Brown County Comprehensive Local Water Management Plan 2008-2018 (Amended August 2013)

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Executive Summary

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Profile

Brown County is located in South Central Minnesota at the confluence of the Cottonwood and Minnesota Rivers. The Minnesota River makes up the northern border of the county while the Cottonwood River nearly splits the county in two running west to east. The total land area of Brown County is approximately 610 square miles. There are seven (7) incorporated cities and sixteen (16) townships, with the county seat being the City of New Ulm.

The dominant land use in Brown County is cultivated land (75%), followed by uncultivated lands or wood lands/ravine (17%), urban areas/impervious are 7%, and open water makes up 1% of the total land area in Brown County. Cultivated land dominants the landscape from the far west to the eastern boundary of the county. Corn and soybeans are the primary crops being produced. Swine are the primary livestock in the County, but there are significant beef cattle and dairy herds that are also being raised. A majority of the residents of Brown County do live in urban areas, which make up 72% of the population. Within the urban settings there are industrial activities present in each of the three largest cities; New Ulm, Sleepy Eye, and Springfield.

Brown County is located in the fertile tall grass prairie Eco region of Minnesota. Making up the northern border of the county and winding their way from west to east throughout the county, streams and rivers have created wooded valleys and floodplain areas. Streams and rivers throughout the county typically flow from the higher elevations in the west to the east, ending up ultimately in the Minnesota River. The largest river in the county is the Minnesota River, with the Cottonwood River and Little Cottonwood River also being sizeable rivers on the landscape. There are a number of other perennial streams and unnamed tributaries that feed our larger rivers throughout the county. Of the rivers and streams in Brown County; two (2) of them have been designated as trout streams by the MN DNR. (Wetland Drainage)

Within Brown County lie 12 shallow prairie lakes, with Lake Hanska being the largest, most developed and widely used for recreation. Largely the shallow lakes are very eutrophic, or high in nutrients giving these water bodies incredible amounts of aquatic and terrestrial life. It is when we have excess nutrients that our water bodies suffer.

Plan Purpose:

The goal of this amended Local Water Management Plan is to serve as a guide to protect and preserve our water resources of Brown County as well as well as improve water quality for generations to come. This plan sets up objectives for water planning to strive towards in cooperation with our local, regional and state partners. Details of the plan are based on the four priority concerns outlined in the Priority Concerns Scoping Document.

The first Brown County Water Management Plan was adopted by the Brown County Board of Commissioners in 1990. Subsequently a 1996 Water Plan Update was submitted for the 10 year plan update. In 2008 the Brown County Board of Commissioners approved an updated Local Water Management Plan, set to expire in August of 2018. In 2013 we are providing an amendment to the current water plan to incorporate new and delete irrelevant information.

The creation of the Local Water Management Plan was in effort by the Brown County Water Plan Task Force, Brown County Board of Commissioners and the residents of Brown County. It is the responsibility of the Brown County Water Planner to administer the water plan on a day to day basis with the help of local, regional and state officials.

2008 through 2013 Brown County Water Planning Accomplishments

2008 Accomplishments

- Inspected 13 new and 66 upgraded septic systems
- Completed 22 on-site feedlot inspections
- Provided technical assistance to 30 landowners regarding WCA; reviewed 14 Joint Wetlands/Water Applications and completed 3 site visits
- Provided homeowner information regarding rain water and water storage at the Brown County Farm Show
- Presented water resources information to area grade school students at the Children's Water Festival in North Mankato
- SWCD completed two (2) sediment basins, two (2) grassed waterway, and one (1) grade stabilization structure projects during the season.

