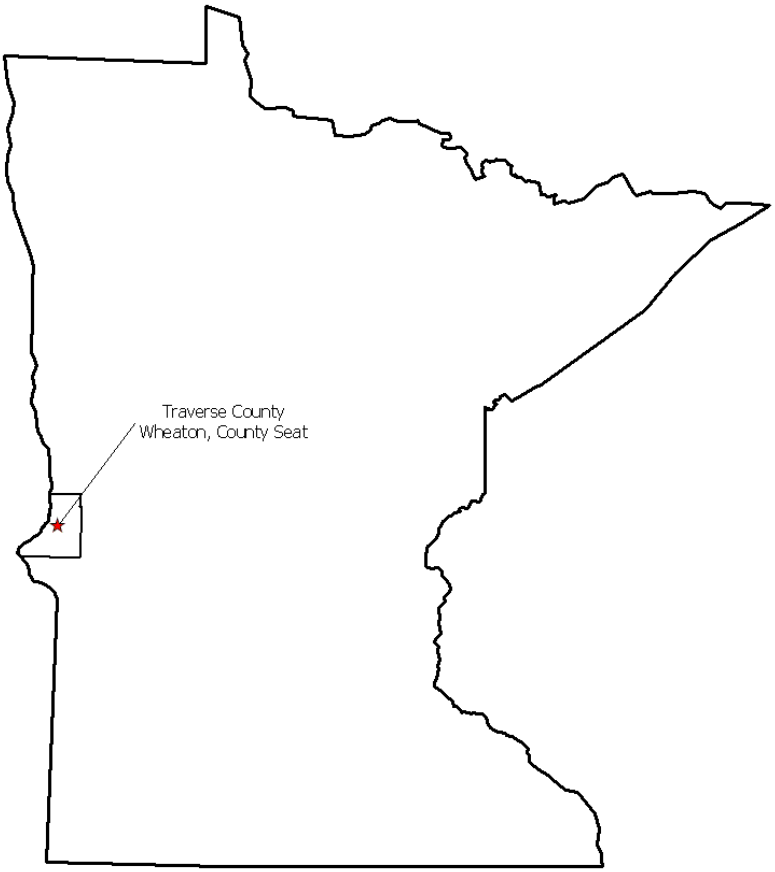
TRAVERSE COUNTY
WATER PLAN UPDATE
January 1, 2005- December 31, 2014



Prepared by: Sara Gronfeld, Traverse County Water Plan Coordinator
Assistance Provided by the Bois de Sioux Watershed District and Other Local and Regional Agencies

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Environmental Activities Council 2005

Norm Haukos
Dept. of Natural Resources

Amy Rager
MN Extension Service

David Bauer
Pheasants Forever

Gary Tracy
Traverse Co. Solid Waste Office

Administrator
City of Wheaton

Gary G.S. Anderson
Citizen at Large

Todd Johnson
Lake Traverse Association

Jack Frederick
Minn. Pollution Control Agency

Tom Mattis, Project Manager
U.S. Army Corps of Engineers
Lake Traverse Project

Wm. Gibson
Traverse Co. Commissioner

Clarence Zimmel
Traverse Co. Commissioner

Bob Marts
Traverse Sportsman Club

Pete Waller
Board of Water and Soil Resources

Jon Roeschlein
Bois-de-Sioux Watershed District

2005 TRAVERSE COUNTY COMMISSIONERS

Gerald Kaus
P.O. Box 293
Browns Valley, MN 56219

Norma Holtz
6828 780th Street
Tintah, MN 56583

William J. Gibson
5081 County Road 3
Beardsley, MN 56211

Clarence Zimmel
804 4th Avenue North
Wheaton, MN 56296

David Naatz
15 16th Street North
Wheaton, MN 56296

LOCAL WATER PLAN COORDINATING AGENCY

Traverse Soil and Water Conservation District
Sara Gronfeld, District Manager & Water Plan Coordinator
1700 3rd Avenue South, Room 205
Wheaton, MN 56296
320-563-8218 ext. 3

Executive Summary

Traverse County is located in west central Minnesota directly adjacent to the junction of North and South Dakota. The population of the county is 4,134 determined by the 2000 census. Traverse County has incurred a 50% decrease in population since the 1940's and has a forecasted decline rate of 9% by the year 2030 according to the State Demographer's Office. The Traverse County seat is in Wheaton, the most populated town in the county. Lake Traverse, a US Army Corps of Engineers water retention project, spans the south west half of the County's border. The lake was designed to reduce flooding levels of the Red River and is widely used for fishing and recreation by local citizens and tourists. The 1990's Census of the Land reveals that over 89% of the land in Traverse County is cultivated. The soil type is primarily clay loam to silty clay loam. Over three quarters of Traverse County lies in the agriculturally productive glacial lake plain of the Red River Valley. Producers in Traverse County strive to maintain the delicate balance between agricultural viability and protecting the water resources of the County.

Purpose of the Local Water Management Plan

The purpose of this updated Local Water Management Plan (LWMP) is to identify existing and potential problems and opportunities for protection, management and development of water resources and related land resources in Traverse County. Pursuant to the requirements of Minn. Stat. 103B.311 subd.4, the five requirements of this plan are as follows:

1. The plan must cover the entire county.
2. The plan must address problems in the context of watershed units and groundwater systems.
3. The plan must be based upon principals of sound hydrologic management of water, effective environmental protection, and efficient management.
4. The plan must be consistent with local water management plans prepared by counties and watershed management organizations wholly or partially within a single watershed unit or ground water system.
5. The plan will cover a ten year period from January 1, 2005 to December 31, 2014. An implementation plan that will cover a five year period from January 1, 2005 to December 31, 2009 and will then be updated for the remaining five years; January 1, 2010 to December 31, 2014.

Information collected through public meetings and participation was analyzed and used to develop four priority concerns. The process used to collect this information and identify priority concerns is thoroughly described in the Priority Concerns Scoping Document in Appendix A. The four priority concerns identified to focus water management efforts in Traverse County are as follows: erosion, flood damage, contaminated runoff, and groundwater contamination. Due to the rural location of the county and decline of population, the resource goals are not expected to change significantly in the next ten years. Thus is the reason for the ten year plan with a five year implementation plan. The goals and objectives of each concern are listed in the following paragraphs in no particular order of concern.

Priority Concern: Erosion

The land in Traverse County has been extensively drained for improved agricultural production in the last century. Increased volume and velocity of cropland drainage has led to more soil erosion by water, resulting in degradation of the clarity and quality of

waters throughout the county. Lake Traverse has been polluted with high levels of sedimentation and phosphorus especially from areas of tributary outlets. Lake Traverse is among one of the water bodies on the Minnesota Pollution Control Agency's (MPCA) list of impaired waters for mercury/heavy metals along with the Mustinka River - a tributary leading into the lake of which parts are impaired for turbidity and biota. A portion of the Twelvemile Creek is also on the list of impaired waters for turbidity and biota. The goals of the updated LMWP under this concern will be reduced soil erosion by water; reduced sedimentation into Lake Traverse and all hydrologic units; and reduced erosion around the County Ditch 52 area. Plan objectives for this priority are to:

- Promote continuous CRP practices to enroll filter strips and buffers along County Ditch 52, tributaries into Lake Traverse, and all eligible ditches and streams throughout the county.
- Educate producers about the benefits of CRP practices to reduce and prevent erosion; promote installation of them.
- Promote management of crop residues.

Estimated Potential Cost: $754,500.00

Priority Concern: Flood Damage

Four major flood events have occurred within Traverse county and parts of the Red River Valley region in the last 15 years. Spring flooding occurred in 1989, 1997, and 2001; summer flooding occurred in 1993. The most severe conditions were monitored in 1997 and were considered to be a 150-year flood. The flooding caused costly damage to infrastructure, homes, businesses, cropland, and at times, crops. It is of utmost importance to the citizens of the county that solutions to flood damage reduction be developed and implemented within a reasonable timeframe.

- Reduce county wide flood damage to agricultural land, rural or urban development, and infrastructure.
- Address stormwater and drainage management issues to effectively manage high volume runoff.

Estimated Potential Cost: $215,000.00

Priority Concern: Contaminated Runoff

Lake Traverse spans over one half of the western border of Traverse County. The lake is an important resource for recreation and habitat as well as providing local income through tourism. Lake eutrophication related to erosion, excess nutrients, and contaminated runoff has become more severe with the increase of land cultivation percentages within the subwatershed. The fact that nearly 90 percent of land in Traverse County is currently involved with agriculture is a major factor of contaminated runoff and its effects. The implementation of environmentally sound farming practices combined with conservation practices to reduce erosion is essential to the resolution of this concern.

- Reduce sedimentation and nutrient runoff to waters of the state.
- Promote conservation tillage practices to reduce wind and water erosion of cropland.

- Begin development of TMDL's and compliance with MPCA's impaired waters program.

Estimated Potential Cost: $857,000.00

Priority Concern: Groundwater Contamination

The quality of groundwater is very important to the residents of Traverse County as all rural and urban residents rely on groundwater for a fresh water supply. Due to the nature of the primarily clay rich soil types throughout the county, the most common route of groundwater contamination is through abandoned and unsealed wells. The CLWP Environmental Activities Council has sponsored a well sealing program with LWP funding to provide cost share for the sealing of abandoned wells. The program has proven to be a great success in since its initiation.

- Reduce contamination to groundwater through abandoned wells.
- Continue to bring rural and community septic systems into compliance with MPCA standards.
- Reduce pollution of groundwater from manure and improper disposal of animal mortalities.

Estimated Potential Cost: $176,500.00

Consistency with Other Plans

Bois de Sioux Watershed District Overall Plan – The Watershed District revised their overall plan in 2003. Many hours of planning, research, and development shaped the extensive plan. The overall goals and objectives of the plan include: 1) Water Quantity – reduction of the damage caused by flooding throughout the entire watershed with emphasis on recently determined FEMA flood damage sites; 2) Water Quality – monitoring and reduction of nutrients and pollutants in waters of the state specifically those listed as impaired by the MPCA; 3) Erosion and Sedimentation – reduction of sedimentation due to soil erosion in all water bodies with the aid of local agencies and other partners; 4) Fish, Wildlife and Other Natural Resources – protection and restoration of wildlife habitat from downstream to upstream, preservation of unique natural resource communities and features; 5) Water Based Recreational Activities – Increased activities related to fish, wildlife, and other natural resources in the watershed with promotional programs with local agencies and partners.

Upper Minnesota River Watershed District Plan – The Upper MN River WD revised their plan in 2001. The goals and objectives of the District are as follows: 1) Water Quantity – reduction of damages caused by floodwaters, management of drainage systems, management of surface and groundwater, and management of the level of Big Stone Lake; 2) Water Quality – protection and management of water resources in the Watershed; 3) Erosion and Sedimentation – reduction of erosion; erosion control and sedimentation management along all drainage systems; and promotion of riparian buffer strips along natural waterways.

