY	<u>VTSD</u>	Think Snow - Defensive Driving
SAFETY	<u>VTSDII</u>	Trenching Safety II
SAFETY	<u>VWSD</u>	The Woman's "How To" of Self Defense
SOILS	<u>ABPI</u>	Basic Photo Interpolation (Remote Sensing)
SOILS	<u>AFSR</u>	FOCS Soil Reports
SOILS	<u>AFSS</u>	Field Soil Survey
SOILS	<u>ASBLD</u>	Soil Boring Log Documentation
SOILS	<u>ASRNE</u>	Soil Resources for New Employees
SOILS	<u>ASRRC</u>	Soil Resources Refresher Course
SOILS	<u>DFPPA</u>	Farmland Protection Policy Act
SOILS	<u>DGPS</u>	Global Positioning System
SOILS	<u>DHSI</u>	Hydric Soil Indicators
SOILS	<u>DMCW</u>	Map Compilation Workshop
SOILS	<u>DNA</u>	NASIS/Awareness
SOILS	<u>DNI</u>	NASIS Intro for Project Soil Survey Staff
SOILS	<u>DNTSS</u>	NASIS/TSS
SOILS	<u>N515</u>	Soil Engineering in Conservation Operations
SOILS	<u>N654</u>	Introduction to Digital Remote Sensing
SOILS	<u>N846</u>	Basic Soil Survey: Field & Lab
SOILS	<u>N856</u>	Soil Correlation
SOILS	<u>N890</u>	Hydric Soils for Wetland Delineation
SOILS	<u>N956</u>	Soil Technology-Measurement and Data Evaluation
SOILS	<u>N960</u>	Soil Technology-Programs and Applications
SOILS	<u>NM26</u>	"Soil Mechanics Training Series Modules 1,2,AND 3 - Classifica
SOILS	<u>NM27</u>	"SOIL MECHANICS TRAINING SERIES MODULE 4 - VOLUME, WEIGHT RELA
SOILS	<u>NM28</u>	SOIL MECHANICS TRAINING SERIES MODULE 5 - COMPACTION - LEVEL I
SOILS	<u>NM29</u>	SOIL PROPERTIES AND INTERPRETATIONS MODULE 1 - INTRODUCTION

SOILS	<u>NM30</u>	SOIL PROPERTIES AND INTERPRETATIONS MODULE 2 - TEXTURE
SOILS	<u>NM31</u>	SOIL PROPERTIES AND INTERPRETATIONS MODULE 3 - ORGANIC MATTER
SOILS	<u>NM32</u>	SOIL PROPERTIES AND INTERPRETATIONS MODULE 6 - STRUCTURE
SOILS	<u>NM33</u>	SOIL PROPERTIES AND INTERPRETATIONS MODULE 9 - PERMEABILITY
SOILS	<u>NM34</u>	SOIL PROPERTIES AND INTERPRETATIONS MODULE 16 - SLOPE
SOILS	<u>NM35</u>	SOIL PROPERTIES AND INTERPRETATIONS MODULE 18 - SOIL TEMPERATU
SOILS	<u>NM6</u>	GEOLOGY TRAINING SERIES GROUNDWATER CORRESPONDENCE COURSE
SOILS	<u>UNDEF</u>	Undefined
WRS	<u>UNDEF</u>	Undefined

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Soundings

A Minnesota Water Plan Assessment



ENVIRONMENTAL QUALITY BOARD

Soundings: A Minnesota Water Plan Assessment is a product of the Environmental Quality Board Water Resources Committee, prepared by Committee Director Marilyn Lundberg at Minnesota Planning. *Soundings* was approved at the September 1998 meeting of the Environmental Quality Board, and fulfills the requirement in MS 103A.43 for a report on water policy. Estimated cost of preparing this report in staff time and printing is \$46,500, excluding committee assistance.

The Environmental Quality Board, staffed by Minnesota Planning, draws together five citizens and the heads of 10 state agencies that play a vital role in Minnesota's environment and development. The board develops policy, creates long-range plans and reviews proposed projects that would significantly affect Minnesota's environmental, economic and social well-being.

Minnesota Planning is charged with developing a long-range plan for the state, stimulating public participation in Minnesota's future and coordinating public policy with state agencies, the Legislature and other units of government.

EQB Water Resources Committee

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 Carolyn Engebretson, vice-chair, EQB citizen member
 Duane Anderson, Pollution Control Agency
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 Pat Brezonik, University of Minnesota Water Resources Center
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Upon request, *Soundings: A Minnesota Water Plan Assessment*, will be made available in an alternate format, such as Braille, large print or audio tape. For TTY, contact Minnesota Relay Service at 800-627-3529 and ask for Minnesota Planning.

October 1998

Additional copies of this report are available on the Internet (www.mnplan.state.mn.us) or by contacting Minnesota Planning.



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Soundings

A Minnesota water plan assessment

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Glossary

Aquifer A sand, gravel or rock formation capable of storing or conveying water below the surface of the land.

Best management practice Voluntary practices used to prevent or minimize sources of pollution.

Ecoregion An area with similar soils, land surface, natural vegetation and land use.

Erosion The wearing away of land surface by water or wind. It occurs naturally from weather or runoff, but often is intensified by human activities.

Hydrograph A graph showing the water elevation within a lake or well as measured over a period of time. Ground water elevation is often reported as the depth below ground surface to that point.

Nonpoint pollution Pollution that arises from diffuse sources such as runoff from cultivated fields or urban areas.

Nutrients Elements or compounds essential to growth. Phosphorus and nitrogen are the two most common nutrients that runoff in sediment.

On-site sewage system Individual sewage or waste-water treatment systems that rely on natural decomposition of wastes at the site where they originate. Most consist of an underground sewage tank where wastes are separated into layers. Liquids are distributed into a drain field or other soil-based system for filtering and natural decomposition.

Pesticide A chemical substance used to kill or repel pests. Pesticides include herbicides to kill weeds, insecticides to kill insects and fungicides to kill fungi.

Sustainable development Development that enhances economic opportunity and community well-being while protecting and restoring the natural environment.

Watershed The surrounding land area that drains into a lake, river or river system.

Wetlands Low-lying lands that frequently have standing water on them, such as swamps, marshes and meadows.

MINNESOTA PLANNING ENVIRONMENTAL QUALITY BOARD



October 1998

To Officials and
Citizens Interested in
Minnesota's Water

We are pleased to send you a copy of *Soundings: A Minnesota Water Plan Assessment*. This report evaluates progress toward carrying out the 14 objectives in the 1991 *Minnesota Water Plan* and anticipates the development of *Minnesota Water Plan 2000*.

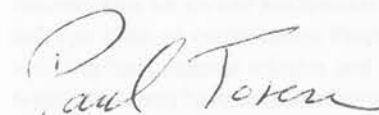
Minnesota's population, land use and water use are constantly changing. This is why the Legislature has charged the Environmental Quality Board with developing a statewide water plan every 10 years. The 1991 plan set an ambitious agenda for protecting and conserving Minnesota's water. *Soundings* summarizes progress in carrying out the plan and suggests directions and needs.

Soundings will be used by the Water Resources Committee of the Environmental Quality Board and others as a tool to shape the next water plan due in September 2000. We want your suggestions. Please complete and return the enclosed questionnaire by January 5, 1999. You can also find the form at our web site (www.mnplan.state.mn.us/eqb).

Minnesotans place a high value on the state's water resources. We look forward to working together to develop a useful water plan that safeguards water for future generations.

Sincerely,


Rodney W. Sando, Chair
Environmental Quality Board


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Summary

As the headwaters of three major North American river basins, Minnesota has a unique responsibility for protecting water quality and quantity. Regional drought, flooding and water quality issues are constant reminders of the vital role of water in everyday life. As Minnesota's population grows, as water demands increase and land uses change, the added pressure on water resources requires proactive measures to meet present and future water needs. To meet this challenge, the Minnesota Legislature charged the Environmental Quality Board with developing and implementing a long-range water resources plan every 10 years.

The 1991 *Minnesota Water Plan* presents a comprehensive approach to protect and conserve Minnesota's water. The plan was crafted to help water managers and policy-makers coordinate efforts and integrate water programs.

Soundings: A Minnesota Water Plan Assessment highlights progress in carrying out the 1991 plan, in anticipation of a new water plan in 2000. *Soundings* is a status report of accomplishments and needs relating to the plan's 14 objectives, summarized here.

- Make water management more understandable and directed toward meeting state goals
- Carry out a statewide water resources information and education strategy
- Establish a systematic approach to collecting, managing and using water-related information
- Uniformly enforce Minnesota law and fairly assign liability
- Ensure that Minnesota's infrastructure is maintained and enhanced
- Target resources to priority needs and expand revenues
- Adopt a coordinated, interdisciplinary approach to managing lakes
- Protect and restore wetlands
- Manage rivers with their related land resources
- Routinely consider protection of ground water quality and quantity in public decisions
- Build degradation prevention goals into all programs and practices affecting water
- Strengthen protection and management of water wells
- Develop a local and state program to ensure sufficient water for long-term needs
- Sustain environmental quality by recognizing water interconnections

Progress is focused in key areas

MORE EFFORTS ARE FOCUSED ON BIG-PICTURE MANAGEMENT. Governments and other entities are focusing on sustainable

development, ecosystem management and basin management at all levels. These types of endeavors provide a unifying influence and offer a way to examine programmatic goals in a larger context. Rivers and watersheds are an increasing focus, with major activities targeted at large basins such as the Minnesota River.

LOCAL WATER PLANNING IS PROGRESSING. Local water planning, initiated in 1985 in Greater Minnesota and in 1982 in the Twin Cities area, is an integral part of most state and federal initiatives in Minnesota. State agencies are cooperating with local water planning groups in actions ranging from monitoring to best management practices and are looking to local water plans for priorities and for targeting program funds. Many local efforts are leading to more effective water protection and management. In the Twin Cities area, which has had mixed success in water planning and management, counties are becoming more active.

COORDINATION IS INCREASING. Interagency cooperative projects abound, along with numerous task forces, special committees and other joint approaches to water needs. Growing local expertise is leading many cooperative efforts.

COMPUTERS ARE CHANGING METHODS OF EDUCATING, INFORMATION SHARING AND ACCESSING DATA. The use of web sites, listservers and e-mail provides almost instant access to information to a growing number of computer users. Technology is also affecting educational opportunities; in addition to conventional methods, more guidance is offered electronically.

MORE MONITORING IS PROVIDING BETTER INFORMATION. Several state monitoring efforts were initiated, expanded or refocused, such as the increase in monitoring for contaminants in drinking water supplies, and the growing number of state and local monitoring efforts of lakes and for pesticides. As a result, environmental information is multiplying and reaching more people.

NEW EFFORTS ARE PREVENTING AND CORRECTING PROBLEMS. The 1990s saw added legislation, enforcement and funding to safeguard water resources, including protections for wetlands and requirements for on-site wastewater treatment systems as well as a stronger focus on conservation. Prevention efforts resulted in reducing toxic material releases and reducing and recycling solid waste. Problems have been corrected, such as upgrading or removing thousands of leaking tanks and sealing unused wells.

Some areas need more work

PRIORITY SETTING IS VARIABLE. Priority setting helps meet objectives relating to resource protection and management, funding and infrastructure. When priorities are not set in a systematic manner, important needs may not be identified or addressed. Systems for setting priorities for state assistance should be evaluated and reevaluated. Priority-setting should look beyond program needs to resource needs and beyond resource needs to community needs, focusing on prevention.

COORDINATION NEEDS MORE EMPHASIS. Coordination is an essential part of meeting nearly every objective, and while it is increasing, long-range comprehensive strategies are generally lacking. Coordination within Minnesota tends to revolve around program needs rather than taking a broad comprehensive approach. It does not generally occur in a systematic and inclusive manner — local, federal and state agencies may be left out. At the local level coordination may be lacking between neighbors, between cities and counties, and between special purpose and general purpose governments. Comprehensive strategies should be developed to coordinate water resources based on sustainable development principles and focused on resource systems. Surface water and ground water should be treated as an interconnected resource.

INFORMATION SHARING AND EDUCATION IS NEVER FINISHED. Information should be enhanced for ground and surface water systems, trends and interactions, including sustainable yields and effects of various land uses. Data should be evaluated, interpreted and made available to decision-makers and the public through broad-based educational efforts. Policy-makers should be armed with information they need to safeguard water resources.

FUNDING ASSISTANCE MAY NOT RELATE TO PRIORITIES. Objectives for resource protection and management as well as for preventing pollution tie funding and other assistance to priority needs. Some new funding has been earmarked for specific needs, such as feedlots or wetland protection. However, without a comprehensive approach and better priority setting and evaluation, it is not clear if funding is going to the highest priorities. Priorities need to be set for the state, not only for agencies and programs.

WITHOUT EVALUATION, PROGRAMS MAY MISS THE MARK. Periodic evaluation is needed to understand whether programs or activities are accomplishing their mission, or whether the mission has changed. Few evaluations are in place and analysis of data showing progress is also sporadic. Sustainable development principles are an effective tool; their use should be continued and expanded. In addition, local water plans should be tied to comprehensive plans including community-based plans of cities and counties. Programs and best management practices should be evaluated for relevance and progress toward achieving their objectives.

The *Minnesota Water Plan 2000* should be developed with input from all levels of government and various public interests. Ultimately, the plan should provide guidance in meeting long-term, broad-based objectives and strategies to coordinate water resources based on sustainable development principles and focused on resource systems.

Planning for Minnesota water

Minnesota water goals are two-fold: to safeguard Minnesota's water resources for the future and to meet current needs, while recognizing water's limits and interconnections, its changing and variable nature.

The 1991 *Minnesota Water Plan* set an ambitious agenda for protecting and conserving water. The plan was designed to guide water managers and policy-makers by providing a foundation for state efforts to coordinate and integrate water programs. State agencies agreed to carry out specific actions to fulfill the plan's objectives. The plan also communicated the state's commitment to local water planning as a key to managing water.

Soundings: A Minnesota Water Plan Assessment summarizes progress in carrying out the 1991 *Minnesota Water Plan*. The Water Resources Committee of the Environmental Quality Board compiled supporting information for the assessment. *Soundings* is part of a biennial series of water policy reports developed since the 1991 *Minnesota Water Plan*; previous reports focused on monitoring, water supplies, wastewater treatment and ground water protection.

Soundings looks at progress on the plan's 14 objectives, presented in chapters that parallel the 1991 report: integrating water management, focusing on the resource, protecting and conserving water resources and managing water's interconnections. *Soundings* also suggests directions and needs, setting the stage for the next comprehensive water plan due in 2000.

Otter Tail County improves lake quality

Lakes were a priority in the Otter Tail County's local water plan. A challenge grant from the Board of Water and Soil Resources funded a study that found a high phosphorus load coming from one of the two rivers flowing into Big Pine and Little Pine lakes. A closer look at land use pointed out possible problems from feedlots, septic systems and cropland and streambank erosion. Measures such as feedlot pollution abatement systems, septic system upgrades and erosion control measures are underway to reduce the nutrient load.

Integrating water management

Six objectives tie into Minnesota's water management strategy to make state government more understandable and responsive, to unify goals and build partnerships between state and local governments. Several objectives target efforts in communication, education, information and research to meet water management goals; others focus on water laws, infrastructure and funding.

10-YEAR OBJECTIVE: TO MAKE WATER MANAGEMENT IN MINNESOTA MORE UNDERSTANDABLE, EFFICIENT AND DIRECTED TOWARD MEETING STATE GOALS.

To reach this objective, the 1991 *Minnesota Water Plan* recommended establishing a coordination strategy, strengthening local water plans and making them a highly visible element of the strategy.

NUMEROUS EFFORTS STRENGTHEN COORDINATION. To help citizens and local entities understand and better participate in Minnesota's complex system of water management, the plan envisioned a strategy that would coordinate various entities and define roles. While such a strategy has not been developed, many groups are routinely coordinating their efforts. A big-picture framework helps unify an increasing number of efforts such as sustainable development as well as ecosystem and river basin management.