2009 Accomplishments

- Inspected 14 new and 36 upgraded septic systems
- Completed 39 on-site feedlot inspections
- Provided technical assistance to 92 landowners; reviewed 23 Joint Wetlands/Water Applications and completed 12 site visits
- Provided homeowner information regarding rain water and water storage at the Brown County Farm Show and New Ulm Home Show
- Started surface water quality testing for two (2) lake sites and five (5) stream stretches in Brown County (2009-2010)
- SWCD assisted with three (3) terrace projects, two (2) grassed waterway projects, two (2) rock tile inlets, two (2) windbreak plantings, one (1) bio-retention basin, one (1) feedlot runoff diversion, and one (1) grade stabilization structure

2010 Accomplishments

- Inspected 17 new and 41 upgraded septic systems
- Completed 62 on-site feedlot inspections
- Provided technical assistance to 100 + landowners regarding WCA; reviewed 31 Joint Wetlands/Water Applications and completed 12 site visits
- Provided water retention, hazardous waste, yard chemical alternatives at New Ulm Home Show and Brown County Farm Show
- Started surface water quality testing for four (4) stream stretches in Brown County (2010-2011)
- SWCD assisted with four (4) terrace projects, four (4) windbreak plantings, three (3) grassed waterway projects, two (2) rock tile inlets, one (1) grade stabilization structure, and one (1) livestock waste management project.

- Mapped out all highly erodible lands on GIS maps for entire County

2011 Accomplishments

- Inspected 18 new and 41 upgraded septic systems
- Completed 48 on-site feedlot inspections
- Provided technical assistance to 250 + landowners regarding WCA, reviewed 26 Joint Wetlands/Water Applications and completed 10 site visits
- Attended water planning technical education trainings at the BWSR Academy
- Printed information regarding hazardous waste disposal in local papers
- Taught southern MN Girl Scouts about water quality and then practiced water quality sampling techniques
- Developed and distributed public education pamphlets on alternative lawn chemicals that are more environmentally friendly and biodegradable
- Completed the University of Minnesota Well Survey for Brown County. Soon we will have a much better idea of Brown County's groundwater resources
- Started surface water quality testing for four (4) stream stretches and three (3) lakes in Brown County (2011-2012)
- Completed mapping out on GIS all County ditches and tile
- SWCD assisted with three (3) grassed waterway projects, three (3) rock inlets, three (3) streambank rip rap projects, three (3) windbreak plantings, two (2) terrace projects and two (2) wildlife plantings
- SWCD enrolled seven (7) landowners in the RIM/WRP Program
- SWCD hired an employee to work on implementing and promoting BMP's in the Little Cottonwood River Watershed for two (2) years.

2012 Accomplishments

- Inspected 11 new and 46 upgraded septic systems
- Completed 41 on-site feedlot inspections
- Provided technical assistance to 320 landowners regarding WCA, reviewed 20 Joint Wetlands/Water Applications and completed 6 site visits
- Started a Brown County Rain Barrel program to promote water storage on urban lots and to reduce storm water pollution to the Minnesota River, Sleepy Eye Lake and the Cottonwood River
- Held a free nitrate testing clinic for Brown County residents at the Brown County Fair
- Received $321,000 grant to improve fish habitat and angler access on Spring Creek
- Held essay contest for area high school juniors on the importance of surface water storage
- SWCD assisted with five (5) terrace projects, two (2) grassed waterway projects, one (1) wildlife planting, one (1) wetland restoration, one (1) agricultural pond installation and eleven (11) rock tile inlets

DESCRIPTION OF PRIORITY CONCERNS

The Priority Concerns to be addressed by the County are as follows. Concerns are not listed in order of importance and concerns were selected to be broad enough to address most concerns submitted. The Priority Concerns were selected by the Task Force after examining citizen and State comments for review.

1. **Soil Erosion Concerns –** including addressing of TMDL issues by watershed. Prevention of soil erosion and sedimentation from runoff and streambank erosion. Promotion of programs to improve residue management and conservation tillage. Incorporate urban aspects of stormwater management and runoff of impervious surfaces.

2. **Groundwater –** including addressing concerns with pesticide and fertilizer use in agricultural and urban areas. Wellhead protection and well sealing opportunities. Address potential water quantity issues involved with industrial and rural development and city water use needs.