Traverse County Comprehensive Plan – This plan was amended in 2002 and serves to provide a set of policies applied to specific areas or to specific land uses in Traverse County. The specific zoning areas that would pertain to the LWM plan would include

the agricultural district, the shoreland district, and the floodplain district. Review of the policies set for these districts fit well with the updated goals and priority concerns included in the Traverse County LWM plan. Also, the feedlot ordinance of the County's comprehensive plan has similar goals as the updated LWM plan.

Traverse Soil and Water Conservation District Comprehensive Plan – The SWCD's comprehensive plan has not been recently updated. An update was not required for grant funding in 2005 and the SWCD has the option to use the updated LWM plan as the official comprehensive plan for the District. The current plan shares some similar goals and objectives as the LWM plan with a focus on aspects of conservation beyond water resource issues. In order to expand the focus of resource concerns beyond water resources in Traverse County, the SWCD will not adopt the LWM plan as a comprehensive plan.

MPCA's Red River Basin Water Quality Plan – This plan has been recently updated to revise and organize the goals, objectives, stressors, strategies, and funding priorities for 2005 – 2007. The long term goal of the plan is to manage Minnesota's surface water resources so that water quality of the Red River Basin of Minnesota contributes to and does not detract from the ecological health of Lake Winnipeg; using drinking water, aquatic life, and recreational use as key indicators. To summarize the objectives, first would be to monitor and assess conditions of twelve watersheds within the basin; develop and understand local approaches to conservation practice promotion; reduce sediment entering tributaries of the Red River; use existing regulatory tools to protect water quality; and to provide a forum for understanding the practice of water quality management for the basin by education, partnerships, and fundraising.

Recommendations to Other Plans and Official Controls

Shoreland Ordinance – Traverse County has seen an increase in the number of lake shore properties sold for development in the last few years. Some of these properties may not be suitable for the development of structures or access roads. It is suggested that the Traverse County Planning and Zoning Administrator strengthen the partnership between the Watershed District and the Wetland Conservation Act Local Government Unit. Improved planning in the initial stages of development will prevent problems arising in the future.

Wetland Conservation Act – A recommendation for the Wetland Conservation Act Local Government Unit (WCA LGU) would be to focus on the protection and restoration of shoreline wetlands along Lake Traverse. These wetlands are very important to the clarity and quality of the lake. The wetlands contain, store, or filter runoff of surrounding lands going into the lake. The wetlands also provide storage for flood waters associated with the Lake Traverse Impoundment Project. As development may negatively affect the quality of the lake due to the increased speed and volume of runoff directly into the lake, the protection and restoration of shoreline wetlands will help to maintain or improve the quality and clarity of Lake Traverse.

MPCA Feedlot Program – Current administration of MPCA's feedlot program stems from the County level in most cases. MPCA urges enforcement of feedlot rules to bring feedlots into compliance with water quality standards. A suggestion to the program would be the development of better state and/or federal assistance programs and opportunities for an easier and more cost efficient transition into compliance. The goals of the feedlot program are consistent with the updated LWM plan but the rules developed by the Minnesota Legislature are stringent and complex with many variations with the number of animal units permitted at each site.

MPCA Individual Sewage Treatment System (ISTS) Program – To protect groundwater quality, a suggestion to the ISTS program would be to provide more education regarding the impact of failing systems on our water resources and the importance of compliant systems. Funding for this program is provided through the Natural Resources Block Grant and is limited to a minimal annual amount. Additional funding could be provided by the county to assist in administration of the program.

Priority Concerns

Priority Concern: Erosion

Nearly 90% of the land in Traverse County is involved with the production of various agricultural crops. There is a great need for the conservation of soil from water erosion. The reduction of soil erosion will reduce sedimentation and Phosphorus loading in all lakes, rivers, streams, and wetlands of Traverse County.

Objective A. Promote continuous CRP practices to enroll filter strips and buffers along County Ditch 52, tributaries into Lake Traverse, and all eligible ditches and streams throughout the county.
Objective B. Educate producers about the benefits of CRP practices to reduce and prevent erosion; promote installation of them.
Objective C. Promote management of crop residues.

Priority Concern: Flood Damage

Traverse County recognizes that improved drainage management combined with flood damage reduction practices will protect both residential and agricultural investments as well as to protect water resources throughout the county.

Objective A. Reduce county wide flood damage to agricultural land, rural or urban development, and infrastructure.
Objective B. Address stormwater and drainage management issues to effectively manage high volume runoff.

Priority Concern: Contaminated Runoff

Traverse County identifies contaminated runoff and sedimentation from agricultural land and erosion as a significant factor in the degradation of water quality in the county.

Objective A. Reduce sedimentation and nutrient runoff to waters of the state.
Objective B. Promote conservation tillage practices to reduce wind and water erosion of cropland.
Objective C. Begin development of TMDL's and compliance with MPCA's impaired waters program.

Priority Concern: Groundwater Contamination

Groundwater resources supply all of Traverse County with quality usable water. Protection of this valuable resource is important to the well being of all citizens and for use by future generations.

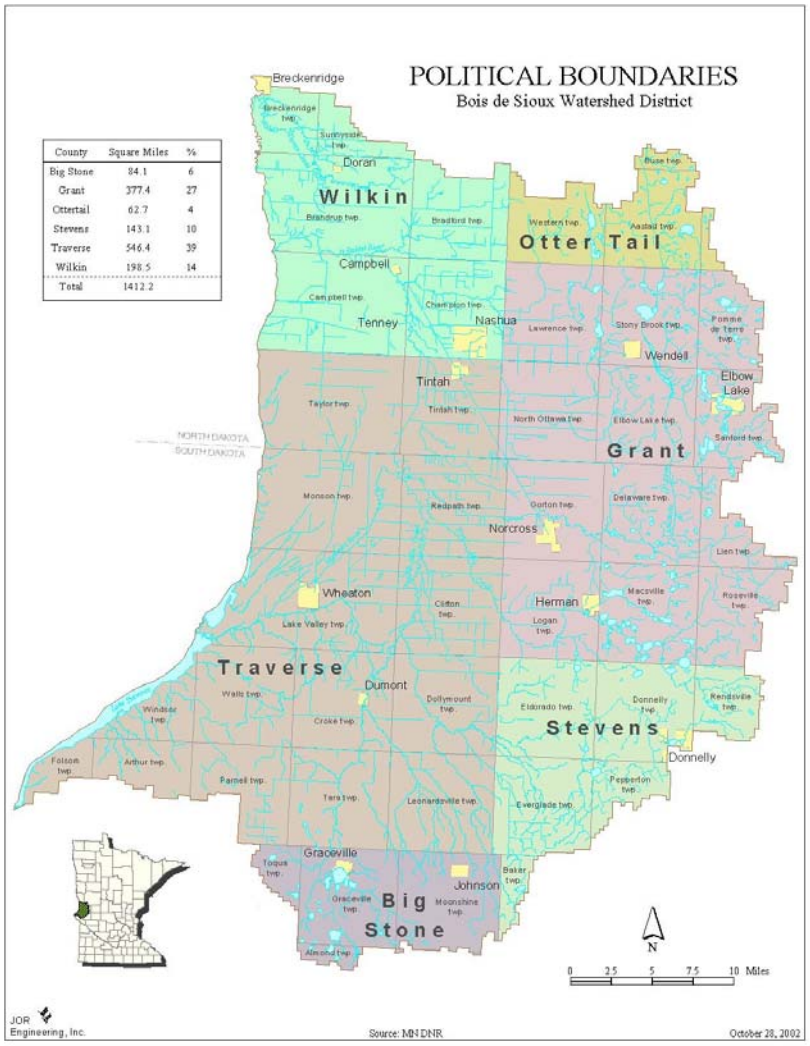
Objective A. Reduce contamination to groundwater through abandoned wells.
Objective B. Continue to bring rural and community septic systems into compliance with MPCA standards.
Objective C. Reduce pollution of groundwater from manure and improper disposal of animal mortalities.

Assessment of Priority Concerns

Prior to development, the landscape of Traverse County consisted of a mosaic of prairie lands and wetlands with networks of prairie streams coursing throughout. This landscape supported an abundance and diversity of fish and wildlife resources. The landscape throughout the county has been extensively altered, primarily to improve the economic viability of agricultural production. While the agricultural lands have been highly productive, much of the natural landscape values once present in the county have been replaced with agricultural economic values.

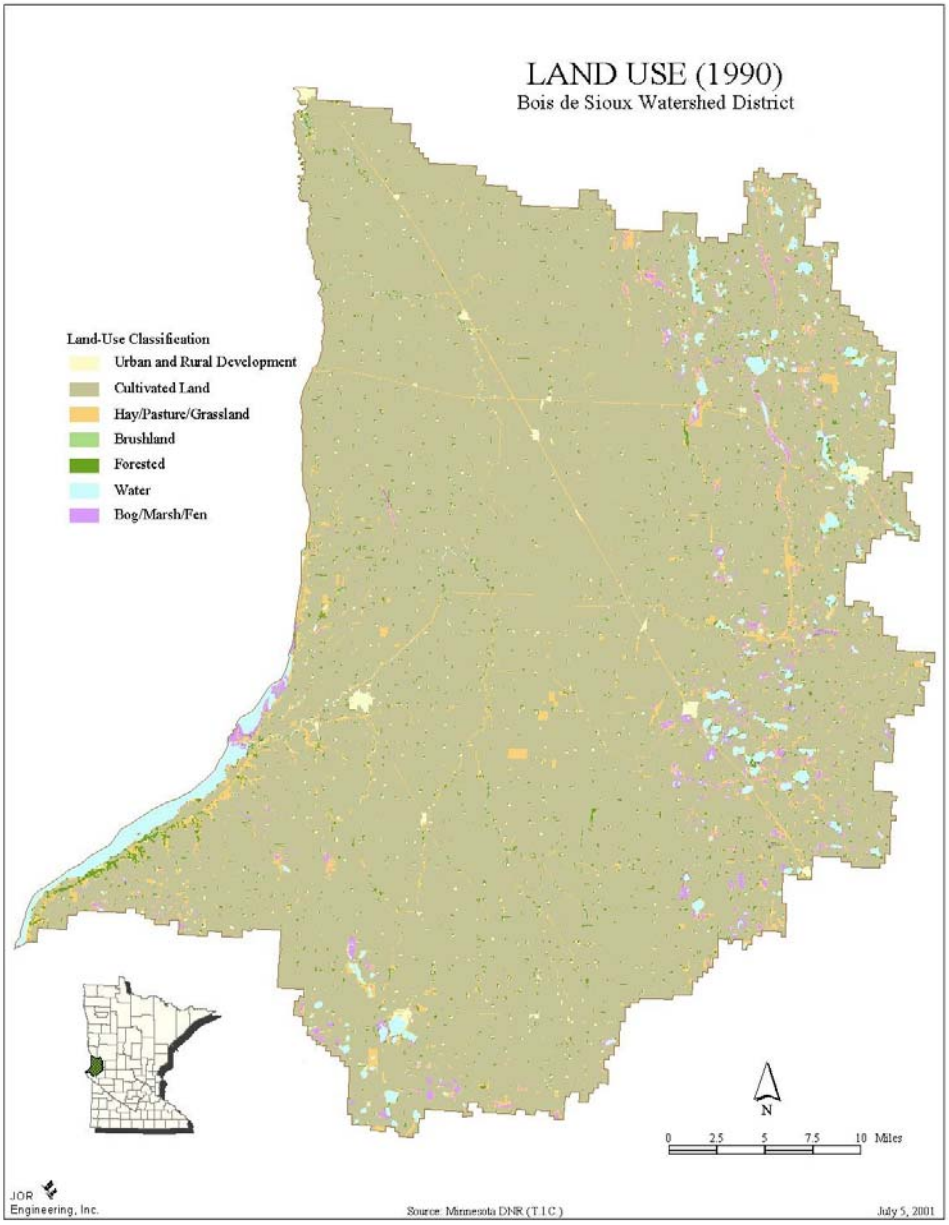
Most of the original prairie landscape has been cultivated and many of the original wetlands have been drained. Many of the original streams have been channelized and riparian corridors have been diminished or lost. Settlement and development of this landscape for intensive agricultural production has dramatically reduced the quantity and quality of the natural landscape features. Most of the remaining grassland and wetland are confined to small islands and disconnected strips of habitat within the agricultural landscape. Similarly, waterways have been ditched, straightened, and their hydrographs have been altered while lakes have been drained or their shorelines developed. The rivers and streams in the county form a network that can provide habitat to support a diversity of aquatic life. The Mustinka River and its tributaries form one network and the Bois de Sioux River and its tributaries form another network. Lake Traverse and Mud Lake hydraulically connect these systems but from a biological viewpoint these systems remain separate.