Numerous groups meet regularly to coordinate efforts. The Environmental Quality Board is legislatively charged with developing state water policy priorities and coordinating activities of all levels of government. In addition, the board coordinates a number of water assessments, prepares a water policy report each even-numbered year and develops the state water plan every 10 years. The Water Resources Committee, composed of two citizen board members, state water-related agencies, the Metropolitan Council and the University of Minnesota, helps the Environmental Quality Board carry out its water mission. *Soundings* is an evaluation of current directions and progress in meeting water plan objectives. *Saving Resources: Meeting Minnesota's Water and Wastewater Needs*, published in 1996, analyzed information affecting several agencies as well as local government. Staff work loads and competing pressures often limit the board's ability to carry out the broad legislative charge.

The 1997 interagency water monitoring initiative was a joint product of the Environmental Cluster, a group of state environmental agency heads that meets weekly. Numerous ongoing cooperative efforts among agencies and other interests tackle such issues as nonpoint pollution, ground water monitoring and surface water monitoring. Water managers meet routinely and staff from various entities work together on specific programs. Other groups are also more closely tied into state decisions, such as the Metropolitan Council that now reviews appropriation permits and participates with local water planning committees and boards.

To stretch resources and maximize program impact, local, state and federal agencies frequently share staff positions. The University of Minnesota Extension Service and the Natural Resources Conservation Service implemented education and information efforts with the Environmental Quality Incentive Program. The Board of Water and Soil Resources funded engineers and technicians in 11 regions to design local water quality projects. A Natural Resources Conservation Service employee has served as a water quality liaison with the Pollution Control Agency for the past six years.

Another coordination approach suggested in the plan is to combine state agency regional offices, which are rarely in the same town. While agencies have generally supported combining regional offices, few changes have been made. An overall strategy and significant funding are lacking.

Overall, coordination tends to be programmatic rather than systematic and inclusive. Local and federal agencies may be left out. With few exceptions, there are no mechanisms or guidelines in place for programs to be coordinated comprehensively; retooling programs for broader purposes is difficult without common goals or priorities.

Cass County water plan spurs action

Cass County embraced local water planning to effectively protect and manage its water resources, involving many in the planning process.

Outcomes included developing a comprehensive plan, adopting a zoning ordinance and septage disposal ordinance, developing an exotic species program and stepping up enforcement.

REPORT RECOMMENDS OPTIONS FOR WATER MANAGEMENT. In 1996 the Minnesota Legislature requested a study of how environmental services could better address certain goals and outcomes. Minnesota Planning published *Crosscurrents*, which reported that the water management system, while complicated, is what the Legislature intended. Agencies such as agriculture or health advocate particular missions and program assignments that reflect the desires of state constituency groups. Barriers were identified such as inflexibility of funding requirements or difficulty in changing statutes or rules.

Crosscurrents highlighted some strides toward improving delivery systems. Agencies work cooperatively on planning, enforcement and assistance efforts, developing partnerships to reduce the challenge of navigating a governmental permit maze. To do this, agencies and all levels of government have had to be more flexible in their requirements. The report suggests options to improve coordination since "citizens and local units of government must know who is in charge and whom to contact" in the state's complex system of water management.

LOCAL WATER PLANNING IS PROGRESSING. Strong local water efforts are considered key to good water management. Seventy-three of 80 outstate counties have updated state-approved, comprehensive local water plans, effective August 1998. The plans include newly required components on wellhead protection, wetland preservation areas, ground water sensitivity and urban storm water. Adding these components increases local awareness of potential problems, making prevention easier. The Board of Water and Soil Resources, created in 1987 from a merger of three boards, is charged with approving the plans.

Local water planning accomplishments in 1996-97 included:

- One-half of all counties in greater Minnesota engaged in the revision or adoption of comprehensive plans or ordinances as a result of water plans.
- Counties participated in an average of one watershed or lake assessment project and monitored the water quality of seven lakes and streams.
- All counties implemented land and water treatment projects.
- All counties undertook inventory activities, including feedlots, septic systems, abandoned wells, drained wetlands and streambank and shoreline erosion sites.

Watershed districts are also updating water plans. In the last five years about one-third of the 43 watershed districts have revised their plans and the remainder will be done in the next five years. Most of the approved metropolitan plans are by watershed districts, although some watershed management organizations have also produced effective plans. District activities have expanded beyond traditional flood control projects to include a greater emphasis on water quality and watershed management.

THE TWIN CITIES REGION ORGANIZES WATER PLANNING DIFFERENTLY THAN THE OTHER 80 COUNTIES. The metropolitan area uses watershed management organizations, which could be a watershed district, or county leadership for surface water plans. Forty-six watershed management organizations were created in 1982 to develop water plans required by law. Each local unit in a watershed management organization was to develop and implement a water plan consistent with the overall plan, including the adoption of official controls for such things as reducing erosion and protecting wetlands.

Several plans were never developed. As required by statute, the Board of Water and Soil Resources developed rules for "second generation" plans in 1992. Eleven of the remaining 36 planning entities have second generation plans. The board has developed a priority phasing schedule for the remaining plans, however, some plans will not be due until 2001 or later.

Counties are assigned ground water planning. Four of the seven counties have state approved ground water plans with two working on plan updates. Two counties have nearly completed plans and one developed a ground water assessment outside of the official ground water planning process.

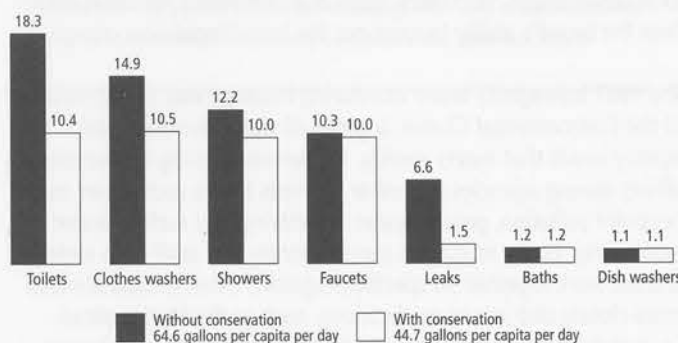
County roles are growing in Twin Cities area water planning. In 1997 the Board of Water and Soil Resources examined water management organizations in Scott and Carver counties. It found that all the joint powers organizations in Carver County and most in Scott County were self-terminated or noncompliant with water planning requirements. With no viable watershed management organization, all counties except Ramsey and Hennepin are required by law to assume watershed planning duties, and Carver and Scott counties have done so. They are also investigating integrating ground and surface water planning and management efforts. Meanwhile, Washington and Hennepin counties are examining how water management is structured locally.

Legislative changes have strengthened the ties between land use and water management in the region. Required local comprehensive plans must contain water supply plans, as well as plans for wastewater systems and surface water management. Watershed management organization plans must be consistent with ground water plans.

LOCAL WATER PLANS USEFUL TO MANY. State and federal agencies use the local water planning process to bring their programs to the local level or for direction on where to target program dollars. Agricultural producers who apply for the USDA Conservation Reserve Program receive additional environmental points for local water plans and water quality priority areas. In 1997, the entire state of Minnesota was designated a water quality priority, giving state producers a competitive edge nationally for program funds. Local planning also gives local government a mechanism to communicate specific resource protection priorities to state and federal agencies.

State agencies are participating with local governments as they develop their water plans, often providing staff liaisons to help local entities readily get information and assistance about such topics as understanding geologic conditions, managing data and preventing pollution. State water managers meet with local governments early in the water planning process to ensure that state concerns get addressed in each local plan and to avoid agencies not approving plans. The Metropolitan Council assists watershed management organizations and counties in developing

HOUSEHOLD WATER USE CUT WITH CONSERVATION



Source: American Water Works Association and the Environmental Protection Agency

water plans and helps local communities incorporate water elements into comprehensive plans.

Needs and directions

- Develop a multi-year statewide coordination strategy of agreed upon goals, assigned leadership and an action plan to ensure that coordination is systematic and inclusive.
- Encourage counties, cities, watershed districts and soil and water conservation districts to coordinate their water plans and to recognize source water protection, basin planning and water supply and demand management.
- Improve and expedite water planning in the Twin Cities area by watershed management organizations and counties.

Arrowhead collaborates on water priorities

Six counties in the Arrowhead region have worked together for six years to address county water plan goals, and review local water priorities and budgets. The Arrowhead water quality team, made up of county water plan coordinators and state, extension, education, soil and water conservation districts and regional representatives, has secured several grants for such things as best management practices fact sheets, a shoreland volunteer program, videos and a newsletter focusing on safe drinking water and shoreland management.

10-YEAR OBJECTIVE: TO DEVELOP AND CARRY OUT A STATEWIDE WATER RESOURCES INFORMATION AND EDUCATION STRATEGY AS AN INTEGRAL PART OF THE STATE'S NEW ENVIRONMENTAL EDUCATION PROGRAM.

To reach this objective the 1991 *Minnesota Water Plan* recommended launching a major environmental education initiative, opening lines of communication among all levels of government and citizens and strengthening training efforts.

ENVIRONMENTAL EDUCATIONAL EFFORTS ABOUND DESPITE MOVES AND CHANGES. To direct environmental educational efforts, 1990 legislation established environmental education goals, created the Office of Environmental Education, the Environmental Education Advisory Board, affiliated the board and office with the State Planning Agency, and gave environmental education responsibilities to the Department of Education. The Office of Environmental Education was abolished in 1993, and the advisory board was moved to the Office of Environmental Assistance. Lack of funding and frequent changes hamper statewide information and education strategies, leaving most agencies to single-handedly undertake educational efforts.

A *GreenPrint* for Minnesota: State Plan for Environmental Education was published in 1993 by the Office of Environmental Education under

the direction of the Minnesota Environmental Education Advisory Board. It outlines recommendations and strategies for achieving Minnesota's goals for environmental education over a 10-year period. The Office of Environmental Assistance recently reevaluated implementation of the Waste Management Act and concluded that environmental education was critical. It is working with the Environmental Education Advisory Board to update *GreenPrint*.

In 1992, working with an interagency task force, the Environmental Quality Board developed *Toward a Minnesota Nonpoint Source Information Strategy* and a *Nonpoint Source Information and Education Materials Inventory*. This strategy was incorporated into the 1994 Minnesota's Nonpoint Source Management Program. The Minnesota Pollution Control Agency and University of Minnesota Extension Service share a position to help carry out the strategy.

FUNDING SUPPORTS NUMEROUS EDUCATIONAL OPPORTUNITIES. Many local water plans have educational goals and use state funds to carry them out, or receive direct legislative support. The Minnesota River Educational Initiative, for example, links five counties with Extension to reduce phosphorus and to encourage whole farm plans in the Blue Earth River basin.

The U.S. Department of Agriculture's new Environmental Quality Incentives Program provided \$533,000 in 1997-98 for educational activities for local units, American Indians and others. Colleges located at Leech Lake and Fon du Lac are working to educate American Indian tribes and individual land users on USDA programs, environmental concerns and possible solutions. Another grant went to the Blue Earth River Area Local Work Group to conduct the Land Stewardship Opportunities for Women Conference. This effort has helped to inspire women, who represent roughly 35 percent of the region's landowners, to become more involved in land stewardship decisions.

From 1994 to 1998 the Metropolitan Council offered grants to implement nonpoint source pollution control efforts. Of the nearly \$8 million available, about 30 percent has gone to education programs. The WaterShed is one example.

Do you know your watershed?

More than 100,000 Twin Cities area residents can answer "yes" after visiting the WaterShed, an interactive exhibit demonstrating the effects of urban runoff and highlighting what individuals can do to protect urban lakes and streams. WaterShed Partners is a coalition of 33 agencies, educational institutions and nonprofit organizations working together to provide education on nonpoint source pollution prevention. The WaterShed's four learning stations have been displayed at community festivals, schools and libraries, malls and the State Fair; duplicates of two learning stations are now part of a permanent display at the Science Museum.

TRAINING AND ASSISTANCE FOR LOCAL GOVERNMENTS GEARED TO PROGRAMS AND ISSUES. Agencies provide a variety of training and assistance; however, most are programmatic rather than comprehensive. A sampling of current efforts are:

- Assistance for pesticide and nutrient management to protect water resources is available from the Department of Agriculture, which re-designed its monitoring program to focus on local cooperatives such as the Lake Harriet Awareness Project. The department uses local water plans to identify potential partners.

- The Pollution Control Agency offers assistance with lake water quality assessments, countywide monitoring programs and water quality data analysis. Basin plans serve as guides for water quality protection efforts and "basin information documents" will compile available water quality data. The Department of Natural Resources provides information about enforcement issues.

- Several agencies conduct periodic geology and hydrology training for local governments and agency staff. The Natural Resources Conservation Service and various partners provide a total resource perspective for conservation planning and implementation to local resource personnel.

- The Department of Health coordinates supply and wastewater management training, assistance for wellhead protection and water well training.

- The Board of Water and Soil Resources provides Wetland Conservation Act training, as well as engineering and leadership training with the Natural Resources Conservation Service and Minnesota Association of Soil and Water Conservation Districts.

- The Shoreland Volunteer Program offers interdisciplinary workshops for shoreland property owners. Volunteer support is provided through a partnership with Extension Service, soil and water conservation districts, water plan coordinators and state agencies. Extension Service is involved in river watch programs and is expanding its shoreland volunteer programs to rivers, starting with the Rum River.

ENVIRONMENTAL EDUCATION AVAILABLE IN MANY VENUES. New courses and programs about water issues are available for teachers, students and interested adults. Hamline University offers an Internet and CD-ROM class, Rivers of Life, focusing on the Minnesota and Mississippi rivers. The Metropolitan Council and The Tarlton Institute for Marine Education, the nonprofit arm of the Underwater World aquarium at the Mall of America, are offering environmental education courses at the mall as an add-on to school field trips. The council also participates with the Science Museum, offering courses to teachers and others.

State curriculum-based programs foster greater awareness and comprehension of water-related issues. Students and volunteers in the River Watch program monitor water chemistry and insects, loons, dragonflies and wetlands. The Department of Natural Resources sponsors interdisciplinary elementary and secondary activity guides for students and teachers, such as Project WET, a nationally developed curriculum that has trained more than 2,000 teachers and main-

tains a statewide network of workshop facilitators. It also sponsors MinnAqua, a fisheries and aquatic habitat education program. The Department of Agriculture offers Ag in the Classroom, a program that exposes urban students to food and farm issues.

Education reduces pollution load to Lake Harriet

To stem water quality deterioration, the Lake Harriet Watershed Awareness Project reduced the quantity of pesticides and nutrients entering this urban lake. Homeowners were surveyed about lawn care habits, informed about how these habits affected the lake, then asked how the project changed their actions. Lake Harriet was monitored for pesticides and nutrients in storm water runoff, rainfall and lake water runoff before and after distributing educational materials to quantify changes brought about through homeowners' actions.

Herbicides or weedkillers were found in 80 percent of the storm runoff events, in addition to agricultural herbicides in rainfall samples and in 35 percent of the storm water samples. Phosphorus peaked twice a year, in the spring and in the fall from sources such as fertilizers, leaves and grass clippings. A decrease was noted in average herbicide loads after efforts to inform homeowners about how their lawn care habits affected water quality. The Department of Agriculture, Minneapolis Park and Recreation Board and the University of Minnesota Extension were project sponsors.

COMPUTERS CHANGE METHODS OF INFORMATION SHARING. Increasing volumes of water-related data are on the Internet, making information accessible and immediate. Foundations for Integrated Access to Environmental Information, led by the Department of Natural Resources with funding recommended by the Legislative Commission on Minnesota Resources, assesses state environmental data needs for web development.

Most state and federal agencies have web sites and many public and private organizations provide electronic water-related information. For example, the Pollution Control Agency's web site offers lake, stream and ground water information; the Department of Natural Resources site has climate, streamflow, lake and fisheries data, and logs about 80,000 hits a month. The University of Minnesota Soils Department sponsors a site for the Minnesota River.

An interactive directory is now available. Sharing Environmental Education Knowledge lists Minnesota resources for environmental education on the web at www.seek.state.mn.us. Developed by the Office of Environmental Assistance and the Environmental Education Advisory Board, the SEEK directory is a clearinghouse for resources ranging from articles to lesson plans, from performances to displays. This resource network serves environmental organizations and agencies in compiling, cataloging, evaluating and disseminating environmental education materials.