3. **Drainage –** including possible inventory of existing system and need for improvements with the possibility for water storage. Buffer initiatives with emphasis on problem areas and erodible soils. Management focusing on public drainage system that provides agricultural production with benefits to water quality and quantity concerns.

4. **Wetlands/Water Retention –** including protection and enhancement of existing wetland resources. Inventory of existing wetlands and potential areas for restoration and water retention projects. Wetland education to contractors involved with development projects.

5. **Human Wastewater –** including the inventory of septic and municipal systems for compliance and needs. Cooperate with municipal systems to find improvements for systems and possible funding options. Upgrade of failing and non compliant individual septic systems. TMDL concerns addressed for fecal limits.

SUMMARY OF GOALS AND ACTIONS

PRIORITY CONCERN 1: SOIL EROSION

GOAL 1: Address impaired surface waters and their TMDL's

Objective A: Develop understanding of water quality issues. $64,000.00
Objective B: Reduce the impairments in surface waters. $134,000
Objective C: Delisting of existing impaired waters. $60,000.00

GOAL 2: Reduce soil erosion and sedimentation on agricultural lands.

Objective A: Identify areas that show potential for high erosion $313,000
Objective B: Cooperate and promote and market conservation programs and practices. $251,000.00

GOAL 3: Reduce stream bank and ditch bank erosion.

Objective A: Identify problems areas within the County. $10,000.00
Objective B: Provide education and options to control stream and ditch bank erosion. $187,000.00

GOAL 4: Reduce urban runoff and storm water impacts to surface waters.

Objective A: Assess urban non point source pollution in Brown County. $39,000.00
Objective B: Education to cities and citizens on runoff and storm water management. $90,000.00
Objective C: Implement Storm water and Runoff practices with cooperating Cities. $31,000.00

PRIORITY CONCERN 2: GROUNDWATER

GOAL 1: Protect ground water sources from pesticide and fertilizer contamination from agricultural and urban contamination.

Objective A: Obtain Groundwater information relating to potential impacts. $9,200.00
Objective B: Provide education on proper agricultural and residential application rates. $39,000.00

GOAL 2: Protect drinking water sources

Objective A: Recognize and support needs of public water supply wellhead protection $11,000.00
Objective B: Encourage private well protection from contamination sources. $5,000.00
Objective C: Encourage proper sealing of unused or abandoned wells. $96,000.00
Objective D: Address groundwater adequacy and sustainability of Brown County Aquifers. $3,000.00

GOAL 3: Minimize impacts to groundwater sources from industrial and rural development.

Objective A: Reduce impacts of rural and industrial development on groundwater resources. $8,000.00

PRIORITY CONCERN 3: DRAINAGE

GOAL 1: Improve drainage management system based on water quality goals.

Objective A: Cooperate with Drainage Authorities to inventory current drainage system.-$67,000.00
Objective B: Determine and map problem areas$6,000.00

Objective C: Reduce water inputs and provide water storage to the system. $1,045,000.00
Objective D: Develop education and incentive programs to increase conservation practices. $467,000.00

PRIORITY CONCERN 4: WETANDS/WATER RETENTION

GOAL 1: Protect existing wetlands and increase wetland resources

Objective A: Identify current wetlands and potential wetland restoration sites $5,000.00
Objective B: Educate citizens and officials on wetland functions and importance. $18,000.00
Objective C: Encourage wetland restoration and management.$157,000.00

PRIORITY CONCERN 5: HUMAN WASTEWATER

GOAL 1: Eliminate Subsurface Sewage Treatment System (SSTS) contamination to surface and groundwater.

Objective A: Maintain onsite sewage treatment inspection program.$22,000.00
Objective B: Provide education and seek funding for septic program. $1,570,000.00

GOAL 2: Assist with improvements and upgrades to municipal and industrial wastewater treatment systems.