The four priority concerns - Erosion, Flood Damage, Contaminated Runoff, and Groundwater Contamination are described in detail in this section. Each assessment will examine why the particular concern is a priority and what the risks the county faces if the concern is not addressed.



Erosion

Erosion due to storm runoff is a problem within the county. The severity depends on the land cover, duration and volume of water. Local and regional governmental agencies will work together with natural resources management agencies to promote agricultural best management practices to improve crop residue, tillage cover and reduce soil erosion in Traverse County. The agencies will also work together to promote and develop shoreline restoration projects and will work with the United States Army Corps of Engineers (USACE) to stabilize water levels of Lake Traverse.



Improved and increased agricultural production has lead to the decline of the natural landscape. Producers have changed the original landscape by substantial alteration of the original vegetation. Acres of prairie grasses and riparian forests have been removed in order to expose the fertile cropland. The promotion of the establishment of field windbreaks began throughout the country after years of drought and loss during the dust bowl of the 1930s. In addition to maintaining soil productivity and minimizing crop damage from blowing soil, control of wind erosion and the resulting sediment, has the added benefit of minimizing the clogging of drainage and road ditches.

The Natural Resources Conservation Service (NRCS) and partner, the Traverse Soil and Water Conservation District (SWCD) work together and with several vendors to promote and install thousands of feet of field and farmstead windbreaks each year. Currently, the Continuous Conservation Reserve Program offers benefits of cost share and annual payments for the conversion of cropland to these practices among others. Additional assistance is needed for the promotion of conservation practices available through the most recent Farmbill and state provisions.

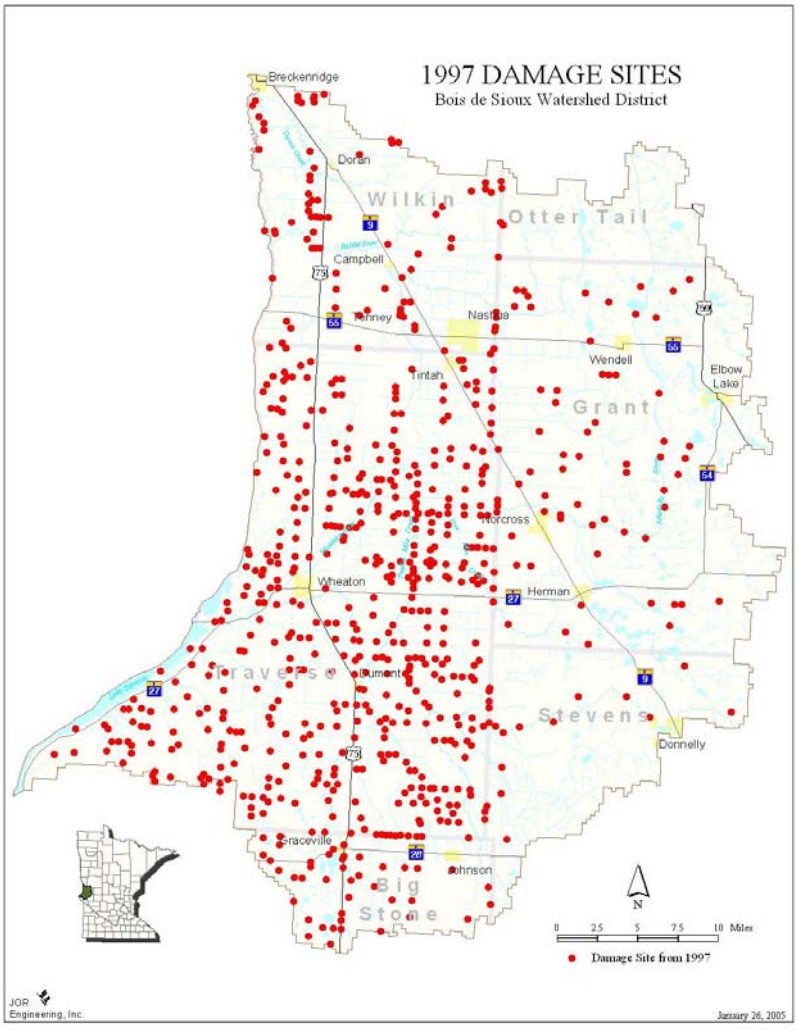
Grass buffers and filter strips have proven to be some of the most beneficial practices for the reduction of soil erosion by water. Filter strips work by slowing runoff from cropland and collecting sediment before it reaches a major channel. Promotional efforts have continued with financial assistance from the State of Minnesota, Board of Water and Soil Resources (BWSR). The Farmbill program supports a portion of salary for a technician employed with the Traverse SWCD. Without continued support from the BWSR, the SWCD would not be able to support this full time position.

In the year 2000, over 570 acres of filter strips were enrolled into land retirement programs. The annual soil saved that year was calculated to be 7,121 tons. The annual net sedimentation reduction was calculated to be 1,424 tons. The annual phosphorus reduction was calculated to be 1,764 pounds for the year 2000. The figures were calculated through reporting done through the MN BWSR's LARS program. The program assumes that the upland treatment will have a good stand of vegetation, water will flow through the filter strip in sheet flow – not channelized, only about 200 feet of upland area will be treated, and the site is and will continue to be well maintained.

The goals and objectives created to address the concerns of erosion are located in SWCD plans, county water plans, and various plans of the natural resources agencies. The Local Water Plan supports the implementation of these goals and objectives by the respective agencies and will cooperate with them when undertaking projects.

Flood Damage

There are many types of projects that would reduce flood flows and the resulting damage. Some options offer more diversity of benefits from one project but may not be as financially feasible. Cultivated cropland produces a significantly higher volume of runoff from rainfall events than does grassland or forest. Converting from crops to grass or trees will reduce flood volume. The amount of runoff reduction that can be achieved from a conversion during a 100-year, 24-hour storm ranges from 1/4" on fine clay soils to 1½" on coarse sandy soils. The greatest flood flow reduction will be provided by land use change in sandy soils, typically found in beach ridge areas of the Bois de Sioux watershed. Targeting flood prone land will also reduce local flood damages.



The Red River of the North serves as the outlet for the area's drainage. The Red River begins in Breckenridge at the confluence of the Bois de Sioux and Otter Tail Rivers. The gradient of the river averages only about 0.5 feet per mile, and it is subject to widespread flooding. At Breckenridge, the gradient is about 1.3 feet per mile. Both Breckenridge and Wahpeton, in North Dakota, are subject to flooding. The average annual main stem flood damages on the Red River, north to the Canadian border, were estimated by the Corps of Engineers in 1981 at $5,620,000. This figure shows the 1997 FEMA Damage sites in the Bois de Sioux Watershed District.

Impoundments are projects that store floodwater. They may be floodwater detention impoundments, which release all of the stored water after the flood, or flood water retention impoundments that retain a portion of the water to be used for other beneficial purposes.

Retention impoundments may have permanent pools for wildlife or recreation, or semi permanent pools for water supply or stream flow maintenance. Retention impoundments can be as beneficial for flood control as detention impoundments, if the total storage capacity is increased to compensate for the permanent or semi permanent storage volume. It may be more economical to build retention impoundments since a portion of the cost can be assigned to other benefits and financially supported by other interests.

Impoundments may have gated outlets, which can be operated in response to conditions anywhere in the watershed, or ungated outlets which will automatically release a designed amount of water based on conditions at the reservoir site. Gated outlets can provide greater benefits in that water is normally stored only when necessary or beneficial and is not released until downstream flooding conditions have subsided. The disadvantages of gate control are the cost and problems associated with operation. Other interests may feel better served by an ungated outlet than by a gated one optimized for flood control. However, a gated outlet with an operating plan that has been optimized for other interests as well as flood control will better serve both. Most gated impoundments include ungated outlets to automatically release water before the design capacity of the reservoir is exceeded. Impoundments may be located on-channel, where all stream flows enter the impoundment, or off-channel, where only a portion of the flow enters the impoundment. Either type can be designed to provide flood control benefits. The advantages of one type or the other are generally site specific. On-channel impoundments are the more traditional type and potential sites are readily recognizable as low lying, river valley, or frequently flooded areas. Off channel impoundments may be more space efficient or may be less disruptive to the environment. They are likely to be located in non-traditional areas which may be locally controversial. Impoundments would be most beneficially located in the middle and late stage floodwater contributing areas of Traverse County and both major watersheds.

The Bois de Sioux Watershed District is the likely implementation agency for most flood control impoundment projects. If federal agencies are involved, the Watershed District would likely be the local sponsor. An inventory of potential impoundment sites was developed in 1990 and has been updated in the Watershed District's comprehensive planning process.

Wetland restorations (also creations or enhancements) are a type of impoundment project, but are listed separately here because they typically have other primary purposes. They can provide substantial flood control if designed to do so. In general, those with no surface outlet or with small piped outlets are most effective. Due to semi-arid climate in this area, most wetlands are likely to develop a seasonal water deficit. The deficit that exists usually at the beginning of a spring flood event must be filled before any water is released. That volume is totally removed from the flood hydrograph and therefore has great flood control value. Wetlands are most beneficially located in the middle and late contributing areas of Traverse County and both major watersheds. Many agencies, organizations and individuals are involved in wetland restoration

activities. These activities need to be coordinated to ensure that anticipated flood control benefits are achieved.