Listservers, where users can share information, are an increasingly popular communications forum. The Water Monitoring listserver, established by Minnesota Planning's Land Management Information Center in 1995, gives water professionals a venue to circulate information about their monitoring activities and findings. The STEEL listserver was launched in 1998 for state agencies working on environmental education, particularly for employees whose primary job responsibilities do not include environmental education.

BROCHURES, GUIDES AND OTHER APPROACHES HELP INTERPRET STATE'S COMPLEX WATER MANAGEMENT SYSTEM. The Pollution Control Agency published *Ground Water: A Directory of Minnesota's Programs and Resources* in 1995, and a companion directory for surface water; both are now posted on the agency web site. *A Guide to Land and Water Resource Management Programs in Minnesota*, published by the Department of Natural Resources in 1992, offers an extensive listing of regulatory, funding and other programs.

The Water Billboard newsletter is published by the Board of Soil and Water Resources with contributions from other agencies. Citizens can call the Minnesota Water Line sponsored by Extension Service at 1-800-455-4526, in partnership with several state agencies and the private sector, to ask questions about water quality.

Needs and directions

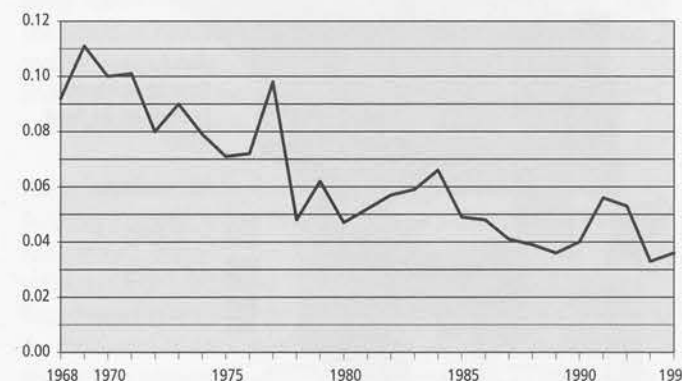
- Expand basic public information relating to water quality and quantity issues; use a variety of approaches to reach different interests.

- Help local and state decision-making by interpreting scientific data and communicating what programs are available for assistance.

- Evaluate educational efforts, including Internet use, to ensure they accomplish their purpose, are coordinated, reach the right audiences and deliver appropriate messages.

WATER QUALITY IMPROVES IN ST. LOUIS RIVER

Phosphorus in milligrams per liter



Note: Water in the St. Louis River drains to Lake Superior. Water quality improved due to upgraded wastewater treatment systems and reduced nonpoint pollution.

Source: Minnesota Pollution Control Agency

- Increase collaboration between state agencies and the Department of Children Families & Learning to provide effective water resource education in Minnesota's schools.

Interagency program recognizes farmers

The Minnesota River Friendly Farmer Program is a nationally recognized, private interest effort that recognizes farmers when they satisfy 10 environmentally beneficial criteria such as reducing tillage, using filter strips and employing best management practices for fertilizer, manure and pesticides. During the past three years, 311 farmers from 34 counties, primarily in southern Minnesota, were recognized.

10-YEAR OBJECTIVE: TO ESTABLISH THE FOUNDATION FOR SOUND PUBLIC POLICY AND MANAGEMENT DECISIONS THROUGH A SYSTEMATIC APPROACH TO RESEARCH AND COLLECTING, MANAGING, AND USING WATER-RELATED INFORMATION.

The 1991 *Minnesota Water Plan* recommends supporting long-term research needs, improving the state's geographic information systems so users can easily access and integrate water and related land data and carry out the Water Monitoring Plan.

NEED FOR BETTER WATER RESOURCE INFORMATION PROMPTED A NEW INITIATIVE. Understanding water quality and quantity conditions and real or potential changes is essential for ensuring sustainability. An interagency committee on monitoring used the Environmental Quality Board's 1992 *Water Monitoring Plan* to propose the 1997 Legislative Monitoring Initiative.

Accomplishments of the Legislative Monitoring Initiative include:

- Established a citizen stream-monitoring program, administered by the Pollution Control Agency. Strengthened the agency's biomonitoring program, which assesses water quality by directly looking at the health of fish and macroinvertebrates.

- The Department of Agriculture expanded the areas monitored for pesticides and nutrients through a state and local partnership called Local Monitoring Cooperatives.

- The Department of Health has increased its efforts to automate the well record database and plans to have well data accessible through a web site next year. The department is also working with counties to interpret well water quality data, and has bolstered the interagency fish tissue monitoring program which looks at contaminants such as mercury, PCBs and dioxin.

- The Department of Natural Resources continues to drill exploratory holes and observation wells, is increasing efforts to collect, interpret and deliver surface water and climate data to the public; added staff will expedite county atlas reports. The

department will provide long-term maintenance of 40 flood warning gauges constructed with federal funds.

MONITORING APPROACHES ARE ALTERED FOR BETTER RESULTS. The Pollution Control Agency has made a number of significant changes to its surface water quality monitoring program, echoing its shift to a basin management approach. These changes include increases in biological monitoring, as opposed to traditional water chemistry; sampling statistically based sites, which provides a new ability to estimate the condition of the state's rivers and streams; and monitoring "least impacted" streams to establish a basis for reasonable water quality goals. The result is a more broad-based view that looks at how the physical, chemical and biological components work together to make up the water resource.

The Department of Health is monitoring 956 community water supplies. The department conducted about 20,000 tests for contaminants in 1991, jumping to 66,441 in 1997. The types of pollutants tested for also increased from about 25 to 118 pesticides, industrial contaminants, bacteria, nitrate and inorganic chemicals. Results in 1997 showed one system above the federal standard for an industrial chemical; 27 systems tested positive for bacterial contamination; three systems exceeded the nitrate standard including a multicounty system in southwest Minnesota; and one nonmunicipal system tested above the federal standard for arsenic.

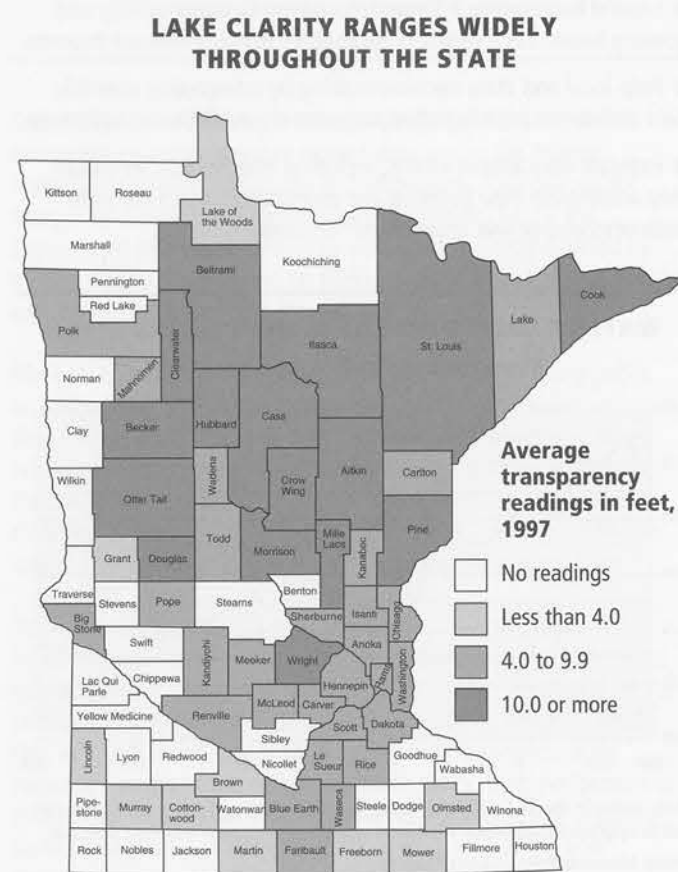
Eight agencies, led by the Pollution Control Agency, are coordinating ground water monitoring efforts, including the exchange of data through an interagency group. Its success spawned a surface water group and the two groups routinely meet. The second biennium of the Minnesota Environmental Indicators project will develop a framework for monitoring key indicators of environmental health, which should help assess data needs to better show environmental threats and progress. Additional monitoring efforts are noted in the Focus on the Resources chapter.

DATA ACCESS AND GEOGRAPHIC INFORMATION SYSTEMS MAKES MAJOR STRIDES. The Ground Water Clearinghouse and the Stream Information System were developed by the Land Management Information Center as tools for integrating analysis and mapping information from several agencies and levels of government. Several problems surfaced: integrating many diverse data collections swamped the system; achieving current data was difficult because databases were continually updated; and achieving access to the system from disparate systems was problematic. Today, with increased Internet access and more and better data available through the web, agencies are considering linking electronically rather than integrating data.

State and federal cooperative efforts are building information layers for mapping. A nearly complete, eight-year project led by LMIC, Base Maps for the 1990s, is providing aerial photographs, selected topographic map updates and digital orthophotographs on county CD-ROMs and digital elevation models. Another product, the Digital Raster Graphic, a digital image of the quad sheet, georeferenced, can be used as background.

Updates are underway for land use and land cover, public land survey coordinates, hydrologic features and geology. The Pollution Control Agency is working in partnership with the U.S. Environmental Protection Agency on Minnesota's surface waters for the National Hydrographic Dataset. The Department of Transportation has road and hydrologic network data available; proposals have been developed to improve this data set to promote GIS hydrologic applications. Survey information from the U.S. Fish and Wildlife Service National Wetland Inventory is digitized, but needs continual updating.

Soil conditions are an important GIS component, but few soil surveys are ready for digitizing. The age of the survey and the type of photography used for the base map determines readiness; the condition of readiness is highly variable across the state. All but three counties have soil surveys completed by the Natural Resources Conservation Service. Sixteen are suitable for digitizing; the others need recorelation, field work or updating. Soils for the seven metropolitan counties are part of the Metropolitan Council's GIS. Determining the suitability of a soil survey for digitizing is very complex. *County Soil Surveys: Guidelines for Digitizing* prepared in June 1997 by the Minnesota Governor's Council on Geographic Information provides guidance for developing digital soil maps.



Source: Minnesota Pollution Control Agency

The Department of Health and Minnesota Geological Survey are working to upgrade the County Well Index system to make it more user friendly. The new format will be directly accessible to GIS. County Well Index is the main location for information relating to wells and geologic conditions. The department is automating new well locations through the use of Global Positioning Systems or field checks on all newly inspected wells, about 2,500 to 3,000 annually. Field-verified locations will be available for a significant subset of new wells and efforts to add existing wells are increasing.

The Governor's Council on Geographic Information has developed an approved GIS metadata standard, which promotes consistency in GIS data documentation. The Land Management Information Center operates a node — a means for searching for GIS data — on the National Geospatial Data Clearinghouse.

LMIC published a revision to the Geographic Data Compatibility Guidelines in 1995 that describes data compatibility requirements. Guidelines address issues of data quality, output formats, documentation, acceptance testing and transfer media. Water data compatibility guidelines are under revision.

The Water Resources Center at Mankato State University is one resource for sharing regional data. The center works with 13 counties that are developing and implementing local water plans and gathers existing data, generates new data and distributes data and maps to counties.

BIENNIAL WATER REPORTS ARE REASSIGNED. To keep abreast of water-related trends, the Legislature assigned a series of biennial reports to state agencies. The Environmental Quality Board prepared a number of water reports in 1992 assessing water availability, water quality, monitoring and research needs and evaluating water quality programs. The Legislature reassigned the responsibility for water availability trends to the Department of Natural Resources in 1994, and water quality and monitoring trends to the Pollution Control Agency with review by the EQB, which retained responsibility for a research report, a biennial water policy report and the development of a water plan every 10 years. The Board of Water and Soil Resources is assigned to report on ground water education activities. Reports were developed in 1994 and 1996 on water monitoring and trends, water use, ground water education, water and wastewater needs.

The Environmental Quality Board convened a Water Research Advisory Committee in 1991 to prepare a *Water Research Needs Assessment*. There has been no committee activity since; however, some research needs have been noted in later biennial reports. Recommendations from the board's 1996 report included identifying the extent of aquifers and what rate of use is sustainable, researching conversion of nonpotable water into a viable source and examining how wastewater research results and technology used in other states or countries could be adapted for Minnesota. Long-term research and monitoring projects generally have a difficult time obtaining and sustaining funding. Without an integrated examination, needs are identified programmatically.

Needs and directions

- Document and routinely analyze ongoing monitoring efforts and verify that the information gathered is useful and known to other potential users.
- Connect information from monitoring and research to those making decisions
- Emphasize long-term trends
- Research the extent of water available for sustained use.
- Expedite the development of GIS layers such as digitizing soil surveys.
- Expand and improve information available through the Internet and make linkages so access is simplified.
- Assess how to identify priority research needs.

Using GIS to predict archeological sites

Transportation and land use planners need to know where potential archeological properties exist to maximize their preservation and protection. The Department of Transportation's Mn/Model will incorporate a variety of environmental data useful to physical scientists, planners and others in predicting archeological sites. The model will save money by helping users avoid these high potential areas during project development.

10-YEAR OBJECTIVE: TO UNIFORMLY ENFORCE MINNESOTA LAW AND FAIRLY ASSIGN LIABILITY THROUGH IT SO THAT THE ENVIRONMENT IS FULLY PROTECTED AND THE BURDEN ON PEOPLE INNOCENTLY EXPOSED TO WATER MISUSE IS MINIMIZED.

The 1991 *Minnesota Water Plan* recommended a consistent state approach to fairly and equitably assigning liability for water misuse, recovering costs from permit and enforcement activities and enhancing the state's environmental compliance strategy.

STATUTORY CHANGES AND NEW APPROACHES ENHANCE ENFORCEMENT. The Environmental Enforcement Act of 1991 established felony criminal penalties for certain knowing violations of state hazardous waste, toxic water pollutant and hazardous air pollutant laws. In addition, the law recognized that individuals, along with incorporated organizations, can be subject to criminal enforcement. County attorneys, working closely with state agencies, have increased criminal prosecution of the most egregious violations, particularly for deliberate illegal discharges to surface waters. Also, the U.S. Attorney has prosecuted violators under similar federal laws.

The Legislature has also created administrative enforcement remedies for water and other pollution violations. The Minnesota Pollution Control Agency and the departments of Agriculture and Health have authority to issue administrative penalty orders and impose civil penalties for violations of agency rules. Administrative penalty orders have become a common enforcement tool.

The Department of Health was given this administrative penalty authority under the Health Enforcement Consolidation Act of 1993. This legislation has allowed the department to consolidate its enforcement activities across regulatory programs and create consistency in their application. Cost may be a problem, however, since funding comes from the agency's operating budget.

The Department of Natural Resources lacks administrative penalties; to take action against a water appropriation permit holder, the department has to suspend or terminate the permit, severe actions.

In 1996 Minnesota counties requested and received authorization from the Legislature to develop a county administrative penalty order system for solid and hazardous waste violations. In this case, the State Auditor must evaluate the program and report to the Legislature during the 1999 Session. While similar to the process used by state agencies, the level of penalty and procedures varies slightly from the state authority.

Agencies are pooling resources to improve enforcement. The Pollution Control Agency and Department of Natural Resources jointly issue field citations for illegal disposal of waste and jointly investigate and enforce feedlot-related violations. The agency and the Department of Health coordinate inspection of wastewater treatment facilities serving mobile home parks, resorts and campgrounds.

MORE COSTS RECOVERED FROM ENFORCEMENT ACTIONS AND REGULATIONS. The Pollution Control Agency and departments of Agriculture and Health have established procedures and mechanisms for determining the amount to impose in an administrative

REIMBURSEMENT CLIMBING FOR AGRICULTURAL CHEMICAL CLEANUP

Fiscal year	Number of claims	Reimbursement amount	Revenue from surcharges
1991	5	\$35,951	\$795,764
1992	22	289,283	1,846,244
1993	49	1,272,361	1,948,470
1994	57	980,919	1,757,626
1995	40	1,054,913	2,127,185
1996	65	1,405,496	1,907,920
1997	59	1,750,688	1,224,441

Note: The Agricultural Chemical Response and Reimbursement Account administered by the Department of Agriculture receives revenue from surcharges on pesticide and fertilizer products and licenses. The account reimburses costs incurred in cleaning up agricultural chemical incidents.