Objective A: Inventory of existing processes in waste water treatment facilities $9,000.00
Objective B: Inventory of needs and funding opportunities for improved technologies. $2,044,000.00

10 YEAR PLAN TOTAL $6,760,200.00

CONSISTENCY WITH OTHER PLANS

Brown County Water Planning is based out to the Planning and Zoning Office. The Water Plan, County Zoning Ordinance, Feedlot Ordinance, Wetland Conservation Act and all other aspects of the Natural Resources Block Grant are administered out of this office. In addition there is communication and cooperation with all other Courthouse offices and the Brown County SWCD office for planning processes. This helps to provide some consistency between plans and ordinances. In addition the County has access to several local, regional and State plans for use in plan development.

SUMMARY OF RECOMMENDATIONS TO OTHER PLANS

The priority concerns and action items established in the Water Plan should allow for cooperation between the County and local governments in the development and amendments of local controls and ordinances. Reference to water quality and quantity issues developed in the plan should be considered on a voluntary basis by each organization in its planning process. The Water Plan office should act as a resource for those considering planning updates.

GOALS AND OBJECTIVES FOR PRIORITY CONCERNS

The five priority concern areas as developed from the Priority Concerns Scoping Document established by the Local Water Management Plan Task Force and adopted by Brown County are presented below. An assessment of each element is included for each priority concern area. Specific goals, objectives and actions have been identified, and will be implemented throughout the life of the Plan.

PRIORITY CONCERN 1:

SOIL EROSION CONCERNS – including addressing of TMDL issues by watershed. Prevention of soil erosion, sedimentation from runoff, and streambank erosion. Promotion of programs to improve residue management and conservation tillage. Incorporate urban aspects of storm water management and runoff of impervious surfaces.

I. DESCRIPTION OF EROSION CONCERNS

Cultivated land makes up approximately 85% of the land use in Brown County, which leaves a majority of the land throughout the county susceptible to erosion.
Erosion is a process that is always occurring but can be greatly increased by our land use practices. The rate and extent of erosion is increased in the agricultural community through poor cultivation practices which leaves the land unprotected and vulnerable to wind and water actions. Artificial drainage has also created erosion concerns in the agricultural areas. The extensive tiling and ditch system which allows drainage for crop production has increased the amount flow to the surface water system. By not allowing the water to infiltrate to the groundwater system we create ditches and streams that are "flashy" which move great quantities of water with its' erosive force downstream. This creates the opportunity for bank erosion throughout the system. Reducing this flow and preventing soil loss is necessary to reduce sediment and attached pollutants from reaching surface waters.
Agriculture is by no means the only culprit in erosion concerns. With development come homes, roads and parking lots built over the soil, reducing the amount of water that can enter the ground. Without infiltration this water flows overland with increasing energy causing erosion. Removal of trees and vegetation, especially along stream banks and shorelines, adds to the potential for erosive affects. The ability of the soil to absorb and buffer the effects of water is reduced and potential for the soil particles to be released is increased. The construction phase can become a major source of sediment in many projects. Controlling erosion will reduce the amount of sediment that can degrade waterways. Storm water runoff can change both water quality and quantity affecting our water resources physically, chemically and biologically. Polluted runoff containing oil, grease, chemicals, nutrients, metals, litter and pathogens for example, can severely reduce water quality.

Traditional water management practices have relied on moving water off the landscape as quickly as possible without much concern for downstream affects. These systems will need to be assessed to see what potential they will have with our future land use opportunities and issues. Upland management practices that aim for water retention will need to be addressed

to alleviate the erosion potential. A change in mindset and behavior will be needed that balances economic gains and the benefits of conservation practices.
Outreach efforts will need to take place educating local officials and landowners as to the benefits these practices can provide.

GOAL 1: Address impaired surface waters and their TMDL's

Objective A: ***Develop understanding of water quality issues.***

Actions:

1. Continue and expand water testing through Surface Water Assessments and submit data to the MPCA.
2. Recruit volunteers residing near the testing sites for the MPCA's Citizen Stream Monitoring Program (CSMP) for impaired reaches.
3. Recruit CSMP volunteers in the rural community for water bodies that have no previous sampling record.
4. Develop baseline data information through coordination with MPCA, MDA, MDH staff that will meet listing and delisting requirements.
5. Follow approved sampling techniques and submit water quality data for analysis and review.