Culvert sizing is a flood control technique that incorporates roads and other man-made barriers to provide short-term detention of floodwater and reduce peak flows. It is a widely used form of flood control which can provide benefits throughout the watershed and appeals to a sense of fairness. Culvert sizing should be based on drainage area and closely matched to channel capacity. When channel capacity is exceeded, the culvert restricts flows and the excess water temporarily impounded upstream. For the method to be safe and effective, the grade must be high enough to prevent overtopping or be designed to overflow without washing out. The Bois de Sioux Watershed District has routinely included culvert sizing as a mitigation requirement in granting drainage improvement permits. Projects to accelerate widespread implementation of culvert sizing may be a possibility. An inventory of existing culverts, and their respective drainage areas, is needed to evaluate the current status and future potential of this alternative.

Other measures may be necessary to cope with flooding problems that cannot be adequately controlled by flow reduction methods. The following paragraphs describe the most commonly used methods.

Drainage and channel improvements have been traditionally applied methods for providing local flood control. Adequate drainage is essential for efficient agricultural production in this area. However, adverse impacts should be avoided or mitigated.

The effect of drainage on downstream flooding conditions is a complicated issue and requires site-specific analysis. If the outflow rates can be controlled, drainage improvements can actually reduce downstream peak flows. This can be accomplished by appropriate culvert sizing, for example. Some drained soils also provide greater absorption capacity. Tile drainage, which slowly draws down subsoil moisture, may be particularly effective in reducing runoff rates.

Levees and dikes can protect property from flooding. The degree of protection depends on the height of the dike. In general, levees are practical where flood heights are relatively low. The effect of levees on flood flows or elevations requires a site-specific evaluation. However, the general tendency is to reduce floodplain storage and to reduce floodway capacity, thereby increasing both upstream levels and downstream flows. Municipal levees or dikes have been constructed around at least one city in Traverse County; Dumont. Most provide emergency rather than permanent protection. Low-level dikes (where failure would not be life threatening) are appropriate for protecting developed areas. The use of high dikes to protect low lying or floodway areas should be avoided. Such areas should be evacuated or converted to flood tolerant uses.

Farmstead ring dikes can protect individual farmsteads from flooding. Many farmsteads are located in frequently flooded areas with low probability of adequate future flood

control. For these locations, ring dikes may be a recommended alternative. The Bois de Sioux Watershed District is administering a state and regional program to construct farmstead ring dikes in this area.
Agricultural levee systems have evolved in many areas of the County as landowners have installed traps on culverts through road grades and spoil banks. Typically, these are in areas where the existing drainage channels have inadequate capacity. No doubt, the levees have been a practical alternative for the land they protect. Unfortunately, they tend to raise flood levels on unprotected, or less protected, land. Therefore, private agricultural levee systems should be viewed as temporary. Properly designed agricultural levee systems could be developed that would provide both flood protection and flood control. These seemingly conflicting purposes can be easily resolved by carefully setting levee overtopping elevation. The concept is to provide farmland protection for relatively frequent floods up to about the 10-year level. When overtopping occurs during greater floods, land behind the levees would provide timely flood control storage, reducing flows downstream.

Given the peripheral location of Traverse County within the Red River Basin, flood storage and other forms of flood volume reduction are the most regionally compatible flood damage reduction measures. The amount of storage (or flow reduction) required is highly dependent on the type, design, and location of future projects. Few potential sites have been identified and few of those have developed designs or operating plans. Therefore, an estimate of required storage is somewhat speculative and based on assumptions of what will be possible, practical, and acceptable. Yet, it would be unrealistic to embark on a program of flood storage construction without some quantification of the amount of storage required. For that purpose, a preliminary storage goal of 150,000 acre-feet has been adopted. Recent major floods in the Bois de Sioux Watershed District provided extensive stream flow data through the Watershed District's gauging program. Review of these data is the primary basis for determining appropriate storage goals. The goals reflect two concerns. First is the need to reduce local flooding within sub watersheds of the Watershed District. Second is the need to reduce flows at the outlet of the Watershed District (Breckenridge) and downstream on the Red River. This second concern is, in large part, beyond the control of the Board because the flows at Breckenridge include major contributions from the Otter Tail River in Minnesota and from the Dakota portion of the Bois de Sioux Watershed. Nevertheless, the Watershed District Board is committed to providing the Watershed District's share of flood flow reductions, and trusts and encourages other jurisdictions to do the same.

Contaminated Runoff
Numerous water quality benefits can be achieved through effective implementation of goals/objectives and actions proposed in this plan. Projects such as and associated with storing flood water during spring runoff events and storm events in impoundments and through other activities will serve to reduce sediment transport by allowing soil particles to settle in the basins prior to water being discharged downstream. Such activities should also allow for the reduction of other nutrients present in the water, such

as phosphorus. Controlling water release over a period of time would also reduce stream bank erosion immediately downstream from structures.

Water quality monitoring in the watershed immediately adjacent to project sites is necessary to establish baseline water quality conditions for the area and to document water quality impacts to portions of the watershed downstream of projects after implementation. As an initial implementation activity, the Bois de Sioux Watershed District has linked to the Red River Basin Monitoring Program through its River Watch activities and began monitoring water quality conditions throughout the watershed. Teachers and students from high schools in the watershed assist with monitoring efforts. Monitoring is performed at sites that help characterize conditions of distinct reaches of major waterways and associated tributaries including creeks and major drainage ditches. Site locations, parameters, and sampling frequency are adjusted as needed to compliment other monitoring programs including MPCA, TMDL and Flood Damage Reduction Project monitoring. Sites also correspond to the extensive stream flow gauge network in place throughout the watershed.

The Bois de Sioux Watershed District and Upper Minnesota River Watershed District are also working with the MPCA and other local units of government in establishing water quality monitoring sites for the on-going watershed total maximum daily load (TMDL) project. Sites identified in this process along with those identified as part of the River Watch project, will enable the Bois de Sioux Watershed District and the MPCA to establish valuable basin wide monitoring sites in the future that will effectively document water quality changes over time.

To date, only limited water quality data exists for the Bois de Sioux River and its sub watersheds. However, data that does exist indicates significant water quality impairments in virtually all portions of the watershed with several headwater areas as possible exceptions.

Impacts from agricultural activities and drainage are significant and have lead to concentrations of nutrients and total suspended solids (TSS) that are in excess of what is expected for the ecoregion. Total organic carbon (TOC) may have a major impact upon downstream water users (Fargo and Moorhead) when significant releases, and during some periods of low flow, from White Rock Dam. Algae blooms in Mud Lake and Lake Traverse, promoted by excess nutrients, contribute to objectionable taste and odors in drinking water supplies. Future monitoring in the basin will provide further refinement of water quality assessments for the watershed and will allow for the development of more direct correlations between various land use activities and water quality. The Bois de Sioux Watershed District anticipates state and federal funding to carry out the monitoring and implementation program. A limited amount of financial assistance will be provided through the local water plan.

The Traverse County Feedlot Program has been working with animal agriculture producers to identify pollution hazards at feedlots and to resolve them within the parameters of the Minnesota Feedlot Rules as defined in MN Rules Chapter 7020.

There are approximately 65 registered feedlots in Traverse County ranging in size between seven and 1250 animal units per location. Currently, the Traverse County Feedlot Officer is in the process of a level one review of all registered feedlots. The position is funded at 20 percent of a full time equivalent position. The feedlots are inspected and evaluated for pollution potential from manure runoff from barns, open lots, manure storage, and manure application. If the feedlot is determined to have a pollution hazard present, assistance is provided to work towards a reasonable solution to the hazard within the time frame provided within MN Feedlot Rules. All expansions and new constructions are evaluated for compliance with the rules. Traverse County has been delegated and administered the feedlot program with supervision from the MPCA since the rule changes occurred in the year 2000.

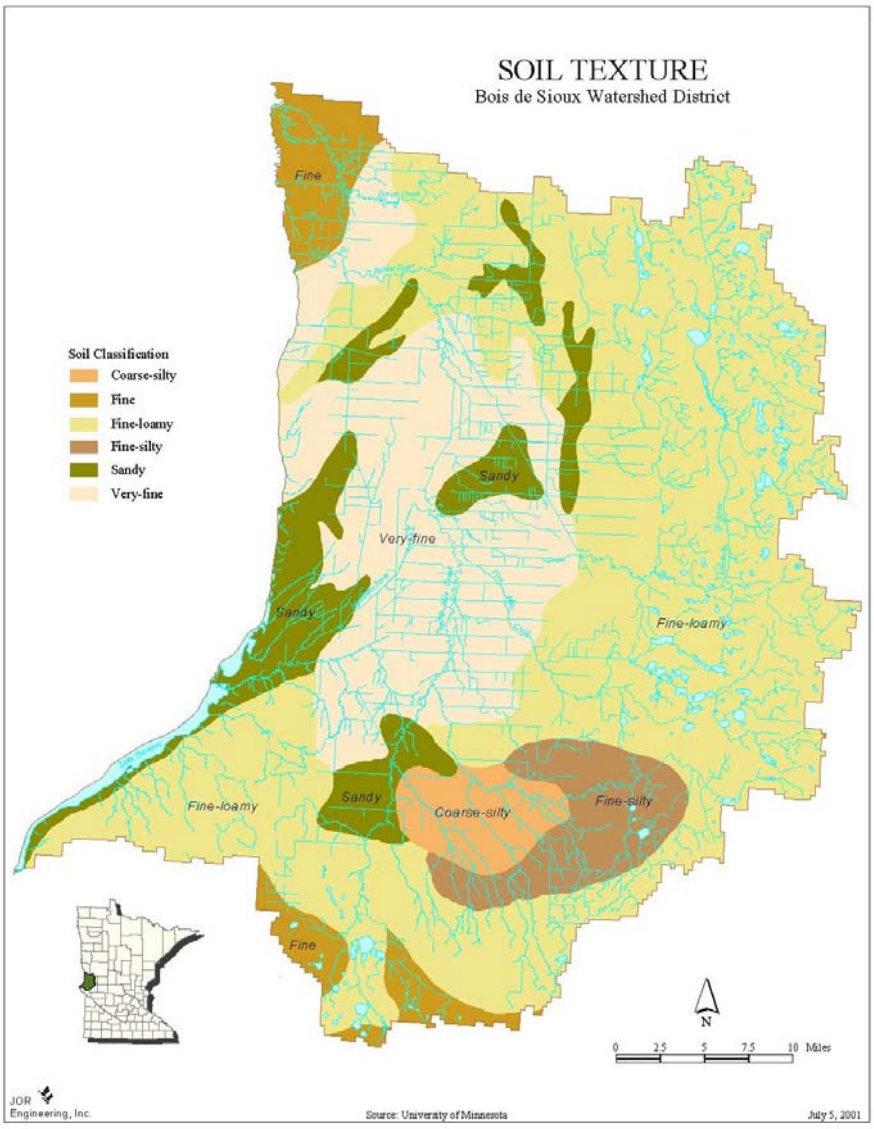
Without the delegation of the SWCD as administrator of the feedlot program, the regulation of all feedlots within the county lines would be handled by staff at the regional MPCA office. The regional staff currently handles the administration of rules for large concentrated animal feeding operations (CAFOs) as well as supervising local staff and CFOs of the delegated counties. Regional staff would not have the time to effectively manage all feedlots in a non-delegated county and water resources would suffer respectively. The SWCD plays a substantial role in the reduction of contaminated runoff in Traverse County.