Source: Minnesota Department of Agriculture

civil penalty order. Procedures are designed to consider factors such as environmental harm and economic savings in setting the penalty, and also to create consistency and fairness in the process.

The Pollution Control Agency has increased permit fees to cover enforcement costs. The Metropolitan Council recovers costs for discharges of toxic material into the regional wastewater collection system through industrial strength charges imposed by the Industrial Waste Program. This effort led to a regional toxic collection and recycling program that has dramatically reduced toxic discharges to the wastewater system.

Needs and directions

- Grant the Department of Natural Resources statutory authority to issue administrative penalty orders for various laws, including administrative penalties for such actions as overpumping.
- Continue to explore cooperative enforcement efforts and assess ways to ensure that funding is available for enforcement.

Prosecution results in convictions and record award

Intentional discharge of water pollutants into the Blue Earth River exceeding permit limits and falsifying required reports were alleged in federal criminal complaints against Darling International by the U.S. Attorney's Office, assisted by the state Attorney General's Office, the Department of Natural Resources and the Minnesota Pollution Control Agency. The company, located near the City of Blue Earth, pled guilty to criminal charges and agreed to pay \$3 million in penalties and \$1 million in restitution to the City of Blue Earth, Faribault County and Ducks Unlimited. Each recipient agreed to match the restitution award and to spend the money for water quality improvements on the Blue Earth River in Faribault County. Two defendants pled guilty to federal water pollution felonies, one was convicted by a jury of a federal felony and a fourth was acquitted.

10-YEAR OBJECTIVE: TO ENSURE THAT MINNESOTA'S WATER INFRASTRUCTURE IS MAINTAINED AND ENHANCED TO KEEP PACE WITH NEW DEMANDS FOR PROTECTION OF PEOPLE AND THE ENVIRONMENT.

The 1991 *Minnesota Water Plan* recommended upgrading water infrastructure such as dams and wastewater treatment systems, ensuring money is set aside for infrastructure maintenance and improvement and developing cost estimates and ways to meet water and wastewater treatment needs.

SEVERAL SURVEYS SHOW EXTENSIVE NEEDS. To assess whether water infrastructure is keeping pace with needs, present and projected costs need to be gathered. Surveys and estimates provide a snapshot of some costs.

■ 1.2 billion in projected wastewater treatment needs over five years, according to an assessment prepared in 1998 by the Minnesota Pollution Control Agency with Public Facilities Authority

■ \$900 million in total individual sewage treatment system needs estimated in 1998 by the Minnesota Pollution Control Agency and Department of Agriculture; \$250 million over the next five years.

■ \$1.1 billion in total agriculture and other nonpoint source capital investments estimated in 1998 by the Minnesota Pollution Control Agency and Department of Agriculture; \$110 million over the next five years.

■ \$2.4 billion in water supply construction needs over 20 years from Drinking Water Infrastructure Needs Survey in 1997, a random sample of water systems in Minnesota conducted by the Environmental Protection Agency.

■ \$271 million in projected 1995 to 2000 wastewater treatment, water supply and stormwater needs of 44 cities outside the Twin Cities as surveyed by the Coalition of Greater Minnesota Cities.

■ \$2 million per biennium in Department of Natural Resources estimates for essential work on public dams.

SEWER SEPARATION IMPROVES WATER QUALITY. About \$331 million of government funding was earmarked for storm sewer separation in St. Paul, Minneapolis and South St. Paul between 1986 and 1995. The project has eliminated the overflow that occurred during heavy rains containing both storm water and sewage into the Mississippi River. Measurements of fecal coliform bacteria below Minneapolis showed average concentrations of more than 300 organisms per 100 milliliters in the 10 years before 1985 and less than 150 in the 10 years after, well within the water-quality standard of 200. At the same time, pollution-sensitive mayflies have returned to the Twin Cities stretch of the river after a 30-year absence, and fish population diversity has recovered from three species to more than 25 species.

REPORTS DOCUMENT NEEDS AND RECOMMENDS CHANGES. The Environmental Quality Board's *Saving Resources: Meeting Minnesota's Water and Wastewater Needs* reported in 1996 that federal funds for wastewater treatment decreased substantially from the 1960s, leaving the state and local governments with increased burdens.

Saving Resources stated that water supplies or wastewater treatment systems are not adequately considered in land use decisions, causing high costs and environmental problems. Communities may locate an industry needing large quantities of water without considering water supplies or build subdivisions without planning for wastewater treatment needs. Some current high-cost projects reflect poor land use practices. The report presents recommendations to safeguard water supplies and ensure adequate wastewater treatment.

Wastewater Infrastructure Funding Program, published by the Minnesota Public Facilities Authority and the Minnesota Pollution Control Agency in 1997, discusses fund use and makes recommendations to the 1998 Legislature. The funding program was created to supplement loans with grants for communities with high-cost wastewater treatment needs. Much of the program funding has gone to large sewer projects in lakeshore areas. The report recommends ways to reduce program costs and refocus on small rural communities, and to improve coordination between the program and the USDA Rural Utilities Service (formerly FmHA) grant and loan program for water and wastewater treatment projects.

The 1998 Legislature adopted the report's recommendations for the Wastewater Infrastructure Funding program. It also increased and targeted funding to matching grants with USDA Rural Utilities Service grants and loans for small rural communities and to multi-jurisdictional projects to connect areas with failing septs to existing treatment systems.

Needs and directions

- Incorporate municipal water supply and wastewater planning into local water plans and into comprehensive plans including community-based plans.
- Develop an inventory of water-use increases based on projected growth and link costs to use.
- Ensure local government maintains its infrastructure and assumes responsibility for costs arising from serving undeveloped areas or from imprudent development choices.

FUNDING MIX BACKS STATE REVOLVING LOANS

	(in thousands)									
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Federal grants	\$17,336	\$0	\$55,697	\$35,712	\$35,327	\$21,920	\$24,639	\$37,083	\$14,165	\$0
State match	3,467	180	11,766	7,174	7,979	4,435	3,126	7,417	2,833	0
PFA bonds		45,858	100,831	86,598	0	0	87,793	10,404	61,285	123,693

Note: The State Revolving Loan Fund combines grants from the Environmental Protection Agency, state matching funds and bonds issued by the Public Facilities Authority. Since the fund was established in 1989, federal grants have contributed about \$242 million, state matching funds \$48 million and PFA bonds \$516 million.

Source: Minnesota Public Facilities Authority

Flooding costs are high

Minnesota suffered from two major floods in this decade. Especially hard hit were communities along the Minnesota River and the Red River of the North. Total damages from the 1997 flood alone have been estimated at more than \$1.5 billion. As recommended by the Governor's Flood Recovery and Redevelopment Planning Council, the 1997 Legislature provided \$125 million state flood recovery funding. Federal flood recovery funding reached \$574 million. Prevention efforts include removing homes, raising levees, redesigning sewer systems and building dikes.

10-YEAR OBJECTIVE: TO PLACE STATE AND LOCAL PROGRAMS ON A SOUND FINANCIAL FOOTING BY TARGETING LIMITED RESOURCES TO PRIORITY NEEDS AND BY EXPANDING REVENUE SOURCES.

The 1991 *Minnesota Water Plan* recommended expanding revenue sources for state and local units, allocating funds to state priorities identified in the Minnesota Water Plan and in the comprehensive water plans at the local level.

GRANT MIX CHANGES, LOANS INCREASE. State Revolving Loan Funds, supported by the Environmental Protection Agency and a 20 percent state match, are now the predominant resource for wastewater treatment needs. The Water Pollution Control Revolving Fund, the official name of Minnesota's Clean Water State Revolving Fund, provides about \$50 million to \$80 million annually for wastewater treatment.

The Wastewater Infrastructure Fund provides grants for communities with high-cost wastewater treatment needs. Initially funded at \$2.8 million, the Minnesota Legislature appropriated \$17.5 million in 1996, \$7 million in 1997, and \$15.3 million in 1998 to the fund, while federal grants declined. Establishing a system replacement fund at \$.10 per 1,000 gallons is one of the fund requirements.

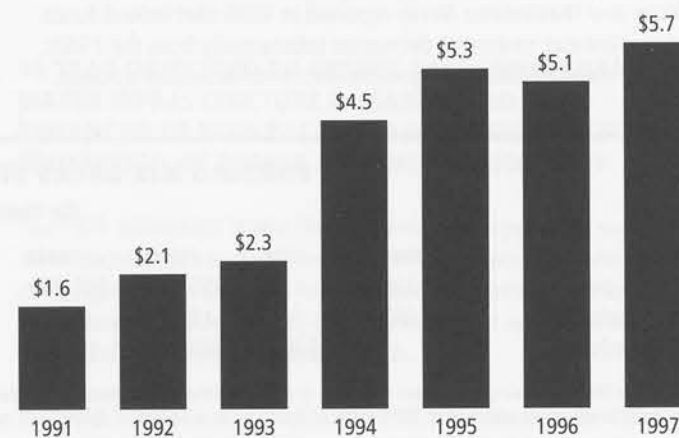
In 1994 the Legislature expanded the eligibility of projects that could receive low interest loans through the State Revolving Fund to include nonpoint pollution projects. From 1995 through 1997, 60 percent of federal capitalization grants totaling \$45.5 million went to nonpoint source projects, primarily through programs administered by the Department of Agriculture and the Pollution Control Agency. The department administers loans to farmers and individual landowners for rural best management practices, such as upgrading feedlots, sealing unused wells and improving septic systems. The Agriculture Best Management Practice Loan Program received federal capitalization grant funds ranging from \$7 million to \$10 million each year. The department reported an estimated \$4 million annually revolving at the local level from this program. The other major nonpoint source loan program is the Minnesota Pollution Control Agency's Clean Water Partnership program.

Demand has significantly increased for loan funds, particularly for wastewater treatment projects. This demand is being driven by several factors: population growth in many areas has put treatment facilities at their maximum capacity, systems built with state and federal grants 20 to 25 years ago have reached their useful life and need major rehabilitation, and more stringent on-site wastewater requirements have generated tremendous demand for municipal wastewater service in unsewered communities and lakeshore areas. The annual demand for wastewater treatment funding now exceeds \$250 million per year, while the annual projected lending capacity is approximately \$40 to \$60 million per year, depending on the amount of funds put into the nonpoint source programs. The Public Facilities Authority, the Minnesota Pollution Control Agency and the Department of Agriculture have been working to better define the overall point and nonpoint source needs and explore how the state revolving fund can best address those needs.

The Individual Sewage Treatment grant program, administered by the Minnesota Pollution Control Agency, is available for municipalities for individual and cluster on-site systems. Created in 1988 with \$1 million, the program received a one-time appropriation of \$900,000 in 1997, totaling \$1.3 million for the current biennium.

The Drinking Water Revolving Fund program was launched in 1997 to improve and maintain public water systems. Similar to the Water Pollution Control Revolving Fund, the new program was funded by annual grants from the Environmental Protection Agency and a 20 percent state match. Approximately \$46 million will initially be available for loans; requests for 164 projects totaling \$120 million were received in 1997. The drinking water program allows up to 10 percent of the funds to be awarded as grants for disadvantaged communities; criteria are similar to the Wastewater Infrastructure Fund program.

NATURAL RESOURCES GRANTS GROW
(in millions)



Note: Funding added in 1994 for the Wetland Conservation Act, Shoreland Management and feedlot programs.

Source: Minnesota Board of Water and Soil Resources

USDA Rural Utilities Service has been a major funding source for communities with populations under 10,000. Funding available for water and wastewater treatment increased steadily from the \$5.8 million in grants and \$13.5 million in loans in 1991 until 1996, when allocations were cut by one third. In 1998, \$8.6 million in grants and \$13.3 million in loans were available to Minnesota communities.

Funding mix used to clean up Cannon River

Dundas is a city of 500 residents located along the Cannon River near Northfield, Minnesota. The city had no wastewater treatment system and on-site treatment systems were discharging to the Cannon River.

Drinking water wells had high nitrate and coliform levels. A combination of grant and loan funds from the State Revolving Fund, Wastewater Infrastructure Fund, Rural Development's Water and Waste Loan and Grant, and Small Cities Development Block Grant paid for a \$4.5 million collection system to direct wastewater to Northfield's treatment plant. This creative funding approach was a key to the project's success.

GRANTS GROW FOR LOCAL WATER PLANNING. Natural Resources Block grants, available through the Board of Water and Soil Resources since 1990, have grown from about \$1.6 million annually to over \$5.7 million. About \$2.6 million fund local water planning base grants that also use an additional levy requirement to allocate \$37,500 annually to each county for water management. In addition to the base grant, the counties can apply for a portion of \$500,000 available biennially as competitive challenge grants. The remaining funding allocated \$500,000 for implementing requirements for the shore land program, \$850,000 for feedlots and \$1.7 million for wetland conservation. The board's grant program added \$344,000 to be awarded for 1999 matching grants to local government units for startup and development of local programs to implement state requirements for individual sewage treatment systems.

Local water planning can benefit from several funding opportunities. Clean Water Partnership, agricultural best management practices loan program, flood damage reduction grants and federal Clean Water Act 319 nonpoint source funding all require the project to be identified as a priority in an approved local water plan.

From 1987 to 1996, roughly \$13 million was provided to local units of government through the Department of Natural Resources Flood Damage Reduction Grant Program for activities such as acquisition of flood damaged structures, levee construction and flood proofing of public infrastructure. Following the devastating floods of 1997, the Legislature appropriated grants of \$17.9 million in 1997 and \$31.5 million in 1998. These funds will leverage about \$240 million in added federal funding for flood damage reduction projects. The U.S. Army Corps of Engineers estimates that existing flood control works have averted almost \$500 million in damages in Minnesota alone.

The Pollution Control Agency Clean Water Partnership loan fund received \$5 million in 1995, \$7 million in 1996, \$4.3 million in 1997, and \$3 million in 1998. For the first time in 1999, an estimated \$310,000 will revolve at the state level. The grant program has been funded for the past three bienniums at about \$2 million.

More than \$1 million in grants are available each year from the Office of Environmental Assistance for such activities as recycling, pollution prevention, sustainable communities and environmental education. Since 1993 the Board of Innovation's Competitive Grant Program has provided about \$700,000 annually to encourage innovative and cooperative approaches for intergovernmental services.

Soil and water conservation district base grants increased from \$953,000 in 1991 to about \$1.5 million in 1998. An additional \$2 million was allocated to districts in 1998 to help bring feedlots into compliance with the law. Cost-share grants administered by the districts increased from about \$1.6 million in 1991 to 2.1 million in 1993, with the additional funding going to Minnesota River efforts, to \$2.4 million in 1997.

From 1994 to 1998, the Metropolitan Council provided nearly \$8 million to local governments and organizations in water quality grants aimed at reducing pollution from nonpoint sources and phosphorus loads in the Minnesota and Mississippi rivers.

Federal funds are available through the USDA's Environmental Quality Incentives Program, which replaced the Agricultural Conservation Program. More than \$6 million was available in 1997 and \$4.5 million in 1998 in financial, educational and technical resources for local projects. Funding could increase significantly with proposals under consideration in Congress through the Clean Water Action Plan for a new Unified Watershed Assessment program.

Federal 319 grants, administered by the Pollution Control Agency, are another funding source for state and local implementation projects. The program received \$1.5 million in 1991 and reached a high of \$3.6 million in 1996, with \$956,623 available in 1998. President Bill Clinton's budget for the Clean Water Action Plan proposed additional funding of \$568 million for 1999, and \$2.3 billion over the next five years.

The Federal Water Resources Act Section 22, administered by the Corps of Engineers provides cost share funding to assist state and local government for water and land resources projects. Funding increased by \$300,000 annually in 1990 to \$500,000 currently.

Needs and directions

- Develop a process to ensure funds go to highest priorities and coordinate compatible application processes.
- Propose actions to secure additional state resources from the federal Clean Water Action Plan and other sources of federal dollars.
- Seek additional capitalization funds for the state revolving fund program for point source and nonpoint source projects.

Focus on the resource

The four objectives in this chapter focus on protecting lakes, wetlands, rivers and ground water through coordinated management.

10-YEAR OBJECTIVE: TO ADOPT A COORDINATED, INTERDISCIPLINARY APPROACH TO MANAGING THE MINNESOTA LAKE ENVIRONMENT.