Objective B: ***Reduce the impairments in surface waters***

Actions:

1. Cooperate with SWCD and NRCS to market available conservation programs annually to landowners at Brown County Farm Show, publication of one (1) newspaper article in the Comfrey, Sleepy Eye, Springfield and New Ulm papers.
2. Develop strategies with the county drainage authority to address water quantity issues that explore alternatives to existing drainage management.
3. Utilize Counties Geographic Information Systems (GIS) data to inventory and target areas for best management practices.
4. Provide educational opportunities on the TMDL process to the public through articles, meetings and personal contacts.
5. Partner with Cities and Industries to define their role in the TMDL process and the practices they can utilize to reduce impacts.
6. Cooperate with the SWCD to install fifty (50) alternative tile intakes annually.
7. Cooperate with Brown County Emergency Management to include the buying out of homes in the floodplain, homes that are in danger of washing into the river, or are flooded on a regular basis.

Objective C: ***Delisting of existing impaired waters.***

Actions:

1. Work with CWP's and MPCA in the development and implementation of Total
1. Maximum Daily Load (TMDL) plans for impaired waters.
2. Provide County level assistance throughout study and implementation phases to coordinating agencies and organizations.

3. Work with individuals and businesses to help develop erosion control, chemical use, and rainwater storage plans that will reduce their impacts to the developed implementation plan on impaired reaches.
4. Use developed priority areas as guide on progress and update implementation strategy based on successes and continued sampling.

GOAL 2: Reduce soil erosion and sedimentation on agricultural lands.

Objective A: ***Identify areas that show potential for high erosion***

Actions:

1. Identify and map areas to be targeted for implementation projects.
2. Prioritize implementation projects based on impaired waters.
3. Install 10,000 feet of terrace and two (2) grade stabilization structures annually.

Objective B: ***Cooperate with SWCD* to *promote and market conservation programs and practices.***

Actions:

1. Provide education to landowners in targeted areas on BMP's and conservation programs available through County, State and Federal programs
2. Work with the Brown County SWCD to pursue additional cost-share and incentive funding for BMP's.
3. Work with County Board as the Ditch Authority to establish a long term or permanent buffer program.
4. Demonstrate conservation tillage, alternative drainage practices and BMP's through field days sponsored by the County, U of M, State Agencies and farm groups and businesses.

GOAL 3: Reduce stream bank and ditch bank erosion.

Objective A: ***Identify problems areas within the County.***

Actions:

1. Utilize GIS data and ditch records to identify high priority areas prone to stream and ditch bank erosion.
2. Conduct air photo reviews of priority areas.
3. Conduct site visits and document erosion impacts to evaluate causes and propose solutions to erosion concern.
4. Inventory and prioritize sites based on implementation potential.
5. Utilize the DNR GIS information of locations of where erosion and bank stabilization projects have been permitted on public waters.
6. Work with area DNR staff to calculate bank erosion rates, shear stress, and total sediment loads for stretches impaired with high sediment loads.

Objective B: ***Provide education and options to control stream and ditch bank erosion.***

Actions:

1. Target sites on the inventory list to educate and provide assistance to landowners on erosion control measures.
2. Pursue funding for the implementation of buffer strips, stream bank stabilization practices, alternative upland treatments, and enforce 50' buffer from public water bodies.
3. Develop and provide information on upland management practices including wetland restorations, water storage, and infiltration practices that help to store and meter water. Sites will be prioritized based on areas of the county that are most heavily drained and have the highest potential of water storage.
4. Provide education and information on grazing management practices that reduce bank erosion.
5. Seek and provide funding for demonstration projects for fencing or buffers that show benefits of bank stabilization.
6. Work with County Drainage Authority to develop a plan that protects and enhances public waters wetlands and ditches that run through them as well as considers water retention and storage as part of ditch repair and improvements.
7. Work with Ditch Authority on possible funding of buffer incentives through the County.
8. Promote and complete one RIM/WRP Project annually in a high priority watershed that was identified as heavily drained.
9. Research and provide information on cost effective conservation practices that provide ditch and stream bank stabilization and report to County Board.
10. Work with SWCD and NRCS to encourage the re-enrollment of expiring CRP contracts that promote stream and ditch buffers.
11. Consider the requirement of a 50' permanently vegetated shoreland buffer along public waters in agricultural areas as part of agricultural land use standard included in the local shoreland management ordinance.
12. Educate the property owners of riparian areas on implementing BMP's and/or erosion and bank stabilization projects.
13. Implement riparian BMP's on Brown County owned properties adjacent to riparian areas.

GOAL 4: Reduce urban runoff and storm water impacts to surface waters.

Objective A: *Assess urban non point source pollution in Brown County.*

Actions:

1. Request opportunity to review Sleepy Eye, New Ulm, and Springfield's storm water system designs and current outlet systems.
2. Implement DNR recommended use of natural ponding areas or artificial stilling basins when feasible and require their use when necessary for storm water management.
3. Consult with cities to determine flows at different storm event levels. Once flows are recorded, determine how to slow flows and retain more water on the landscape.

4. Consult with industries to determine discharges to storm sewer systems and permitted discharges.
5. Sample to determine types and quantities of pollutants seen in the storm water system and make recommendations to community officials on how to reduce the pollutant from being discharged.
6. Work with State agencies to determine acceptable levels of pollutants and flow for storm water management.
7. Assess the nature, cause, and effect of urban runoff and storm water pollution on surface waters from residential areas in New Ulm, Sleepy Eye, and Springfield through surveys of residents and water sampling.

Objective B: ***Provide education to cities and citizens on runoff and storm water management.***

Actions:

1. Provide information and education opportunities annually through Board updates to local officials on non point source pollution, runoff and storm waster issues.
2. Provide information to communities on the use of BMP's that reduce the effects of storm water runoff through newspaper articles, workshops, public events and SWCD newsletter.
3. Provide education and training opportunities for implementation of storm water best management practices to city utility employees.
4. Assist in providing water program workshops for local officials and contractors and community members.
5. Provide education opportunities to developers and contractors on low impact development through direct mailings or contact when building permits are sought.
6. Provide education opportunities through media releases like the SWCD newsletter and public events such as the New Ulm Home Show that highlight the role citizens play in non-point source pollution through press releases and community events.
7. Continue to sell and promote the rain barrel and composter pre-order sales to Brown County residents. The program shall reach out to area businesses to provide education on different design options for larger surface areas.
8. Educate County residents on the proper handling and disposal of household hazardous waste at the New Ulm Home Show, Brown County Ag. Show, Brown County Free Fair, the VSQG Program and at the collections themselves annually. Articles are also published in area newspapers 3 times per year.
9. Offer incentives, such as rebates provided through city municipalities, to residents to encourage redirecting runoff to pervious surfaces for on-lot infiltration through the rain barrel program.

Objective C: ***Implement Storm water and Runoff practices with cooperating Cities.***

Actions:

1. Assist communities of Sleepy Eye, Springfield and New Ulm to utilize existing and pursue additional ~~funding~~ Federal and State funding, as they become available for the implementation of urban best management practices.

2. Provide technical and financial assistance to communities to assist officials, developers, and contractors in fulfilling Phase II Storm water Program requirements.
3. Encourage and provide information on the utilization of storm water management practices including retention, infiltration and storm water wetlands to the cities of Springfield, Sleepy Eye, New Ulm, Evan, and Comfrey.
4. Provide assistance on projects to follow erosion and sediment control regulations and techniques available from the MPCA and Minnesota Erosion Control Association (MECA).
5. Encourage the development of Storm water Management Plans for the cities of Sleepy Eye, Springfield and New Ulm that consider practices that improve water quality including street sweeping, catch basin cleaning, leaf litter management, salt application, snow removal storage, ponds, filter strips, infiltration and plans for future improvements.