According to the MN Rules 7050 ORVW, there are no outstanding resource value waters within the County.

Groundwater Contamination

Ground water is an extremely important resource of Traverse County. All domestic water supplies, public and private, are drawn from ground water sources. Ground water has provided a reliable and relatively high quality source of water for both domestic and livestock consumption. Irrigation has not been a major factor and significant development of irrigation is not anticipated.

In general, ground water recharge occurs normally in the morainal areas and discharge occurs in the lake plain area of the Bois de Sioux Watershed District. This is evidenced by a number of flowing wells in the lake plain and by the numerous springs that feed Lake Traverse, specifically in Traverse County. The quality and quantity of ground water available varies depending on the formation in which it is found. Ground water is found in both surficial and buried aquifers within the glacial drift. It is also found in the cretaceous sediments and, to a limited degree, within the bedrock.



Water from aquifers in the glacial drift is generally very hard and high in dissolved solids and iron. Surficial aquifers tend to have lower dissolved solids and iron content. However, they are far more easily contaminated by surface water pollutants. Yields from individual wells typically range from 100 to 500 gallons per minute (gpm). Water from aquifers in the cretaceous sediments is high in dissolved solids and iron. The hardness ranges from mild to severe. This water may contain a significant amount of salts that may make it unsuitable for some uses. Yields from individual wells are usually less than 100 gpm.

Based on information provided by the MNDNR, there are four municipal water suppliers within Traverse County which are permitted by the DNR to draw a total of 201 million gallons of water per year from various ground water sources. The four municipalities

are the City of Browns Valley, Dumont, Wheaton, and Tintah. Wheaton is the only city within the county is required by law to have a Water Supply and Emergency Conservation Plan.

The most common source of groundwater contamination in Traverse County is by route of abandoned and unsealed wells. Unsealed wells existing at abandoned farm sites can provide a direct route of contamination of deep aquifers. Contaminants such as manure, pesticides, or other chemicals can easily enter an aquifer through a buried well casing. The average cost of sealing abandoned and unused wells is around $500.00. The Traverse LWP has allocated funding for 50% cost share of the sealing of abandoned wells (up to $250 for each well). Residents of Traverse County agree that this program is important to the preservation of a high quality fresh water supply.

Another possible source of contamination of ground water is through unsewered communities and failing individual sewage treatment systems (ISTS). According to the Minnesota Pollution Control Agency (MPCA), there are two unsewered communities and 844 ISTS within the Bois de Sioux Watershed District. Of those, 506 are considered failing by MPCA standards. The MPCA estimates that approximately 75 percent of the homes within the Watershed District utilize an individual sewage treatment system. There are two permitted waste water treatment plant discharges within Traverse County; at Wheaton and Dumont. The Traverse County ISTS program issues permits for new systems as well as completing inspections and assisting owners to bring systems into compliance. Additional funding to the ISTS program may help to bring awareness to the increasing need for compliant systems.

There is some possibility of contamination of the shallow groundwater aquifers from manure nutrient concentration and improper disposal of animal mortalities. The Traverse County Feedlot Officer in association with other local agencies will provide education to animal agriculture producers about the hazards of these types of pollution and the proper management of each. MN Feedlot Rules outline proper storage of solid manure and regulations of liquid manure storage. The MN Board of Animal Health has standards set for the proper disposal of animal mortalities which will reduce groundwater contamination in the event that a rendering company is not available. Promotion of other best management practice for animal mortality disposal will be promoted with assistance when available.

Implementation Program

An implementation program has been developed for each priority concern that maximizes partnerships and existing programs to facilitate measurable progress. Information on responsible agencies and organizations, costs, timeline, and affected watersheds is available in the Implementation Schedule.

Organization of this section is as follows:

Priority Concern
↓
Objective(s)
↓
Action(s)

Priority Concern: Erosion

Objective A. Promote continuous CRP practices to enroll filter strips and buffers along County Ditch 52, tributaries into Lake Traverse, and all eligible ditches and streams throughout the county. Reduce erosion in highly erodible areas to less than 2T.

1. Identify and focus on critical/sensitive sub watersheds within the county.

2. Prioritize areas in the county where continued promotion should be focused.

3. Make 10 personal contacts per year with individual landowners with the details of the benefits of available land retirement programs such as continuous CRP programs.

4. Partner with local agencies and groups to try to provide an additional cash bonus for planting native grasses for habitat.

5. Maintain an Arc View GIS layer of the current parcels enrolled in CRP or land retirement programs; target promotion the gaps in corridors of filter strips.

Objective B. Educate producers about the benefits of land retirement programs such as CRP to prevent and reduce erosion to less than 2T; promote installation of supporting practices.

1. Set up models for display at the Traverse County Fair and 5 meetings per year with local work groups such as township authorities or wildlife/hunting associations.

2. Participate in presentations geared towards elementary children to educate them about conservation at an early age. Provide at least two opportunities for this type of education each year.

3. Continue to participate and promote the MASWCD poster contest for conservation to reach 105 fifth and sixth graders with a conservation message each year.

4. Include relevant articles in quarterly newsletters and five times a year in local newspapers.

5. Utilize state and local cost share to partially fund projects of highest priority to prevent and mitigate erosion in the county.

6. Encourage current cooperators to promote their conservation practices by word of mouth.

7. Continue to promote the NACD soil stewardship program's annual message to reach the congregations of 12 churches of various denominations in the county.

8. Create a publication with photographs of a noticeable reduction in erosion due to best management practices for distribution to 1000 people at local agricultural events.

Objective C. Promote management of crop residues and maintain 8,500 acres of cropland using conservation tillage.

1. Continue to conduct a tillage transect to monitor or determine crop residue levels and target areas for promotion of conservation tillage practices.

2. Utilize the benefits from programs such as the Environmental Quality Incentive Program as a promotion for conservation tillage practices.

3. Promote use of the Traverse SWCD's no-till drill for the installation of 1,500 acres of cropland per year.

4. Set up a promotional display at the Traverse County fair and at five agricultural related meetings such as trainings or product promotions per year.

Priority Concern: Flood Damage

Objective A. Reduce county wide flood damage to agricultural land, rural or urban development, and infrastructure by protecting against the ten year 24 hour runoff event for agricultural land in Traverse County.

1. Participate in the "project team" process implemented by the Bois de Sioux Watershed District including meetings and work groups to develop specific plans for priority subwatersheds.

2. Partner on projects instituted by any local units of government or private organizations where appropriate and able to maximize the benefits of said projects.

3. Utilize land retirement programs such as CRP to convert cropland into grassland and trees/shrubs to increase infiltration.

Objective B. Address storm water and drainage management issues to effectively manage high volume runoff.

1. Assist communities and developments in developing sufficient stormwater management plans.

2. Encourage and explain the benefits of residue management and grassed waterways regarding reduced runoff.

3. Cooperate with the Bois de Sioux Watershed District's project team to develop projects to manage or reduce runoff specifically in flood prone areas.

4. Work with local youth groups and the city planning and zoning department to develop urban stormwater runoff awareness.

5. Work with county authorities to develop stormwater management plans specifically new developments in areas susceptible to flooding.

Priority Concern: Contaminated Runoff

Objective A. Reduce sedimentation and nutrient runoff to waters of the state.

1. Contact all feedlot owners and advise them of the potential hazards of surface water contamination from feedlot runoff.

2. Work with feedlot owners to determine if pollution hazards exist. If any exist, provide appropriate assistance to get the feedlot into compliance with effluent limits.

3. Promote general and continuous CRP contracts to convert cropland into permanent and native vegetation.

4. Continue to support, promote, and provide tree and grass planting services provided through the Traverse SWCD at a competitive price to landowners.

5. Educate producers about the negative effects of phosphorus loading on local waters caused by erosion and sedimentation specifically in Lake Traverse.

6. Promote and install 2,000 acres (400ac/yr x 5 yrs) of filter strips along eligible streams, ditches, and creeks.

7. Install five miles of field windbreaks annually to reduce wind erosion leading to sedimentation of waters of the state.

Objective B. Promote conservation tillage practices to reduce wind and water erosion of cropland.

1. Continue to conduct an annual tillage survey and monitor crop residue throughout the county; use results to target areas of need for the promotion of conservation tillage practices.

2. Educate producers on the value of conservation tillage for soil conservation by attending five local producer's meetings annually.

3. Show examples and explanation of the benefits of using conservation tillage practices and the erosion that may result if no conservation tillage practices are used at the Traverse County fair and five meetings for local agricultural or political leaders.

4. Continue to promote and administer the Ag BMP low interest loan program for minimum tillage farming equipment through the MN Department of Agriculture.

5. Continue to promote and maintain the no-till grain drill rental availability through the Traverse SWCD at a reasonable rate.

6. Publish any relevant articles in 4 newsletters annually and 6 editions of local newspapers annually.

7. Utilize incentives from USDA programs such as EQIP and CSP to promote and reward proper land stewardship.

Objective C. Begin development of TMDL's and working towards compliance with MPCA's impaired waters program.

1. Partner with the Bois de Sioux Watershed District and MPCA to work towards the identification of impaired waters.

2. Participate in the impaired waters process, evaluating waters of the state for contamination and developing the TMDL and implementation plan. Work with other local agencies in this task.

3. Support and cooperate with the Bois de Sioux Watershed District and the MPCA on the Mustinka River, Twelvemile Creek, and Lake Traverse TMDL processes and other projects within or affecting Traverse County.

4. Assist and cooperate with additional TMDL processes for other water bodies as they are determined.

5. Promote and implement best management practices for water quality in areas determined as high priority for the coordination of TMDLs.

Priority Concern: Groundwater Contamination

Objective A. Reduce contamination to groundwater through abandoned wells.

1. Work with the Minnesota Department of Health to delineate and create a management plan for groundwater recharge areas and wellhead protection areas.

2. Create a program and/or literature to educate producers about the importance of sealing abandoned wells.

3. Continue to allocate local water plan funding towards abandoned well sealing cost share program. Provide cost-share to seal eight wells per year.

4. Promote well sealing cost share through awareness advertisement; publish a short article in two local newspaper issues and four newsletters annually.

5. Promote and assist with the proper disposal of hazardous household and agricultural wastes in both solid and liquid forms. Conduct one annual collection day each year. Advertise to reach at least 500 families.

6. Continue to maintain one monitoring well to measure static water levels in northern Traverse County.

7. Promote public education of maintaining groundwater resources by developing new and exciting programs for local youth; provide two presentations about groundwater issues to local youth annually.

8. Partner with the regional public health agency to educate residents about the importance and availability of well testing, types of tests available, maximum allowable limits on groundwater and drinking water contaminants, and what to do if a well is contaminated. Personally contact 25 people regarding this topic annually.