The 1991 *Minnesota Water Plan* recommended developing a strategy for integrated lake management, expanding long-term monitoring and toxic research, ensuring that metropolitan area watershed plans effectively address lake issues and evaluating their outcome, as well as protecting Lake Superior.

STATE COORDINATION FOCUSES ON ASSISTING LOCAL EFFORTS. The state does not have an official interdisciplinary approach to lake management although many lake protection activities are coordinated with particular emphasis on developing tools and building capacity at the local level. Spurred by interest in having the state coordinate lake-related activities, an Interagency Lakes Coordinating Committee was created in 1993. Its focus has been helping local water planners and lake associations better understand and manage lakes. The committee developed *Lake and Watershed Data Collection Manual* in 1994, and *Developing a Lake Management Plan* in 1996, and is working closely with the Minnesota Lake Association on a pilot project to develop comprehensive lake management plans.

Examples of cooperative monitoring activities and data sharing abound:

- The Department of Natural Resources and the Minnesota Sea Grant are working with local governments on research and management efforts to prevent the spread of exotic species, such as milfoil.

- By 1997, 762 volunteers sampled 683 lakes in the Pollution Control Agency's Citizen Lake Monitoring Program, taking more than 10,000 Secchi readings. Started in 1973, the program is the oldest and largest citizen volunteer effort of its kind in the nation.

- The Department of Natural Resources is managing approximately 800 lake level gages and collecting some 20,000 lake level readings annually with the help of citizen volunteers and local governments.

- The Metropolitan Council and citizen volunteers sample about 70 lakes per year. Of the Twin Cities region's 950 lakes, 195 have baseline data to help determine trends.

- With state financial and technical assistance, Beltrami, Clearwater and Hubbard counties are monitoring 20 lakes.

Watershed restoration improves Lake Shaokaten

The water quality of Lake Shaokaten, a shallow prairie lake on the South Dakota border had severely deteriorated in the 1980's due to excessive nutrients from land use practices. Nuisance algal blooms were plentiful, occasionally producing algal toxins that may have contributed to the death of dogs and cattle. A diagnostic effort guided a watershed restoration program funded through the Clean Water Partnership. Three animal production facilities, four wetland complexes and shoreline septic-tank areas were rehabilitated improving lake conditions by about 70 percent. The county beach has reopened, fisheries appear to be rebounding and lakeshore real estate values have improved significantly.

LAKE QUALITY IS GOOD AND MANAGEMENT ACTIVITIES ARE FLOURISHING. Based on a 1996 assessment of almost 2,000 lakes by the Pollution Control Agency, 80 percent of Minnesota's lakes were considered suitable for swimming to some degree. However, 35 percent of the lakes evaluated were considered threatened or would only support swimming part of the time due to high nutrient concentrations that contribute to excessive algae blooms and reduced transparency. In addition, statewide pressures on lake resources are mounting from increases in shore land development, urban and agricultural runoff, reductions in near shore aquatic vegetation and increasing recreational use.

Local government plays a key role in lake protection and management. The Department of Natural Resources has worked with about 250 counties, cities and townships to adopt local land use ordi-

LAKE LEVELS ARE CONSTANTLY CHANGING

Elevation in feet



Note: Hydrograph shows water levels of White Bear Lake in Washington County.
Source: Minnesota Department of Natural Resources

nances containing statewide shoreland management standards. These regulations pertain to construction of buildings and alteration of vegetation and landscapes within 1,000 feet of lakes and 300 feet of rivers. The department is collecting information about shoreland development and analyzing trends.

Lakes are featured in many local water plans. Numerous counties, coalitions of lake associations and watershed districts are assessing lakes and addressing pollution problems in the watersheds and shoreline areas including agricultural and urban runoff problems. In various places, local water plans have prompted interest in cleaning up deficient individual, neighborhood and even municipal wastewater treatment systems.

Many counties are implementing best management practices. Douglas County examined land uses affecting lakes; it restored a wetland, and has corrected problems with on-site systems, feedlots and bank erosion. Crow Wing County will develop a management plan for each lake. Aitkin County's water plan will be a component of its comprehensive plan. Some counties are working with adjacent counties to protect and manage lakes.

Water Management Organization strives to protect lakes

Gun Club WMO, located in Eagan and parts of Mendota Heights and Inver Grove Heights, found some of its lakes, as well as ponds and basins suffering from water quality problems due to erosion and sedimentation. Corrective actions will identify water quality coming in to lakes and ponds and assess nutrient loading, and require municipalities to factor storm water pond maintenance in their water management plans.

SEVERAL INITIATIVES FOCUS ON PROTECTING LAKE SUPERIOR. The United States, Canada, Minnesota and other states recommended in 1992 that Lake Superior be a demonstration area and move toward zero discharge of toxic substances, inspiring the Binational Program to Restore and Protect Lake Superior.

With extensive citizen involvement, the Department of Natural Resources refocused fish management in Lake Superior, from a single species to a fish community approach, based on ecological principles. The new approach is moving the fish community toward a healthier species mix, with lake trout the major predator and lake herring the major prey species. The department is also working with all levels of government to establish a Minnesota Coastal Zone Management program.

Initiatives include the Pollution Control Agency's search for alternative wastewater treatment technologies for places near Lake Superior, since standard treatment systems are not feasible in many places. The Natural Resources Conservation Service, Board of

Water and Soil Resources and local soil and water conservation districts have several projects completed or underway to control lakeshore erosion. Measures are reducing sediment from the Nemadji River into the Duluth Harbor and Lake Superior after the rates and sources of sediment delivery were identified; and a project in Sucker Bay stopped an estimated 3,000 tons of sediment from eroding annually into Lake Superior.

Other lake research, information and educational efforts underway:

- The Pollution Control Agency's Lake Assessment program has produced more than 120 studies establishing baseline data to set the stage for local protection or restoration.

- The Phosphorus Strategy Task Force has developed a strategy for addressing phosphorus impacts on surface water. *Lake Prioritization for Protecting Swimmable Use* ranks lakes with good water quality for protection initiatives and identifies those with inadequate data.

- The Department of Agriculture is studying the impact of pesticides by monitoring surface water, looking at land use and is determining long-term trends.

- The Department of Natural Resources conducts an average of 600 lake surveys per year to monitor trends in fish population and aquatic habitat. It has prepared fisheries management plans for 3,000 lakes with recreational fishing.

- The University of Minnesota, Duluth, working with the Pollution Control Agency, synthesized and interpreted a five-year mercury deposition database and evaluated water quality and fish contamination trends for 80 high-value lakes compared to historic data. Study results indicated that 57 percent of the lakes showed mercury levels lower than five to 20 years ago, while 25 percent had greater levels and 17 percent were the same.

- The departments of Health and Natural Resources and the Pollution Control Agency are increasing the number of site-specific fish consumptive advisories.

Needs and directions

- Encourage more local governments to take an active role in lake management.

- Improve state priority setting and local assistance in protecting and managing lakes as demand for lakeshore development and recreational activities rise.

- Increase the state focus on evaluating critical limits for lake water quality and watershed development, which will also help local management.

- Develop strategies at state agency level to unify state and local interests and management of lake resources.

10-YEAR OBJECTIVE: TO PROTECT AND RESTORE WETLANDS WHILE RECOGNIZING THEIR IMPORTANCE IN WATERSHED-BASED MANAGEMENT STRATEGIES FOR LAKES, RIVERS AND GROUND WATER.

The *Minnesota Water Plan* recommended enacting comprehensive wetland legislation aimed at "no net loss," providing a consistent definition of wetlands and incorporating provisions in metropolitan water management rules to safeguard wetland values.

LEGISLATION IS INSTRUMENTAL IN PROTECTING AND RESTORING MINNESOTA'S WETLANDS. While the state is still losing wetland acreage, Minnesota's 10.6 million acres of wetlands are getting much more respect. Restoration efforts are increasing. Minnesota is moving toward "no net loss" of wetlands with help from Wetland Conservation Act of 1991 and its subsequent amendments. The act requires that anyone proposing a project that threatens a wetland should: avoid the wetland if possible; minimize effects, and replace if impacts cannot be avoided. The goal of no net loss may be hard to reach, since there are significant losses from actions that do not require approvals or permits.

The Board of Water and Soil Resources oversees the Wetland Conservation Act by gathering information from 492 local governmental units. The Department of Natural Resources provides enforcement through a hybrid of civil and criminal actions in which conservation officers encourage property owners to work with the local civil authority to obtain compliance. An important distinction of these enforcement efforts has not been the number of cease and desist orders issued, but the heightened awareness of the need to protect wetlands and the number of project locations changed to avoid wetlands.

Under the act, new measures were instituted to protect calcareous fens, which are rare and distinctive peat-accumulating wetlands dominated by distinct ground water inflows with specific chemical characteristics. The DNR must approve a management plan before activities impacting a calcareous fen can be authorized. The plan should contain information about fen location and characteristics along with the proposed project, various alternatives and permissible impacts. An intergovernmental task force is currently evaluating the effects of increased water use on a fen in the southwest Twin Cities region. In this case, the challenge is in understanding the interaction between ground and surface water. As pumping increases, it can affect surface water and the fen; and the legality of regulating ground water appropriations for surface water effects is not clear.

FEDERAL ACTIONS LESSEN WETLAND LOSS. Mitigation to achieve no net loss is a progressive option available if wetlands fall under compliance requirements of federal assistance programs administered by the Natural Resources Conservation Service. In 1995, 1,800 acres were enrolled in temporary and permanent easements under the agency's Wetland Reserve Program. While the Water Bank program is not taking any new applicants, there are currently about 1,100 10-year contracts to retain wetlands, down from 1,400 in the

early 1990s. The 10- to 15-year contracts available through the USDA Conservation Reserve Program include protected wetland acreage.

It is unlawful to discharge dredged or fill materials into wetlands without a Corps of Engineers' permit, authorized under provisions of Section 404 of the Clean Water Act. Permit conditions for excavation or filling of wetlands may require mitigation. Under the Federal Clean Water Act, the Pollution Control Agency has continued to review and make 401 water quality certification determinations on all federal permits that propose to discharge to state waters including wetlands. Other state agencies may comment on the permits, giving them a voice in federal permitting actions and state water quality standards.

Through its Partners for Wildlife Program, the U.S. Fish and Wildlife Service restores wetlands on private lands. The program has restored about 14,058 acres of wetlands on more than 3,898 sites throughout Minnesota since 1990.

WORK EVALUATES WETLAND VALUE AND QUALITY. Not all wetlands have the same function or value. The value for storing

excess water, filtering nutrients and sediments or providing habitat depends on many factors. A draft of the Minnesota Routine Assessment Methodology has been distributed to local governmental units to assist in identifying wetland functions and values, with plans to evaluate and to revise the methodology as needed.

Another way to view wetland quality is based on biological integrity or the ability of the wetland to support normal aquatic life. The Pollution Control Agency has developed two effective multiple-measure indices of wetland quality based on invertebrates and plants. Both indices are comprised of different invertebrate or plant community attributes, such as the number of kinds of leeches or vascular plants in the wetland. These measures directly reflect a wetland's biological integrity and can be useful tools to evaluate pollution stress, restoration success or other wetland management decisions.

Citizen assessments of wetland quality would be helpful to local governments in writing comprehensive local wetland plans. The agency has worked with the National Audubon Society to adapt assessment methods for citizen use, which are being tested in 1998 by Dakota County officials. Working with cities, schools, learning centers and other public and private entities, Dakota County enlisted volunteer teams to sample about 30 wetlands for a wetland health evaluation project. Results will be used in a brochure, slide show and educators workshop.

Studies and projects on wetlands include:

- Wetlands were mapped and digitized under U.S. Fish and Wildlife's National Wetland Inventory in 1993; without updates, changes in acreage cannot be tracked.
- The National Resources Inventory reported a wetland loss of about 27,000 acres between 1982 to 1992; 1997 inventory results will be available in 1999.
- The Metropolitan Council conducted long-term wetland research indicating the importance of monitoring and maintaining wetlands collecting storm water. It found a 12-year-old wetland treatment system at McCarrons Lake had degraded over time and was no longer providing adequate treatment of urban runoff.
- The Natural Resources Conservation Service is working on wetland studies in the Redwood River basin and the Straight River.
- The University of Minnesota Horticulture Department has a demonstration project on wetland reconstruction at the Minnesota Landscape Arboretum. Monitoring at 80 wetlands correlates land use with amphibians and birds.

WETLANDS PLAN AIMS TO UNIFY STATE AND LOCAL PRIORITIES. The 1997 *Minnesota Wetlands Conservation Plan* provides a framework to help link wetland policies at all levels, in addition to four management strategies: recognize and apply regional differences in policies and decisions; simplify the permitting system; develop and deliver better information to decision-makers about wetlands; and give resource agencies a common set of strategies for wetland restoration, protection and management.

The plan emphasizes the importance of local water plans in managing wetlands. Some local water plans have done a thorough job of identifying wetlands and developing official controls or other means to safeguard them. Rule changes in 1992 require Twin Cities watershed management plans to include information about the functional values of its wetlands and to identify high priority areas for wetland preservation, restoration and establishment.

Needs and directions

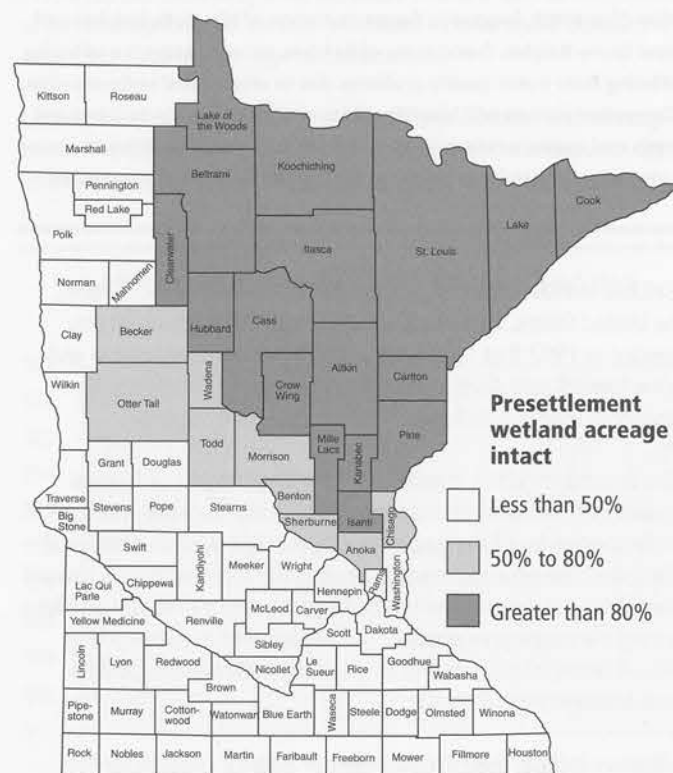
- Maintain and restore wetland quality and diversity, increasing overall quantity.
- Agree to benchmarks to show whether the state is achieving no net loss.
- Develop coordinated management and enforcement strategies.
- Consider ground and surface water as one resource.
- Institute laws to protect surface water resources from ground water pumping.
- Meet the wetland gain goal in the federal Clean Water Action Plan.

Wetland restoration benefits wildlife and communities

To compensate for some of the 100,000 wetlands lost to drainage in Becker County, U.S. Fish and Wildlife's North Star 2000 project is planning to restore 23,000 wetland acres, and develop 45,000 acres of upland grasses and 4,500 acres of cropland to provide food. The state's largest wetland restoration is the 275-acre Hamden Lake site, drained in 1905. The restoration will provide a prairie and wetland ecosystem with an exceptional network of wetland types and nesting upland, and ultimately, a resting and nesting habitat for 210 species of migratory birds, raptors and waterfowl.

The centerpiece of these restorations is 112-acre Bisson Lake. During the spring melt, while ditches are still blocked by ice, Bisson Lake and the surrounding wetlands attract more than 10,000 migratory birds, raptors and waterfowl. When Bisson Lake held water during the wet summer of 1992, the first American avocets were sighted in Becker County, and even more notably, they were nesting. Several nesting pairs of the declining bobolink have been spotted. Restoration of this historic area promises to boost migratory bird diversity and abundance, plus the increase in wetlands brings more water storage capacity to an area prone to flooding.