Objective B. Continue to bring rural and community septic systems into compliance with MPCA standards.

1. Focus efforts on priority areas such as shoreland areas and areas of higher density development.

2. Develop an annual work plan to inspect 20 ISTS annually and provide assistance to owners of ISTS that are not in compliance.

3. Work with new and updated ISTS to ensure compliance with MPCA's ISTS program standards.

4. Educate 30 owners annually about the importance of proper ISTS to groundwater protection.

5. Work with authorities in three small communities within the county to develop systems where needed and to ensure proper maintenance and operation of systems in operation.

6. Partner with local realtors to ensure compliance of ISTS before the sale of property.

Objective C. Reduce pollution of groundwater from manure and improper disposal of animal mortalities.

1. Continue to assist all feedlot owners in the county working towards total compliance with Minnesota State Feedlot Rules.

2. Provide education about and enforcement of rules concerning the location of new feedlots or expansions in relation to distance from wells and waters of the state. Publish a related article in four newsletters annually and 12 issues of local newspapers

3. Provide education to all feedlots owners with manure stockpiles annually. Stockpiles must be removed and re-vegetated annually.

4. Complete inspections of 6 liquid manure storage areas annually to check for damage and to ensure proper maintenance.

5. Provide education to all feedlot owners about the proper storage and disposal of animal mortalities.

6. Promote alternative and acceptable methods of disposal of animal mortalities with cost share programs such as, but not limited to, funding compost facilities with the federally funded Environmental Quality Incentive Program.

7. Provide education to all 66 feedlot owners or recipients of manure about the proper application of manure on cropland for nutrient content with testing and spreader calibration.

8. Carefully review and monitor the construction of new liquid manure storage areas.

Implementation Schedule

Acronyms for cooperators are as follows:
BWSR: MN Board of Water and Soil Resources
DNR: MN Department of Natural Resources
NRCS: Natural Resources Conservation Service
PF: Pheasants Forever
SWCD: Traverse Soil and Water Conservation District
TC: Traverse County
WD: Boise de Sioux Watershed District & MN River Watershed District
Potential Funding – **LWM** stands for projects/programs funded in part by Local Water Management program grants and funding.

Implementation Schedule				
Priority Concern - Erosion				
	Cooperators	Cost	Potential Funding	Duration
Objective A				
Actions 1	SWCD, NRCS, WD	$25,000	GRANTS, EXISTING STAFF TIME, **LWM**	ONGOING
2	SWCD, NRCS,WD	N/A	LOCAL, GRANTS, EXISTING STAFF TIME, **LWM**	2005
3	SWCD,NRCS	$10,000	GRANTS, EXISTING STAFF TIME	ONGOING
4	SWCD,WD,PF,DU	$30,000	EXISTING STAFF TIME, GRANTS, LOCAL	2005-2006
5	SWCD,NRCS,WD	N/A	EXISTING STAFF TIME	ONGOING
Objective B				
Actions 1	SWCD,NRCS,WD	$2,500	GRANTS, LOCAL, EXISTING STAFF TIME, **LWM**	ONGOING
2	SWCD, NRCS	N/A	EXISTING STAFF TIME, **LWM**	ONGOING
3	SWCD	N/A	EXISTING STAFF TIME	ONGOING
4	SWCD, NRCS, WD	$2,500	GRANTS, LOCAL, EXISTING STAFF TIME	ONGOING
5	SWCD	$50,000	GRANTS, EXISTING STAFF TIME	ONGOING
6	SWCD, NRCS, WD	N/A	EXISTING STAFF TIME	ONGOING
7	SWCD	$10,000	LOCAL, EXISTING STAFF TIME	ONGOING
8	SWCD, NRCS, WD, TC	$1,000	GRANTS, LOCAL, EXISTING STAFF TIME, **LWM**	2005
Objective C				
Actions 1	NRCS, SWCD, WD	$20,000	EXISTING STAFF TIME, LOCAL	ONGOING
2	NRCS	$600,000	EXISTING STAFF TIME	ONGOING
3	SWCD	$1,000	EXISTING STAFF TIME, LOCAL	ONGOING
4	SWCD, NRCS, WD	$2,500	GRANTS, LOCAL, EXISTING STAFF TIME, **LWM**	ONGOING

Total Cost: $754,500.00

Implementation Schedule				
Priority Concern – Flood Damage				
	Cooperators	Cost	Potential Funding	Duration
Objective A				
Actions 1	WD, SWCD, DNR, TC, NRCS	$5,000	LOCAL, EXISTING STAFF TIME	2005-2006
2	WD, SWCD, NRCS, DNR	N/A	EXISTING STAFF TIME, **LWM**	ONGOING
3	NRCS, SWCD	$200,000	GRANTS, LOCAL, EXISTING STAFF TIME	ONGOING
Objective B				
Actions 1	WD, SWCD	$2,500	LOCAL, EXISTING STAFF TIME, GRANTS, **LWM**	2005-2006
2	SWCD, NRCS	N/A	EXISTING STAFF TIME	ONGOING
3	WD, SWCD, DNR, TC, NRCS	$5,000	EXISTING STAFF TIME, GRANTS	2005-2006
4	SWCD, NRCS, TC	$2,500	EXISTING STAFF TIME, GRANTS, LOCAL, **LWM**	2005-2006
5	TC, WD, SWCD	N/A	EXISTING STAFF TIME, LOCAL	2005-2008

Total Cost: $215,000.00

Implementation Schedule				
Priority Concern – Contaminated Runoff				
	Cooperators	Cost	Potential Funding	Duration
Objective A				
Actions 1	SWCD	$7,500	EXISTING STAFF TIME, GRANTS, LOCAL	2005
2	SWCD, NRCS	$15,000	EXISTING STAFF TIME, GRANTS, LOCAL	ONGOING
3	NRCS, SWCD, PF	$100,000	EXISTING STAFF TIME, GRANTS	ONGOING
4	SWCD	$20,000	EXISTING STAFF TIME, LOCAL	ONGOING
5	WD, SWCD, NRCS	$3,500	EXISTING STAFF TIME, LOCAL, GRANTS, **LWM**	2005-2006
6	SWCD, NRCS	$15,000	EXISTING STAFF TIME, LOCAL	2005-2010
7	SWCD	$125,000	EXISTING STAFF TIME, LOCAL	ONGOING
Objective B				
Actions 1	NRCS, SWCD, WD	$20,000	EXISTING STAFF TIME	ONGOING
2	SWCD, NRCS	$1,500	EXISTING STAFF TIME, LOCAL	ONGOING
3	SWCD, WD, NRCS	$2,500	EXISTING STAFF TIME, GRANTS, LOCAL, **LWM**	ONGOING
4	SWCD	$2,500	EXISTING STAFF TIME, LOCAL	ONGOING
5	SWCD	$1,500	EXISTING STAFF TIME, LOCAL	ONGOING
6	SWCD, NRCS, WD	$2,500	EXISTING STAFF TIME, GRANTS, LOCAL, **LWM**	ONGOING
7	NRCS, SWCD	$500,000	EXISTING STAFF TIME	ONGOING
Objective C				
Actions 1	WD, SWCD, NRCS	$3,500	LOCAL, EXISTING STAFF TIME	2005-2010
2	SWCD, NRCS, WD	$5,000	EXISTING STAFF TIME, LOCAL, GRANTS	2005-2010
3	WD, SWCD, NRCS	$2,500	EXISTING STAFF TIME, LOCAL, GRANTS	2005-2010
4	WD, SWCD, NRCS	N/A	EXISTING STAFF TIME, LOCAL, **LWM**	2005-2010
5	WD, DNR, SWCD, NRCS	$30,000	EXISTING STAFF TIME, LOCAL, **LWM**	ONGOING

Total Cost: $857,000.00

Implementation Schedule				
Priority Concern – Groundwater Contamination				
	Cooperators	Cost	Potential Funding	Duration
Objective A				
Actions 1	SWCD, WD	$10,000	EXISTING STAFF TIME, LOCAL, GRANTS	2005-2010
2	SWCD, NRCS, WD	$3,500	EXISTING STAFF TIME, GRANTS, LOCAL, **LWM**	2005-2006
3	SWCD, NRCS, WD	$10,000	**LWM,** EXISTING STAFF TIME, GRANTS	ONGOING
4	SWCD	$1,500	EXISTING STAFF TIME, LOCAL, GRANTS, **LWM**	2005-2007
5	TC, SWCD, WD	$2,500	EXISTING STAFF TIME, LOCAL, GRANTS, **LWM**	ONGOING
6	SWCD	$1,500	EXISTING STAFF TIME, LOCAL	ONGOING
7	SWCD, NRCS, WD	$3,500	EXISTING STAFF TIME, LOCAL, **LWM**	ONGOING
8	SWCD, WD	$5,000	EXISTING STAFF TIME, LOCAL, GRANTS	ONGOING
Objective B				
Actions 1	TC, SWCD, NRCS, WD,	N/A	EXISTING STAFF TIME	ONGOING
2	TC	$25,000	LOCAL, EXISTING STAFF TIME, GRANTS	2005-2010
3	TC, SWCD, WD	$10,000	LOCAL, GRANTS, EXISTING STAFF TIME	ONGOING
4	TC	$15,000	LOCAL, GRANTS, EXISTING STAFF TIME	2005-2010
5	TC, SWCD, WD	$25,000	GRANTS, LOCAL, EXISTING STAFF TIME	2005-2010
6	TC, SWCD, WD	$5,000	LOCAL, GRANTS, EXISTING STAFF TIME	ONGOING
Objective C				
Actions 1	SWCD	$37,500	GRANTS, LOCAL, EXISTING STAFF TIME	ONGOING
2	SWCD	$7,500	GRANTS, LOCAL, EXISTING STAFF TIME	ONGOING
3	SWCD	$2,500	GRANTS, LOCAL, EXISTING STAFF TIME	2005-2010
4	SWCD, NRCS	$5,000	GRANTS, LOCAL, EXISTING STAFF TIME	ONGOING
5	SWCD, NRCS	$1,500	GRANTS, LOCAL, EXISTING STAFF TIME	ONGOING
6	SWCD, NRCS	$2,500	GRANTS, LOCAL, EXISTING STAFF TIME	ONGOING
7	SWCD	$2,500	GRANTS, LOCAL, EXISTING STAFF TIME	2005-2010
8	SWCD, NRCS	N/A	GRANTS, LOCAL, EXISTING STAFF TIME	ONGOING

Total Cost: $176,500.00

Implementation Schedule 2005-2010			
Ongoing Programs			
Programs	Cooperators	Cost $	Funding
CRP	NRCS, SWCD	$200,000	FEDERAL, EXISTING STAFF TIME
EQIP	NRCS, SWCD	$600,000	GRANTS, FEDERAL, EXISTING STAFF TIME
CREP	BDSWD, NRCS, SWCD	$50,000	EXISTING STAFF TIME, STATE, LOCAL
WCA	SWCD, BDSWD, BWSR	$200,000	GRANTS, LOCAL, EXISTING STAFF TIME
Shoreland Management	TC	$50,000	GRANTS, LOCAL, EXISTING STAFF TIME
Feedlot Program	SWCD	$75,000	GRANTS, LOCAL, EXISTING STAFF TIME
ISTS Program	TC	$50,000	GRANTS, LOCAL, EXISTING STAFF TIME
Local Water Planning	SWCD, TC, BDSWD,NRCS	$125,000	LWM GRANTS, LOCAL, EXISTING STAFF TIME
Planning and Zoning	TC, SWCD, BDSWD	$150,000	LOCAL, EXISTING STAFF TIME
State Cost Share	SWCD	$50,000	GRANTS, LOCAL, EXISTING STAFF TIME
Ag BMP Loan Program	SWCD	$350,000	LOCAL, EXISTING STAFF TIME, GRANTS
Farmbill Program *	SWCD, BWSR, PF	* $100,000	*GRANTS *, LOCAL, EXISTING STAFF TIME
Information and Education	ALL	$80,000	GRANTS, LOCAL, EXISTING STAFF TIME
TOTAL		$2,080,000	

* Note: Farmbill Program is dependent on the continuation of grant funding provided by BWSR and other partner and local sources. Additional funding is needed to continue the program beyond 2006.