MORE PRESETTLEMENT WETLANDS SURVIVE IN THE NORTH



Note: Wetland areas are derived from data in the 1860s and 1980s. In both data sets, Houston, Wabasha and Winona counties were reported to have no presettlement wetlands.

Source: Minnesota Board of Water and Soil Resources

10-YEAR OBJECTIVE: TO MANAGE RIVERS, BOTH LARGE AND SMALL, WITH THEIR RELATED LAND RESOURCES, AS UNITS.

The *Minnesota Water Plan* recommended actions to identify priority rivers for comprehensive management, to establish private-local-state projects on priority rivers, to link local grants to comprehensive river strategies and to establish advisory teams on river systems.

MAKING THE MINNESOTA RIVER A PRIORITY. Because of efforts by all levels of government and other interests, the Minnesota River is no longer listed by the American Rivers as one of the nation's 20 most polluted waters. A 1992 proposal by Governor Arne H. Carlson aimed to make the Minnesota River fishable and swimmable within a decade. The Minnesota River Citizens' Advisory Committee was created; its assessment project report identified sediment, phosphorus and pathogens as major water quality problems and developed recommendations for addressing these issues. The Minnesota River Agriculture Team worked with the University of Minnesota on research and education projects relating to the Minnesota River. Research conducted in the basin has led to a better understanding of the discharge of nitrate and phosphorus from drainage tiles, which is applicable in other places. Between 1994 and 1996, the percent of lake acres swimmable in the Minnesota River Basin increased from 28 percent to 33 percent.

In 1995, 37 counties formed the Minnesota River Basin Joint Powers Board. The board's strategy, Watershed Implementation from the Local Level, positioned local teams to develop work plans for each major watershed of the basin to ensure consistency and coordination among county water plans. Pilots were launched in three major watersheds: Le Sueur, Blue Earth and Watonwan rivers.

The Conservation Reserve Enhancement Program has the potential to retire 100,000 acres of environmentally sensitive cropland in the Minnesota River in the next few years. Approved by the U.S. Department of Agriculture and the State of Minnesota, the voluntary program is designed to protect floodplain lands along the main stem of the Minnesota River and its tributaries by planting trees and native vegetation and using long-term and perpetual conservation easements. In addition, 50 percent of Reinvest in Minnesota easement targeting and \$500,000 per year of accelerated cost share funding goes to the Minnesota River.

Tailored watershed assessments are underway or slated for eight of the 13 watersheds that make-up the Minnesota River basin; the remaining five will also be assessed. Conducted through Minnesota's Clean Water Partnership program, the assessments are designed to build understanding and address the pollutant sources and contributions to riverine systems.

To reduce phosphorus in the river, a trading agreement was developed, the first of its kind in the nation. Phosphorus inputs from one categorical source could be traded for reductions and offsets in another source. Reducing city and industrial point sources has lowered

phosphorus contributions to the river system. Until 1994, about 30 percent of phosphorus in the Lower Minnesota Watershed was discharged from metropolitan wastewater treatment plants. A new biological removal process in 1995 dropped the plants' phosphorus discharge by 60 percent, from about 3 parts to 1 parts per million.

Students find water quality problems from development

Students found water in the upper Mississippi River high in dissolved oxygen and low in phosphorus and nitrogen, with gradual degradation as water sampling moves into areas of poor shoreline development. The Mississippi Headwaters Board's River Watch Program provided students in 16 schools within eight counties with a hands-on introduction to river ecology, a practical outdoor science lab within their own communities. Preliminary comparisons indicate that as erosion and siltation increase, phosphorus levels increase. A positive correlation may be drawn with improper shoreline development. At many northern county sites, the phosphorus concentrations are too low for detection by the analytical method used. Higher phosphorus concentrations may be attributed to inadequate buffer zones along shorelines combined with agricultural uses and improper application of lawn fertilizer.

BASIN MANAGEMENT GAINS NEW EMPHASIS. As a headwaters state, Minnesota has a responsibility to address the interconnections between upstream and downstream interests, the connection between ground and surface water, as well as impacts on neighboring countries and states. State and federal planning and problem-solving increasingly are focused on watersheds, basins and rivers, particularly on the largest problems and biggest rivers. Water quality conditions are stable or improving in many basins, however, many decisions are still made without considering watershed effects.

A nonprofit organization, the Rivers Council of Minnesota, was formed in 1996 to protect, maintain and restore Minnesota's rivers. The Red River Basin Board representing cities, counties, watershed districts, governor appointees and at-large members from Minnesota, Manitoba, North Dakota and South Dakota organized in 1997 to develop and implement a water management plan. Other state agencies established a committee to ensure interagency coordination and communication on Red River basin matters.

The Department of Health's water supply protection efforts are now concentrating on protecting surface water sources from degradation. Twenty-six community water supplies use surface water from lakes or rivers; nearly a million people use water supplies from the Mississippi River.

The Mississippi River Defense Network developed as an outgrowth of a Corps of Engineers study of water supply and spill response management upstream from the Twin Cities. Working to establish a

spill prevention and response program, the network received a Clean Water Partnership grant to assess nonpoint source effects on the river.

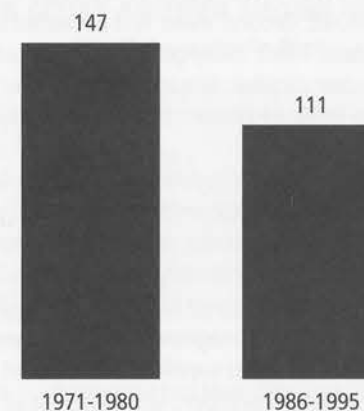
The Pollution Control Agency reorganized in 1994 to emphasize and plan for major river basins. Plans are complete for the Red River, Lake Superior and the Minnesota River basins, and information documents are expected in 1998 for the Upper Mississippi, Lower Mississippi and St. Croix basins.

The Department of Natural Resources is changing its river planning methods. Rather than planning for the narrow river corridor, the new approach examines watershed effects and community interests, working with local partners. Planning is underway in the lower St. Croix and slated for the Mississippi River Wild and Scenic River area, which extends from St. Cloud to Anoka, using a visual GIS component, maps and a web site. The DNR also initiated a watershed protection initiative aimed at saving the few remaining trout streams in the Twin Cities area and other highly sensitive trout streams.

The state provides pass through funding for several river-related groups, such as the Mississippi River Headwaters and the Red River Watershed Management boards. The Board of Water and Soil Resources is placing greater emphasis on a watershed perspective in local water plan revisions. Thirty-five projects are underway on Minnesota's rivers using some board funding. The Elk River project used funding for upland erosion and sediment control practices and riparian livestock exclusion.

Local governments have formed numerous joint powers boards to protect and manage rivers, including the St. Louis, Root, Roseau, Snake, Whitewater, Big Fork and Little Fork rivers, also eligible to be targeted under Clean Water Partnership program.

SEDIMENT DECLINES IN MINNESOTA RIVER AT MANKATO Concentrations in milligrams per liter



Source: Minnesota Pollution Control Agency

Local groups can identify watershed or river-related concerns, propose projects and apply for USDA funding. Producers can enroll land in riparian areas through the USDA Conservation Reserve Program; payments are allocated for both land treatment and rental.

JOINT EFFORTS AID RIVERS AND WATERSHEDS. A 1996 low flow management plan will help maintain "run of river" operations on the Mississippi River during drought periods. The plan will minimize artificial flow fluctuations and protect aquatic resources and the needs of downstream users. The Department of Natural Resources and the Corps of Engineers helped develop the plan for the Mississippi River above St. Paul in cooperation with all nine main stem dam owners. Three hydropower operators were required to develop low-flow plans.

Results from a study of the origin and fate of phosphorus in the Mississippi River basin will be available to incorporate into the next permit of the Metropolitan Treatment Plant. The Metropolitan Council has been working with several agencies in Minnesota and Wisconsin on both point and nonpoint sources of phosphorus.

Partnerships benefit Big Sandy

After seeing water quality degrade in Big Sandy area lakes and streams, local residents formed a partnership with local, state and federal governments to protect their 413 square mile watershed. Residents depend upon clean water for drinking, healthy fish populations, business and recreation. The Clean Water Partnership has launched steps to prevent and correct problems such as installing protective easements on 200 acres of streamside wetlands along the Sandy River, and revegetating two large shoreland sites that had been eroding for several decades.

Other efforts and integrated river assessments include:

- The Department of Health developed a communication strategy with Minneapolis and St. Paul addressing Mississippi River drinking water emergencies due to contamination.
- In 1988 Congress designated a 72-mile stretch through the Twin Cities as a National River and Recreation Area. The National Park Service developed a management framework to protect the river and provided funding to local governments to update their plans and ordinances.
- Two U.S. Geological Survey national water-quality assessments are nearly complete in the Red River of the North basin and in the Mississippi River basin.
- The National Park Service and state agencies from Minnesota and Wisconsin are jointly developing a basin water quality plan for the St. Croix River Basin.

■ Minnesota, Wisconsin, the National Park Service and a local government-citizen task force are developing a new management plan for the St. Croix.

■ Several state and federal agencies cooperated in developing biocriteria for fish and macro invertebrate communities in the St. Croix, Minnesota and Red river basins.

■ To supplement routine stream monitoring, the Pollution Control Agency and Department of Natural Resources initiated a statistically based program of integrated assessments. Random sites were monitored for fish, macroinvertebrates, chemistry and habitat to determine conditions of the St. Croix and Lake Superior basins.

■ The upper Mississippi is designated as an American Heritage River, giving 23 participating communities a federal priority for funding and expertise.

■ The Ramsey-Washington Metro Watershed District has tackled several projects to improve water quality and restore the ecosystem such as reducing flood damages and restoring the eroded channel in Battle Creek Park; providing storm water treatment to improve Tanner Lake quality; using innovative landscaping, habitat improvements and wetland restoration in Phalen watershed.

MORE INFORMATION IS COLLECTED AND ANALYZED. Continuous stream gages increased substantially in the 1990s. The DNR cost-shares 32 continuous record stream gage stations and seven of the 96 stations in the U.S. Geological Survey and state agency cooperative network. The department is also working with the National Weather Service and U.S. Geological Survey to install 40 continuous recording, flood-warning gages with satellite and telephone telemetry throughout the state.

Gages to monitor precipitation increased from 1,383 in 1992 to 1,500 in 1996. The DNR has adopted protected flows for all streams used as sources of water for offstream use, and more detailed studies are underway or completed on 11 watersheds.

The Metropolitan Council's Watershed Outlet Monitoring Program, established in 1988, will add its 29th sub-watershed in 1998. The program collects chemical, physical and biological data at watershed outlets. Modeling will begin in 1998 to assign target pollution loads for all metropolitan area watersheds to meet local and regional water quality goals. The council also collects ambient river quality data on major rivers throughout the metropolitan area.

Needs and directions

- Protect small streams that are biologically important to river health.
- Sustain local efforts as federal and state funding and approaches fluctuate.
- Provide state assistance for local entities developing watershed management strategies.
- Encourage local governments to incorporate local water plans into community-based plans.

Nutrients tracked in Mississippi River study

A U.S. Geological Survey national water-quality assessment of the Mississippi River basin showed that nitrogen compounds and phosphorus concentrations were greater in tributaries draining agricultural areas than in forested land. At agricultural sites, the greatest nitrogen concentrations occurred in spring and summer, whereas at forested sites the greatest concentrations were in the winter. Phosphorus concentrations were greatest in spring and summer at all sites.

10-YEAR OBJECTIVE: TO MAKE PROTECTION OF GROUND WATER QUALITY AND QUANTITY A ROUTINE CONSIDERATION IN ALL GOVERNMENTAL DECISIONS.

The *Minnesota Water Plan* recommended setting priorities for protecting and managing aquifers as hydrologic units; establishing private, local and state projects on priority aquifers; and linking local grants to implementing comprehensive strategies. Other recommendations included establishing teams to advise about ground water issues, collecting and automating sufficient information for decision making, locating sensitive areas and formalizing a priority process for geologic work.

STEPS TAKEN IN AQUIFER MANAGEMENT. Measures in the 1989 Ground Water Protection Act eliminated some types of Mount Simon Hinckley aquifer use, and restricted new use to drinking water supplies to safeguard the quantity of this deep, high quality water source.

Additional steps have been taken to promote conservation and protect water supply wells. Planning requirements of large water suppliers are compelling many communities to consider water quality and quantity issues, to evaluate water demand in the context of the source of their supply and propose conservation and emergency measures.

INCREASING DEMANDS FOR GROUND WATER ARE DRIVING A NEED TO KNOW MORE. Ground water first exceeded surface water for public use in about 1980; today ground water provides 66 percent of public water supplies. Irrigation increased by 163 percent between 1986 and 1996; 81 percent is supplied by ground water.

Information about the complex ground water system is gathered through studies, geologic assessments, models and age dating, and is particularly helpful in areas under development pressure and where further exploration may identify more aquifers. The geological attributes and physical behavior of the deeper aquifers must be studied before innocent mismanagement causes irreversible damage. As the potential water supplies from aquifers are investigated, the consequences of pumping large volumes of water from the subsurface and the impacts at the interface between surface water and ground water will be better understood.

Explorations by the Department of Natural Resources identified aquifers previously unknown in relatively dry southwest Minnesota. Twelve county geologic atlases and five regional assessments have characterized local geologic conditions in 34 percent of Minnesota's land area affecting about 72 percent of the population. Since 1992 efforts to age-date ground water have produced more than 500 analyses. Water in Minnesota aquifers ranges in age from less than a year to more than 35,000 years old. Understanding ground water age helps show geologic sensitivity. The DNR's observation well network increased by nearly 100 wells, to 715 wells in 78 counties, increasing the understanding of aquifer response to human and natural induced changes.

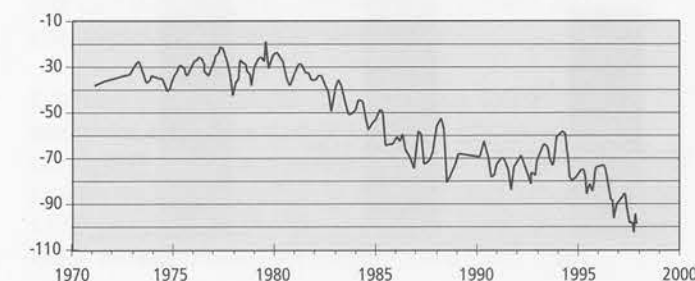
SEVERAL AGENCIES ARE EXAMINING GROUND WATER IN THE MISSISSIPPI RIVER BASIN. The Department of Agriculture is instituting a central sand plain monitoring network for agricultural chemicals. The Department of Health is developing an interagency local aquifer protection project in the St. Cloud to Little Falls region, featuring a regional ground water flow model. The department is working with the U.S. Geological Survey to define ground water interactions and look at the roles for aquifer protection in the Mississippi River basin.

To provide a better assessment of water quality in Minnesota's principle aquifers, the Pollution Control Agency redesigned its Ground Water Monitoring and Assessment Program. From 1992 through 1996, the agency monitored a statewide network of about 1,000 wells, establishing baseline water quality conditions, identifying chemicals of concern and helping to determine where additional investigations are warranted.

Computer models offer unique opportunities to analyze cause and effect. The Twin Cities Metro Ground Water Model is providing a prototype as well as interpretive results, useful to other areas developing models. Numerous other ground water flow models have been developed at local and county scales to delineate wellhead protection areas and for other special purposes.

TWIN CITIES AQUIFER SHOWS DECLINE

Depth to water in feet



Note: Water levels in a hydrograph of the Mount Simon-Hinckley Aquifer in the Savage area of Scott County shows a steady decline from increased water use in this growing area.

Source: Minnesota Department of Natural Resources

RESOURCES AVAILABLE FOR LOCAL GOVERNMENT TO HELP DEAL WITH COMPLEX GROUND WATER ISSUES. Fact sheets on nine ground water regions were developed by an interagency group led by the Pollution Control Agency. The Department of Natural Resources distributed preliminary assessments to all counties enabling them to develop maps showing estimated ground water sensitivity according to geologic materials at or near the surface. The DNR also published *Criteria and Guidelines for Assessing Geologic Sensitivity of Ground Water Resources in Minnesota*, June 1991. As local interest and capability increases, the state uses information from local water plans to make state agency program decisions such as where to develop monitoring efforts. As counties understand the value of gathering ground water data many are sharing costs and developing joint projects.