APPENDIX "A"

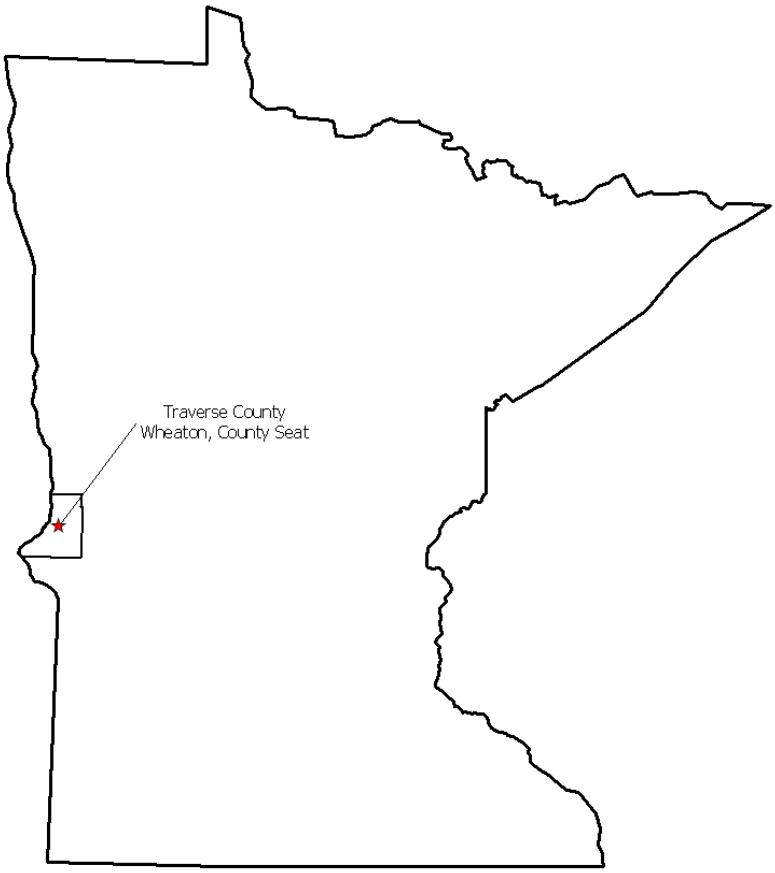
PRIORITY CONCERNS SCOPING DOCUMENT

FOR

TRAVERSE COUNTY

LOCAL WATER MANAGEMENT PLAN

State of Minnesota



Introduction

The population of Traverse County is listed at 4,134 (2000 Census). The trend of population change shows a decline in population since the 1940s with a decrease of more than 50% in population since then (population 8,283 from 1940 census). Traverse County has a forecasted decline rate of 9.5% by the year 2030 according to the State Demographers Office. The land use in the county continues to remain primarily in agriculture. One source (the 1990s census of the land) reveals that out of a total of 375,282 acres in Traverse County, 335,935 (89.5%) is cultivated land. Hay/pasture/grassland makes up 15,585 acres (4.2%) of the total. The remaining balance is divided between urban and rural development, brush land, forested, water, bog/marsh/fen, and mining.

The Traverse Soil and Water Conservation District is the LGU delegated to administer the Local Water Plan and to oversee completion of the update. A task force called the Environmental Activities Council (EAC) has been formed to guide the LGU and water plan update. The original local water plan was adopted in 1990 and it has been updated once since its adoption. An update occurred in 1996 and a two year extension was granted in 2001 in order to allow for the completion of the Bois de Sioux Watershed District's Overall Plan. A majority of the information collected and priorities determined for the Watershed District's

overall plan will apply to the local water plan and is expected to be used for the current update.

Timeline of Actions

Priority Concerns of Traverse County were identified through the following process:

December 2003

December 16, 2003 the Traverse County Board of Commissioners signed a resolution to update the Comprehensive Local Water Plan.

A meeting was held via a telephone conversation with Pete Waller of BWSR to discuss the update process and to receive BWSR input.

A mailing with written notice was sent to all 15 townships; mayors of Wheaton, Dumont, Browns Valley, and Tintah; all five Traverse County Commissioners; all members of the CLWP Environmental Activities Council/task force committee including representatives from the Bois de Sioux Watershed District, BWSR, Traverse County Planning and Zoning, The Upper MN River WD, MDH, MPCA, DNR, Traverse County Extension, US Army Corps of Engineers, City of Wheaton, and interested parties. The notice explained the intent to update the water plan, offered an invitation to attend the January 13th meeting and comment on any issues or concerning water resources and water related natural resources in Traverse County. An invitation was also offered to join the CLWP Environmental Activities Council to participate in water planning decisions. Public surveys were also included in the mailing and parties were requested to reply by the meeting date or within 60 days.

January 2004

An LGU meeting was held January 13, 2004 to discuss the timeline and needs for the update. Notification of the meeting was sent to all township committees along with local and state agencies and LGUs from surrounding areas. The meeting was attended by six agency and township representatives who had a chance to comment on any priority resource concerns and to offer ideas for the procedure of collecting information. The representatives were from the Traverse County Board of Commissioners and Planning and Zoning office, NRCS, the MN BWSR, Lake Valley Township, and Windsor Township. Items of discussion at the LGU meeting were focused on the priority concerns of the problems of erosion with Traverse County Ditch 52, the need for more education about protecting our water resources and natural resources, a discussion about goose predation of crops near the south half of Lake Traverse, and the expanded need for filter strips and promotion of the program.

A newsletter was mailed to approximately 500 citizens involved with USDA farm programs to explain the purpose of the Local Water Plan and the need for public input for the update. A survey was included in the newsletter and a request was posted for return to the SWCD office. Twelve citizens returned the general survey.

February 2004

Two public meetings were advertised in the newsletter as well as the Wheaton Gazette, the Browns Valley News, and by posters distributed throughout town. The first meeting was held on February 17, 2004 in Wheaton and was attended by seven people. A PowerPoint presentation was given on the background and accomplishments of the current Local Water Plan and the need for public input for the update was explained. Water resources were reviewed and a summary of concerns were announced. An anonymous survey was distributed and was accompanied by a discussion of the problems and opportunities concerning water quality and resources in Traverse County. Representatives from the following organizations were present and had the opportunity to comment: Traverse SWCD, NRCS, Lake Valley Township, Monson Township, Tintah Township, and Taylor Township. The surveys were collected and the information compiled in the table below.

The second public meeting was held on February 27, 2004 in Browns Valley. Five people attended the meeting including Jon Roeschlein from the Bois de Sioux Watershed District, two Traverse County Commissioners, and officers from Windsor and Arthur Townships. The identical PowerPoint presentation was given along with a similar prompt for discussion among the participants of the meeting. Information from surveys collected at this meeting was added to the collection of data listed in the table below.

Results

Special Meetings and Agency Feedback

Agency Meeting January 12: Priority concerns gathered during the discussion of the meeting included concerns of the problems of erosion with Traverse County Ditch 52, the need for more education about protecting our water resources and natural resources, a discussion about goose predation of crops near the south half of Lake Traverse, and the expanded need for filter strips and promotion of the program.

Public Meeting February 17: Some of the issues and concerns brought up at the meeting discussion included; one of the top concerns was about erosion related to drainage, too much water moving too fast. Drainage quantity improvements in the 1950's have increased soil erosion resulting in increased sedimentation into streams and lakes. Damage due to flooding is also of great concern and is linked somewhat to the way drainage systems throughout the county were constructed.

Public Meeting February 24: Some of the relevant topics and concerns that arose during the discussion were; the fact that there are an abundance of wildlife acres set aside specifically in Arthur Township (through DNR and US Fish and Wildlife) and that the township board members feel that they are at a loss for tax income due to the fact that they do not collect any taxes for the wildlife acres. The filter strip/buffer initiative has produced measurable results in CRP contracts being signed. Everyone agreed that the initiative should be continued and that

promotion of filter strips will have multiple level benefits; such as flood and erosion control and water clarity/quality benefits. Feedlot numbers in Traverse County are dwindling and feedlot runoff issues are not a high priority at this time. The erosion of Traverse County Ditch 52 has been an issue of concern for some time now and Jon Roeschlein (BdSWD Administrator) mentioned some possible solutions such as wetland restorations of basins designed to slow down the flow of the water to reduce erosion of the ditch channel as it approaches Lake Traverse. The problem is to solicit landowners to participate in the restorations by the cessation of farming of those restorable acres; many landowners contacted were not willing to give up farmed land. Jon Roeschlein also mentioned the increasing need to address lakes or rivers included on MPCA's list of impaired waters.

Written responses were received from the following:

- Minnesota Department of Natural Resources, Division of Waters: Top three priority concerns listed were 1. Buffer strips along water courses and ditches; 2. Channelization/re-alignment of water courses; 3. Flooding. Reasons for importance that the water plan focus on these concerns: Soil lost due to inadequate erosion control is costing local farmers productivity losses and cleanout expenses, sedimentation of Lake Traverse is documented. Actions needed: Programs that compensate landowners to establish buffer strips need to be actively pursued and promoted by LGU. Resources available to accomplish actions: Land set-aside programs. Areas of the county that are high priority: Especially these areas where the change of slope results in channel velocities exceeding 1.5-2.0 fps. In my estimation, soil erosion adjacent to and within your watercourses and ditches are significant issues in Traverse County that can properly be addressed with existing programs.

- Minnesota Department of Natural Resources, Division of Forestry: Forestry's long term goals for Traverse County would be to cooperate with other agencies' and DNR Divisions' goals for vegetation management in your part of the State. Consistent with this is our agreement not to promote tree planting on private lands in natural grassland areas. However, we do encourage maintaining or establishing woody vegetation along riparian corridors of permanent stream and river systems to minimize erosion. We would also discourage the development and subdividing of current forested areas into home sites or other intensive human use. These areas are unique communities in your county and are more valuable to your water quality in their wild state. Use of uneven aged management techniques would allow management while maintaining the characteristics needed to protect your water quality.