The Minnesota Geological Survey analyzed well data collected by nine southeast counties and the Pollution Control Agency Ground Water Monitoring and Assessment Program. The survey provided recommendations to county staff about how to interpret ground water information. The 1994 *Southeastern Minnesota Regional Ground Water Monitoring Study: A Report to the Southeast Minnesota Water Resources Board* reported good water quality overall, but some threats in shallow bedrock areas, demonstrated by elevated nitrate levels.

Some efforts to tackle ground water issues include:

- Nine counties in southeast Minnesota participated in a regional ground water monitoring cooperative, sampling 158 wells.
- Counties in the Twin Cities and state government assign staff to the Metro Area Ground Water Alliance to coordinate ground water management activities.
- Partnerships have formed for geologic atlases and wellhead protection projects.
- A U.S. Geological Survey National Water-Quality Assessment in the Red River basin looked at two areas underlain by sandy surficial aquifers where irrigated agriculture dominates the land use. Ground water from the eastern study area had significantly higher concentrations of nitrate and agricultural herbicides than ground water from the western area. Differences in rainfall, soil texture, depth to ground water and agriculture practices between these two areas can account for the water quality variance. The same factors may indicate changes in ground water quality resulting from agricultural land uses in other places within the region.
- St. Cloud area shows land use impacts on ground water quality. The Pollution Control Agency's Ground Water Monitoring and Assessment Program showed significant impacts by land use on the water quality of the surficial sand aquifer which underlies the study area. However, the level of risk to ground water users is relatively low in the aquifer's upper portion and nearly unaffected by land use in the lower portion. Parameters of concern included nitrates, volatile organic compounds in urban areas and atrazine in irrigated agricultural areas, although neither of the latter two exceeded drinking water standards at any monitoring point.

Geologic atlas help pick landfill site

In 1990 Olmsted County opened the Kalmar landfill, the only new municipal solid-waste site in Minnesota since 1985. The county geologic atlas had an integral part in the siting process. A task force used geologic criteria to determine which sites must be avoided or considered with caution. Potentially suitable sites were considered using these criteria: depth to bedrock greater than 100 feet, absence of karst features in the site area and contiguous 160 acre parcels, and presence of an effective confining layer above the usable aquifer system.

The geologic atlas also helped convince the public about the landfill, by graphically showing the unique characteristics of the Kalmar site for protecting ground water from pollution.

Needs and directions

- Set state priorities to build knowledge of ground and surface water systems including their interactions, natural variations, sustainable yields and effects of various land uses.
- Provide more state support to local governments for water supply and conservation planning.
- Make existing information about ground water systems widely accessible and more easily understood by decision-makers and others.
- Integrate information into activities outside the normal sphere of ground water programs.
- Integrate local data collection efforts into statewide activities and make local information readily accessible to others.

Protecting and conserving water resources

This chapter's three objectives focus on reducing environmental pollutants, protecting wells and conserving water.

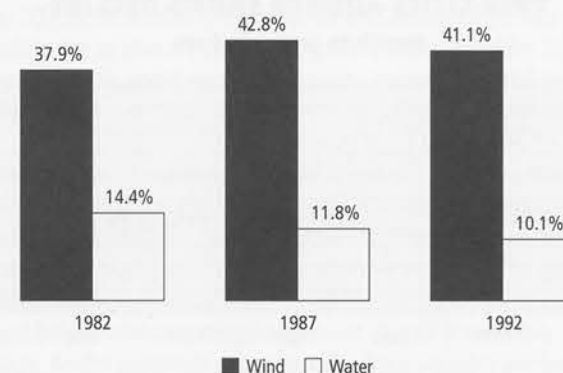
10-YEAR OBJECTIVE: TO BUILD DEGRADATION PREVENTION GOALS INTO ALL MINNESOTA PROGRAMS AND PRACTICES AFFECTING WATER.

The 1991 *Minnesota Water Plan* recommended evaluating how state programs meet clean water goals and changing programs if necessary; reducing use of polluting materials, wastes produced and pollutants entering the environment; and ensuring that agricultural activities are sustainable.

WASTE IS BETTER MANAGED. All 87 counties have pollution prevention programs to address household hazardous waste. More than 40 regional, local or mobile facilities are collecting about 1,800 tons annually from about 100,000 households statewide. The Department of Agriculture coordinates county and industry efforts by Minnesota growers to recycle empty pesticide containers for reformulation. State agencies in the capitol complex increased their recycling recovery rate from 41 percent in 1990 to 67 percent in 1997.

After evaluating reports from about 400 large facilities in the state, the Emergency Response Commission of the Department of Public Safety found the amount of toxic discharge to the environment had been reduced, even though toxic chemical use had increased. Toxic chemicals released into the air, water and earth dropped from 29,000 million pounds in 1993 to 24,000 million pounds in 1995.

EROSION RATES ON MINNESOTA CROPLANDS



Note: Intensive farming methods and loss of windbreaks contribute to wind erosion.
Source: U.S. Department of Agriculture Natural Resources Conservation Service

The 1991 Toxics in Products statute aimed to reduce heavy metal use in ink, dyes, paints, pigments and fungicides. In 1994 mercury was eliminated from new batteries in Minnesota, banned from solid waste disposal and prohibited from certain toys.

The state places a high priority on reducing or eliminating toxic or hazardous materials in municipal solid waste. Heavy metals and toxic chemicals can be found in various household or commercial products such as batteries, fluorescent lamps, used oil and oil filters, video monitor and television picture tubes, printed circuit boards, paint, pesticides or cleaning products. The Office of Environmental Assistance offers education materials and assistance programs to help reduce hazardous product use and to ensure proper end-of-life management. The Minnesota Materials Exchange Alliance helps businesses and institutions make use of materials that would otherwise be discarded. A statewide household hazardous waste system collects discarded products that are not good candidates for municipal solid waste.

Through the efforts of local government, Minnesotans recycled 46 percent of their solid waste in 1996, compared to 23 percent in 1990. Volunteers in the DNR's Clean Rivers Program have helped reduce the amount of litter and waste going to rivers and streams.

PUSH TO ADDRESS ON-SITE AND FUEL STORAGE TANK PROBLEMS. Roughly 27 percent of state households rely on on-site wastewater treatment systems. Not adequately treated, waste water is a threat to water resources. Law and rule changes since 1994 require local governments to have ordinances regulating septic systems on all land, expanding the previous requirement for regulations only in shoreland areas. Wastewater installers and inspectors must comply with new training and certification requirements.

Because of the difficulty siting some on-site systems, the University of Minnesota Extension Service and the Natural Resources Research Institute are researching alternative wastewater systems, nutrient loading to ground water and household loading to septic tanks. Demonstrations near Duluth and Lake Washington in southern Minnesota will assess the effectiveness of alternative technology.

Extension and the Pollution Control Agency sponsored basic workshops around the state to train local government units, county staff and homeowners about proper maintenance. A 1997 satellite conference reached 62 downlink sites and an estimated 1,500 people. Some 35,000 copies of the *Septic System Owner's Guide* were distributed between 1995 and 1997.

A Pollution Control Agency program upgraded 5,206 underground storage tanks to 1998 standards, removed 23,459 and discovered 9,200 leaking tanks; 6,300 were investigated and

corrected. The job is far from finished: about 17,200 tanks still need to be upgraded or removed and about 1,300 leaking tanks need to be corrected.

Evaluations are conducted on some programs:

■ The Blue-Ribbon Task Force on Funding Minnesota's Water-Quality Programs examined efforts to regulate dischargers of municipal and industrial waste into state waters. As a result of the evaluation, the Pollution Control Agency initiated a pilot project and began to implement changes designed to reduce permit backlog, increase inspections and improve efficiency; 97 percent of point source dischargers are in compliance.

■ Based on a 1991 survey of member agencies, the Environmental Quality Board developed a *Water Quality Program Evaluation*, providing an overview of general trends in Minnesota's water quality efforts. The legislative requirement for program evaluation was transferred to the Pollution Control Agency in 1994.

■ A new tool created by the Pollution Control Agency and Board of Water and Soil Resources tracks implementation and effectiveness of sediment control and phosphorus best management practices in the Local Government Annual Reporting System.

■ The Environmental Quality Board staffs a generic environmental impact statement on animal agriculture. This statewide comprehensive study will review the economic, environmental and social impacts of the changing livestock industry in Minnesota. The Pollution Control Agency is revising the rules regulating feedlots.

■ Best management practices to prevent or minimize sources of pollution are promoted by state and federal agencies and the University of Minnesota Extension Service. After revising forestry best management practices, the DNR conducted audits on their use and found long-term compliance.

Project reduces agricultural use

Over the past seven years, the USDA Anoka Sand Plain Water Quality Demonstration project has helped more than 100 producers manage nutrients on an average of 7,500 acres per year. The project helped reduce applied nitrogen by 1.4 million pounds and phosphorus by 388,721 pounds from 1994 to 1997; it also addressed manure and irrigation water management.

WORK IS PREVENTING EXCESS NUTRIENT AND PESTICIDE PROBLEMS. The Department of Agriculture's Pesticide Management Plan seeks to prevent degradation from pesticides. A committee recommended that atrazine be considered "commonly detected," suggesting that voluntary best management practices and preventive measures be pursued and evaluated. The department has established pesticide and nutrient management areas in

the central sands portion of the state where coarse textured soils predominate. Eventually extensive educational, promotional and evaluation efforts will occur in select places.

Various projects have reduced chemical use. Material developed for the Lake Harriet watershed project is now being adapted and distributed for other urban watersheds and will form the basis for pesticide and nutrient management programs in urban settings. The Department of Natural Resources and local governments have several watershed projects aimed at pollution prevention.

Nitrate contamination of ground water resources is a problem in many areas of Minnesota. The Department of Agriculture has adopted statewide, regional and situation specific best management practices to address elevated nitrate levels. A task force convened by the Department of Health is exploring how to address nitrate problems in Lincoln-Pipestone rural water system. The University of Minnesota is overseeing projects to assess the effects from potatoes and irrigation on nitrate levels in the sand plain aquifer that replenishes the Straight River in Becker County.

Maplewood controlling sediment runoff

A 1994 ordinance is limiting dirt washed or blown into streets and washed into waterways in Maplewood. The ordinance requires a refundable escrow deposit with every building permit, and the builder must submit an erosion and sediment control plan as well as a grading plan with the permit application. An inspection is required before construction begins. City staff considers enforcement the key to effectiveness: word gets around if escrow money is not returned or if a stop work order is issued. Cooperation is high, saving Maplewood's water supplies from a major cause of pollution.

SOIL EROSION IS AN ONGOING PROBLEM IN BOTH URBAN AND RURAL AREAS IN MINNESOTA. In 1992 more than 10 percent of cropland was eroded from water at levels exceeding tolerance (amount of soil loss at which cropland can remain productive) and at 41 percent due to wind. Minnesota's wind erosion rates are high nationally. Programs to take marginal land out of production and help prevent erosion include the USDA Conservation Reserve Program, which encompassed 1.8 million acres at its peak in the late 1980s, and Reinvest in Minnesota with about 74,000 acres. As CRP contracts expire and land returns to cropland, erosion could increase. In addition, conservation requirements in federal farm bills are to drop in the future, which could boost erosion.

Minnesota has required permits addressing erosion and storm water at construction and industrial sites since 1994. Construction permits for sites more than five acres require such measures as best manage-

ment practices. Industrial storm water permits require industries to manage storm water properly and keep it separate from wastewater.

To control the amount of sediment entering surface waters, the Pollution Control Agency requires a temporary and permanent erosion and sedimentation control plan according to state specifications. Plans must include use of such measures as detention ponds, seeding for site stabilization and silt fences. The agency has worked closely with several cities and counties to proactively address construction erosion. However, many cities and developers do not obtain permits and the state must rely on complaints for enforcement.

Second generation Twin Cities watershed management plans require uniform erosion control, storm water retention and wetland protection ordinances. The Board of Water and Soil Resources estimates that over half of first generation metro watershed plans resulted in a local ordinance. The Minnesota Water Plan recommended using state erosion control funding to spur erosion control ordinances, but few Minnesota counties have adopted them.

Needs and directions

- Evaluate the effectiveness of water quality programs.
- Determine ground water quality and comply with nondegradation if the quality is getting worse.
- Reduce high nitrate and phosphorus levels in surface and ground water.
- Ensure erosion does not increase as federal farm programs change.
- Continue to promote decreased use of toxic chemicals.
- Adopt local ordinances for pollution prevention, erosion control and storm water management.
- Document the effectiveness of best management practices.

New approaches to prevent pollution

The Rahr Malting Company planned to build a wastewater treatment plant discharging into the Minnesota River, which was under a pollutant cap order because of high levels of contamination. Pollution Control Agency staff agreed to let the company discharge to the river, as long as the effluent did not add to the river's pollutant levels. To resolve the load allocation issue, the agency created a trading framework to credit upstream reductions in nonpoint sources against Rahr's point source discharge. The unique trading agreement was a condition of Rahr's permit, which outlined categories of best management practices to lower nonpoint pollution, with a special multipollutant format that gave Rahr credit for reducing phosphorus in the watershed. As part of the process, Rahr bought land that had suffered from flooding and erosion.

10-YEAR OBJECTIVE: TO STRENGTHEN PROTECTION AND MANAGEMENT OF WATER WELLS AT THE STATE AND LOCAL LEVEL.

The 1991 *Minnesota Water Plan* recommended strengthening the well code, which covers well construction and sealing, developing a system for private well testing, encouraging innovation and implementing wellhead protection for public and private wells.

WELL MANAGEMENT AND WATER TESTING STRENGTHENED. The state has enhanced field surveys and currently inspects 30 percent of new wells. Ninety percent of inspected sites have no violations of well rules. Nine counties and two municipalities administer the state well code through delegation agreements.

Water wells are a direct route into ground water and sealing unused wells has been a major state objective. Disclosure requirements, necessary when property is transferred, have resulted in sealing more than 100,000 wells since 1990. The Department of

Health simplified rules for well sealing in the mid-1990s and added rules to force sealing of high-risk wells; it offers a handbook on well rules. Funding is available to seal priority wells when the owner cannot be located. To keep track of unused wells, the department requires maintenance permits.

Cost share funding, available between 1991 and 1996, encouraged the sealing of more than 4,500 priority wells and indirectly many more when state funds were augmented with local funds. The DNR's effort to identify and seal unused wells on state land will result in sealing all wells that can be located by 2002. By June 1998, 465 of the 654 known wells have been sealed.

Several state agencies and local water plan coordinators provide private well testing clinics and educational seminars on the need and methods for water testing and interpreting results. The Department of Agriculture sponsors nitrate clinics around the state. To ensure that water testing results are correct, the Department of Health certifies water-testing laboratories; it has revised health risk limits for contaminants in drinking water. In the Twin Cities region, the department instituted long-term monitoring of private water supplies near dumps, since they present the greatest threat to human health.

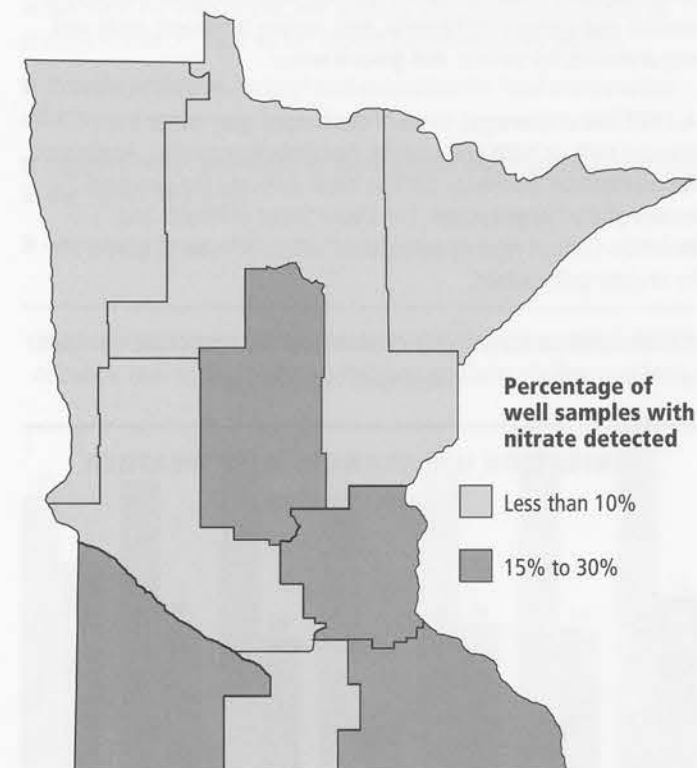
PLANS ARE REQUIRED FOR WELLHEAD PROTECTION AREAS. Under rules effective November 1997, the plans help build local understanding of ground water systems and the effects of land use, proposing local actions to protect ground water supplies. Water supply systems highly susceptible to ground water pollution or serving large populations are top priorities for planning. Thirty-six pilots were conducted to identify needs of local governments and test plan development.