- Minnesota Department of Health: Top three priority concerns listed were 1. Recognizing and supporting needs of public water suppliers in their wellhead protection planning programs: plan development, and plan implementation; 2. Recognizing non-community public water supply systems and the inner well

management zone (a 200 foot radius around the public water supply well also known as IWMZ) protection needs; 3. Supporting the establishment of monitoring and testing of private wells. Conducting testing clinics for nitrate testing and possible testing for arsenic where that is considered a risk potential. Developing a county wide program to accurately locate wells that have a construction log to better understand the geology of the area. Importance of plan focus on these concerns is because drinking water is important to everyone and is a vital necessity for community health and economic well being. Action needed is to add language in the county water plan to reflect above statements. Local resources are the best way to address local issues. However, the MDH provides a high level of technical assistance support on most drinking water issues. Areas of highest priority will be approved wellhead protection areas (when identified) and a 200 foot radius around all public water supply wells (also know as IWMZ).

- Minnesota Department of Natural Resources, Fisheries Division: Verbal response was given suggesting that DNR Fisheries had spent much time on similar requests for the Bois de Sioux Watershed District's Overall Plan. Suggestion was made that items be taken from the Overall plan that relate directly to the needs and concerns for the water plan update. The priority goals for fish wildlife and other natural resources from the Watershed District's plan are as follows:
  Goal 1: Restore drained basins above the beach ridge.
  Goal 2: Protect existing wetlands where practical.
  Goal 3: Restore grassland and enroll it in perpetual protection programs.
  Goal 4: Manage impoundments to attenuate flows in the Bois de Sioux River and tributaries, whenever possible, to provide additional fisheries habitat.
  Goal 5: Manage water levels and vegetation (wetland and upland) within impoundments to provide maximum wildlife habitat value and related public use opportunities within the constraints of flood protection goals and management requirements.
  Goal 6: Establish riparian corridor areas along all waterways including ditches.
  Goal 7: Develop natural resource enhancement monitoring and assessment programs that define the following data and monitoring needs:
  Goal 8: Preserve and protect unique natural resource communities and features in the watershed.
  Goal 9: Protect, restore, enhance, and manage lakes and streams in the Bois de Sioux Watershed to support sustainable aquatic communities.

- BWSR: Verbal response was given by Pete Waller suggesting that a great deal of public input was collected and agency input was utilized in the creation of the Bois de Sioux Watershed District's Overall Plan. It is rational to use the relevant information collected for and compiled in the Overall Plan,

specifically the appendices ranking Flood Damage Reduction (FDR) and Natural Resource Enhancement (NRE) issues of the sub watersheds in Traverse County. See attached **Appendices 1 and 2** for a breakdown of FDR and NRE issues taken from the Bois de Sioux Watershed District's Overall Plan.

- US Fish and Wildlife Service: Verbal response was given. The top priority concerns of the Fish and Wildlife Service (FWS) are the loss of wetland area and permanent upland vegetation. Restoration of wetlands and grass uplands through any program is very important to restore hydrologic function, slow runoff, and increase evapotranspiration. The FWS recognizes that blocks of restored grass upland vegetation are most beneficial to migratory waterfowl and other birds. Priority areas include the pothole region in southwestern Traverse County where there is still not sufficient areas of grassland habitat even though sizeable tracts of wetland have been restored and established. Mud Lake is also a priority area for migratory waterfowl and there is still need for the development of grassland on the eastern shore. The FWS has participated in a program to replenish the population of prairie chickens in Minnesota and has released birds in regions north and south of Traverse County. The FWS has goals to establish a link to connect the two areas of population to benefit the species. The FWS mentioned that a study of restorable and restored wetlands has very recently been completed for Traverse County and will be delivered to the LGU upon release.

- MPCA: Verbal response was given. MPCA's priority concerns for Traverse County have been presented and discussed at length in preparation of the final Bois de Sioux Watershed District's Overall Plan. Utilizing the information in the plan would reflect upon MPCA's priority goals and objectives for the county.

Plans were collected and reviewed from the following:
- Traverse SWCD Annual Work plan 2002 and 2003
- Bois de Sioux Watershed District's Overall Plan – which includes overviews of Local County Water Management Plans and SWCD Plans for Big Stone County, Grant County, Ottertail County, Stevens County, and Wilkin County.
- Pope County Draft Comprehensive Local Water Plan

Public Meeting and Surveys Results
Results of the public surveys from the newsletter and meetings expressed that the most threatened resources (in order from highest to lowest concern) were: streams or rivers, lakes, groundwater, and lastly wetlands. Other threatened resources were named including: farming over regulation and the loss of permanent cover – trees, pastures, and idle lands. Public comments are as follows:

Erosion:

- We need to have a sediment pond on every artery entering the lakes- creeks, ravines, ditches, etc.
- Erosion is a concern but I believe farming [practices] has changed to help this.
- Ditching done in the 1950s has led to a lot of sediment into lakes and streams. There has been an improvement in farming [practices] since the 1970s but there are still problems with erosion.

Flood Damage:

- It would be nice to channel the 12 mile creek to Lake Traverse more directly for flood control down stream.
- Overland flooding can move a lot of dirt!
- Farm land drains faster than main waterways can handle.
- We need to work towards continued support for flood control through the Watershed District's projects.
- Has caused extensive damage in the last fifteen years throughout the county.

Contaminated Runoff:

- A few cows standing in the lake looks bad but it doesn't hold a candle to the runoff we get from the pastures.

Storm Water and Drainage Management:

- Excess drainage from adjoining counties is a problem.
- Farm land drains faster than main waterways can handle.
- Ag drainage flow control is a major concern.

Water Clarity:

- With ditching of land being extensive, water moves faster to the lakes and rivers.
- I think a lot of water quality problems can be addressed along with flood control projects.
- Filter strips along ditches and streams are very important. There should be a focus of promoting filter strips along 12 mile creek.

Over Application of Fertilizers:

- I would applaud and support any programs to encourage organic farming in our area.
- Trying to maximize yields with extra fertilizer causes excess runoff into our waters.
- I believe farmers are doing better.

Groundwater Contamination:

- Rural water system needed. The water is full of sulfate, rust from iron, and very hard.

- Towns should not use more than they can recharge from the local water table, surface water, or purchase or rent of wetland areas that are proven to percolate to water table recharging.
- We know there was a well on every homestead. People know where these wells are but are not willing to say anything because it will cost them to seal it. We need to have 100% cost-paid on these wells – with no restriction or penalty to people who come forward.
- Being an ag based county we are going to have fertilizer and chemical [contamination] runoff!

Lakeshore Development:

- Too much building around lakes.

Failing Septic Systems:

- Waste from towns is threatening streams and rivers.

TABLE "A"

Rank	Resource Problem	Votes
1	Erosion	17
2	Flood Damage	15
3	Contaminated Runoff	10
4	Stormwater/Drainage Management	9
5	Water Clarity	7
6	Over Application of Fertilizers	6
7	Groundwater Contamination	5
8	Lakeshore Development	5
9	Failing Septics	2

Results of public and meeting surveys questioning important resource concerns are shown in Table A.

<u>Priority Concerns and Rationale</u>

Suggestions and ideas about water related priority concerns were collected and discussed at public and collaborative agency meetings. The information was analyzed and arranged into four main categories of priority concern:

1. Erosion: Continued promotion of buffer/filter strips with emphasis on Traverse County Ditch 52 area. Erosion leading to sedimentation and degradation into Lake Traverse. Working to address erosion and sedimentation issues will positively affect water quality.
2. Flood Damage: County wide flooding damage to agricultural land. Flooding damage within the Upper MN Watershed District specifically the city of Browns Valley. Stormwater and drainage management are key factors in flood damage reduction and addressing management issues will produce positive effects in reducing flood damage.
3. Contaminated Runoff: Combined with sediment from erosion producing negative effects on streams or rivers and lakes. While working to reduce contaminated runoff, water quality issues will also be positively affected.
4. Groundwater Contamination: Abandoned and unsealed wells. Abandoned and unsealed wells are a direct link to and the most likely route of groundwater contamination in the majority of Traverse County.

The Traverse County water plan has been focused to work closely with the priorities and goals set by the Bois de Sioux Watershed District. Agency cooperation and participation in local water planning is necessary for maximum utilization of program funding towards the focus of common goals. The results of the District's Overall Plan have been used for purposes of direction for public meetings and development of the scoping document.

The five overall watershed objectives are listed as follows:

1. Water Quantity – goals set to protect land and property from flooding damage.
2. Water Quality – goals set to protect and work towards improvement of water quality through monitoring and coordination with other partners' programs.
3. Erosion and Sedimentation – goals set to reduce sedimentation from erosion by the promotion of buffer strips, BMPs, restoration of wetlands, and windbreaks.
4. Fish, Wildlife and Other Natural Resources – goals set to protect and improve fish and wildlife habitat and unique natural resource features.
5. Water Based Recreational Activities – collective goals set to protect wildlife habitat and improve water quality for recreational purposes.

Other items important to the selection of priorities for Traverse County include:

- Land use in the county is almost exclusively based in agricultural production. Flood damage reduction and practices to reduce soil erosion have multi-faceted benefits.
- Lake Traverse is a major water resource for habitat and recreation. All goals of erosion and contaminated runoff reduction will have a positive effect on water quality and clarity of the lake.
- Drainage into Lake Traverse from Traverse County Ditch 52 has been a cause of major concern in the last decade. Sedimentation from erosion in the Traverse County Ditch 52 watershed is a problem.
- Lake Eutrophication related to excess nutrients and contaminated runoff into Lake Traverse is also a problem. The Traverse Soil and Water Conservation District has received funding to carry out a filter strip initiative program throughout the county and continues to promote filter strip practices to improve water quality.
- Eight permits were issued for construction or substantial improvements in shore land in 2003. The shore land permits were estimated at 100% of construction permits in the county since no permits are required for rural construction except for new houses. Numbers of lakeshore developments are not projected to increase sharply in the next five years.

- Individual septic treatment systems are required to be updated at the point of sale in Traverse County. Best management practice/low interest loans are available for replacement and updating of any individual septic system.
- Through public and committee discussion it was agreed that over application of fertilizers is becoming less of an issue due to the rising cost of products and more frequent soil testing by producers.
- Due to the formation of a generally uniform and thick layer of glacial till with a high clay content deposited across a majority of Traverse County, groundwater contamination by infiltration is limited. Abandoned and unsealed wells are a direct route of contamination. Water plan project allocations have been the only program to offer cost share for well sealing practices in Traverse County.

It is not possible to address all existing water management issues in the updated plan. Due to program budget cuts the focus of the work plan has been narrowed. The cooperation of the Bois de Sioux Watershed District is essential to maximize funding and progression towards the goals of the work plan. Remaining concerns will be re-examined for higher prioritization during the next plan update or addressed as unforeseen opportunities arise.