A memorandum of agreement outlines state agency roles in implementing wellhead protection measures. In addition, the Pollution Control Agency prepared guidelines on how to manage contaminant sources in wellhead areas. Funding is available for wellhead delineation and program implementation through the state revolving fund. Wellhead protection was added in 1993 as a requirement of local comprehensive plans for Twin Cities communities.

Needs and directions

- Develop a framework to manage priority aquifers and to protect quality and availability of ground water.
- Phase 1,500 public water supply systems into the wellhead protection program.
- Help local staff interpret well water quality data and use well record information.
- Upgrade county well index software and load all well data.

NITRATE CONTAMINATION POSES A GREATER PROBLEM IN CENTRAL AND SOUTHERN AREAS



Note: Nitrate levels are detected if they exceed one part per million; Wells were sampled over a five-year period, 1992 to 1996. Most experts consider nitrate above this level a sign of human influence on water quality.

Source: Minnesota Pollution Control Agency

Edgerton reduces nitrate contamination

The City of Edgerton worked with the Department of Health to define the area that contributes water to the city well. A wellhead protection planning team is working with local land owners to reduce nitrogen input from crop production, animal manure and septic systems. As a result, the nitrate levels in the city well are starting to decline and soon may comply with the drinking water standard.

10-YEAR OBJECTIVE: TO DEVELOP A COORDINATED LOCAL-STATE PROGRAM TO ENSURE THAT MINNESOTANS HAVE ENOUGH WATER TO MEET THEIR LONG-TERM NEEDS.

The 1991 *Minnesota Water Plan* recommended developing a water conservation strategy that examined the cost of water use and completing the metropolitan water supply plan.

EXAMINING WATER SUPPLY ISSUES PROMPTS CHANGES. A 1992 study of water availability issues by the EQB Water Resource Committee included recommendations to improve ground and surface water information and to enhance management of water use and water demand. In 1996, the committee examined water supply and wastewater treatment needs, and recommended gathering more information about aquifers and the amount of use that can be safely sustained as well as tying water funding to evidence of prevention measures and coordination.

The Metropolitan Council adopted a regional water supply plan in 1992, and published *Metropolitan Area Municipal Water Supply Planning Process: Metropolitan Council Report to the Legislature* in 1997. The council recommended that all entities work within the existing management framework — at a subregional level if necessary, rather than create a regional water supply system.

The council is currently collecting DNR water appropriation data on water use in the Twin Cities, and compiling a regional database for future water demand modeling. It also reviews local plans for consistency with regional and local plans. The council is revising its water supply plan to address two key issues: the impact of development and redevelopment on regional water resources and protection of resource water quality.

CONSERVATION BOOSTED BY LEGISLATION. Legislation was enacted in 1993 that required water emergency and conservation plans for municipal water suppliers in the Twin Cities region and for all water suppliers serving more than 1,000 people in the rest of the state. Water supply and availability studies by the Metropolitan Council and the Water Resources Committee pointed out the need. Water rates must be addressed in these plans. Of the 316 legisla-

tively required plans: 296 have been submitted, 199 reviewed and 133 approved effective July 1998.

To help communities complete plans, the DNR developed guidelines, options for public education programs and methods for reducing peak demands. The plans satisfy a wellhead protection contingency requirement to address water system disruptions caused by mechanical failure or contamination. Before the DNR can approve a public supply well or additional water volumes, the proposer must develop a conservation plan outlining demand reduction measures.

Conservation was boosted by a St. Paul Water Utility and Northern States Power program that distributed 51,565 showerheads during 1996-97. NSP paid for the showerheads and Niagra Conservation mailed the products to customers that returned cards expressing interest in the program. Conserving water can reduce the need for expansion of water and wastewater systems that safeguard water supplies and also reduce electricity needs.

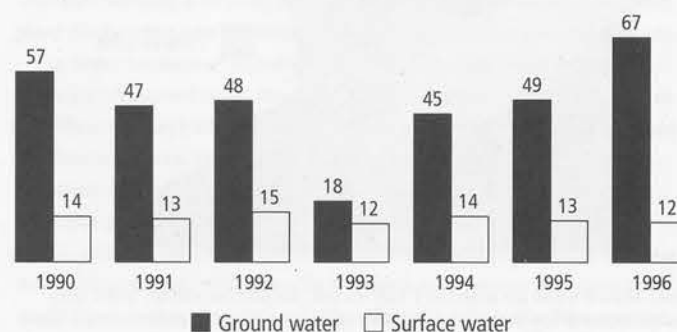
About 50 new emergency interconnections have been identified since 1992 in water supply plans prepared by metropolitan area water suppliers, encouraging intercommunity sharing during water emergencies and joint development of water supplies. Sharing local water supplies is not common however, due to a perceived loss of control and community identity, and varying treatment costs and requirements for surface and ground water.

A 1993 law encouraged reuse of discharged gray water from sources such as bath and laundry, but little is occurring. Applicants for wastewater discharge permits must evaluate the potential reuses of discharged water. The Department of Health and Pollution Control Agency established criteria for use of gray water to irrigate golf courses.

A sixth water use priority for nonessential water uses such as lawn sprinkling, vehicle washing and golf course irrigation was added to

IRRIGATION USE CHANGES WITH WEATHER

Billions of gallons



Note: Water use fluctuates with rainfall and temperature. The reduction in water use in 1993 reflects a cool wet summer.

Source: Minnesota Department of Natural Resources

Managing water's interconnections

The final objective looks at integrating water and land use programs for a sustainable environment.

10-YEAR OBJECTIVE: TO HELP SUSTAIN THE QUALITY OF MINNESOTA'S ENVIRONMENT BY RECOGNIZING WATER'S INTERCONNECTIONS.

The 1991 *Minnesota Water Plan* recommended identifying and removing barriers to managing water's interconnections for a sustainable environment, linking water quality protection and restoration projects to measures such as ordinances and regulations, and building consideration of water protection needs into land use decisions.

Wetland restored to strengthen neighborhood's community, environment and economy

Ames Lake wetland in St. Paul is emerging from an obsolete, largely vacant asphalt wasteland. The wetland will restore the site's ability to clean stormwater, attract diverse wildlife, link to Phalen Park and provide an environmental education resource. Spurred by community support, the transformation of the blighted area will enhance surrounding property values and help attract quality commercial and residential development.

Minnesota law in 1993. This will help in drought or emergency situations to further clarify what uses of public supplies are considered nonessential; nonessential uses were not previously defined.

Inefficient and low-priority uses have been reduced. Over half of the once-through systems that use a continuous ground water flow to heat or cool buildings have been converted to other systems, and permits were terminated when ground water was used to augment surface water basins.

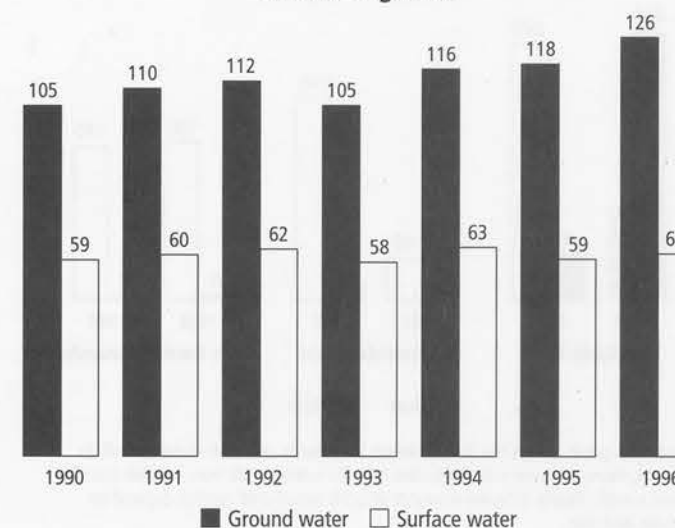
Drinking water revolving fund applicants must submit a DNR approved conservation plan. Requests for additional water from communities with high unaccounted volumes are issued on a temporary basis to allow time to correct the problem. Agricultural irrigation applicants are required to contact the soil and water conservation district regarding the need for a conservation plan and implementation of best management practices.

Needs and directions

- Strengthen water conservation and cooperative water supply efforts.
- Explore using different fees for the sustainability of different water sources, with higher fees used to safeguard more scarce or pristine resources such as the Mount Simon-Hinckley aquifer.
- Provide additional support and incentives for local conservation efforts.
- Support multi-community or sub-regional water supply systems in the Twin Cities area.
- Encourage reuse of gray water.

GROUND WATER USE FOR PUBLIC SUPPLY INCREASING

Billions of gallons



Source: Minnesota Department of Natural Resources

COMMUNITY-BASED PLANNING PROVIDES A NEW LEGISLATIVE FRAMEWORK. Minnesota Planning, working with the Environmental Quality Board, studied the impact of growth and change on water resources in the early 1990s. They reported that unplanned and poorly managed development in Minnesota results in significant environmental and fiscal costs and that the state and local framework for planning and managing land use change is fragmented and uncoordinated. The Minnesota Sustainable Development Initiative and a 1994 legislatively mandated task force offered goals and new approaches for managing Minnesota's land and community resources.

The Minnesota Round Table on Sustainable Development appointed by Governor Arne H. Carlson in 1996 continued the discussion, developing principles and strategies to help communities shape a sustainable future. Supported by various citizen groups, community-based planning was authorized in 1997. Pioneering communities are starting to plan for their future using common goals and help from the state. Water issues are linked to these goals. Four pilot projects are underway and will provide experience and information useful for other communities developing plans.

The Environmental Quality Board and Minnesota Planning are developing a guidebook to help communities consider sustainable development in their planning efforts.

Development affects water quality in Crow River

Growth in the Crow River basin with expanding, and new wastewater treatment plans threatens to exceed the river's ability to assimilate runoff and discharges. This has negative effects on aesthetic quality and the biological community. Future construction of treatment plants will be more costly, because facilities will need to remove more pollutants and will demand more consideration to other pollutant sources in the watershed, such as feedlots and urban runoff. The state and Metropolitan Council are encouraging local communities and schools to work together to protect water quality while allowing for sustainable economic development. The City of Greenfield agreed to remove phosphorus from effluent at its new wastewater facility.

WATER ISSUES INTEGRATED INTO COMPREHENSIVE PLANS. The Metropolitan Land Use Planning Act now requires that local comprehensive plans in the Twin Cities contain a water supply plan, a sewer system plan, on-site ordinance requirements and a local surface water management plan. The Metropolitan Council implements growth and development policies in the Regional Blueprint and the Water Resources Management Policy Plan. The council also reviews local conservation and watershed plans for consistency with state and regional plans.

Additional funding for on-site waste treatment systems and feedlots require development or existence of a local ordinance. Priorities for the Clean Water Partnership and the Board of Water and Soil Resources challenge grants include adopting and enforcing official controls and long-term water quality protection; whether these grants increase official controls is unclear.

As wellhead protection areas are identified in local water plans, they become a priority for other programs. Land set-aside programs have contributed to managing wellhead protection areas. Pilot projects by state agencies are actively addressing wellhead protection in various parts of the state.

EFFORTS LINK LAND, AIR AND WATER. The Environmental Quality Board's Water Resources Committee study of water and wastewater needs emphasized that land use is directly connected to present and future costs. *Saving Resources: Meeting Minnesota's Water and Wastewater Needs* recommended that local planning should address water supply and wastewater treatment along with land use and population changes. In turn, the state should tie water and wastewater treatment assistance to needs identified and strategies proposed in local plans. The 1998 Legislature added requirements for new wastewater treatment systems mandating counties to

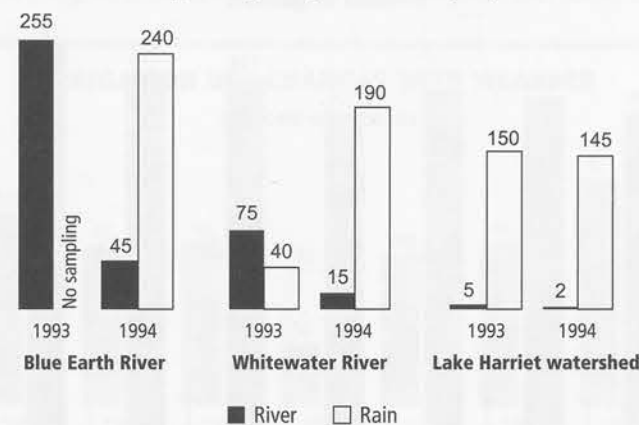
certify that projects located outside city limits are consistent with the county's comprehensive plan, zoning and subdivision regulations.

Some agricultural chemicals applied to land transfer to both air and water according to a study by the U.S. Geological Survey and the Minnesota Department of Agriculture. Agricultural pesticides not registered for home and garden use were found in urban rain and storm runoff confirming atmospheric transport. At least one pesticide was detected in most rain samples during the growing season, with alachlor, atrazine, cyanazine and metolachlor found most frequently. About 1 percent of the atrazine used on a field ends up in storm water, while about 2 percent is airborne, detected in rain.

Basin and ecosystem planning require a more holistic approach. State permitting and funding programs are more aware of surface and ground water interconnections and review projects accordingly. The Department of Agriculture is working toward monitoring small watersheds, intended to be representative of larger basins. Agricultural chemical management programs are implemented on a watershed approach. The Department of Health has a new initiative to work with local health entities in addressing cumulative effects of various land uses and practices.

The environmental review process developed into a better growth management tool during the 1990s, with improved guidance and an increasing use of the Alternative Urban Areawide Review. AUAR is a special process to review cumulative impacts resulting from a series of sequential projects, development typical of the rapidly growing areas which otherwise would be reviewed separately. The subject is a development scenario or several scenarios for an entire geographical area rather than a specific project. The review process

ATRAZINE DETECTED IN RAIN AND STORM RUNOFF
Micrograms per square meter per year



Note: The graph shows the link between atrazine in rain and storm runoff. In general, more atrazine was deposited into the watersheds from rainfall than in storm runoff. Yearly atrazine amounts in both runoff and rainfall depend on climate and use.

Source: U.S. Geological Survey and Minnesota Department of Agriculture

uses a standard list of questions adapted from the Environmental Assessment Worksheet, providing a level of analysis for typical urban area impacts comparable to an Environmental Impact Statement.

Comprehensive planning and zoning legislation proposed repeatedly by the Advisory Council on State and Local Relations never had the support to pass. The legislation aimed to coordinate and modernize the planning law governing cities, counties and towns. With 87 counties, more than 700 cities and 1,750 townships, authorities and relationships among them are critical.

Needs and directions

- Continue to strengthen the community-based planning effort.
- Incorporate water plans into community-based comprehensive plans and adequately make the land use connection.
- Address water demand and impacts in land use planning and official controls.

- Strengthen efforts to link assistance to prevention measures, such as ordinances.
- Develop strategies, including modifying regulations, that recognize interconnections and cumulative effects of human activity.

Next steps

Soundings reports progress on all 14 objectives of the 1991 plan and highlights some key needs to further them. The EQB Water Resources Committee will use the report as a tool to start shaping the next water plan due in September 2000. *Soundings* should be helpful to legislators, businesses, environmental groups, agencies, local entities and citizens in understanding current water issues, working with the committee to better design future goals and strategies.



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