PRIORITY CONCERN 2

Groundwater – including addressing concerns with pesticide and fertilizer use in agricultural and urban areas. Wellhead protection and well sealing opportunities. Address potential water quantity issues involved with industrial and rural development and city water use needs.

II. DESCRIPTION OF GROUNDWATER CONCERNS

Groundwater is the main source for drinking water in Brown County. High quality drinking water is necessary for both community health and economic well being. Protecting the sources of drinking water is a goal for the water plan by working with municipalities and individuals to prevent groundwater contamination.

Brown County is an area of intensive agriculture with areas of geology that make it susceptible to groundwater contamination. Well monitoring suggests that drinking well contamination can be experienced within the County. Human activities including urban and industrial development and waste water treatment have the potential to affect both private and public water sources. Working toward eliminating groundwater contamination sources including well sealing and reducing rural and urban chemical application are priorities.

Most areas of the County have shown the possibility of developing adequate ground water supplies for farm and domestic use. Planning for future development and gaining an understanding of the groundwater resources will help ensure that the resource is protected.

GOAL 1: Protect ground water sources from pesticide and fertilizer contamination from agricultural and urban contamination.

Objective A: *Obtain Groundwater information relating to potential impacts.*

Actions:

1. Compile and review monitoring data from MDA on pesticide application and groundwater contamination.

2. Review Brown County Groundwater Vulnerability Project information.
3. Continue to hold Nitrate testing clinics bi-annually at the Brown County Free Fair
4. Review MN Geologic Survey information and focus on addressing unsealed wells in areas of high risk of groundwater contamination.

Objective B: ***Provide education and information on proper agricultural and residential application rates.***

Actions:

1. Use MDA guidelines to promote pesticide water quality BMP's
2. Concentrate education activities through township meetings on priority areas that show greatest potential for groundwater impacts.
3. Work with and provide information to applicators and producers on following the University of Minnesota recommended application rates of farm chemicals through administering applicator tests.
4. Provide field day educational opportunities bi-annually for ag suppliers, applicators and property owners on proper application practices of farm chemicals.
5. Encourage soil sampling to gain a better understanding of soil needs before application.
6. Provide technical and financial assistance to assist producers in adopting BMP's to reduce the impacts of manure runoff, soil erosion, runoff from fields through the Ag. BMP Loan Program.
7. Develop residential educational resources on chemical and fertilizer application and alternatives to these chemicals. Education will take place through a bi-annual tour of residents utilizing these practices in urban areas.
8. Provide educational resources and technical assistance to community groups, schools and at community events on utilizing BMP's.

GOAL 2: Protect drinking water sources

Objective A: ***Recognize and support needs of public water supply wellhead protection.***

Actions:

1. Encourage community and non-community public water suppliers to develop and implement wellhead protection plans.
2. Work with public water suppliers to reduce potential impacts to drinking water sources.
3. Assist public water suppliers with the development of maps outlining the location of wells and radius of concern.
4. Consider wellhead protection areas when making land use decisions.
5. Utilize information provided by Minnesota Department of Health in source water assessments.

Objective B: ***Encourage private well protection from contamination sources.***

Actions:

1. Educate homeowners, realtors, and contractors on the importance of maintaining proper setbacks from private wells to potential contamination

sources through mailings to realtors and information sheets to homeowners during septic upgrade or building permit application.
2. Educate homeowners and realtors on the importance of well disclosure.
3. Encourage homeowners to get private wells tested on a regular basis through a radio press release.

Objective C: ***Encourage proper sealing of unused or abandoned wells.***

Actions:

1. Inventory locations of abandoned or unused wells.
2. Prioritize the sealing of unused or abandoned wells based on potential for contamination.
3. Use existing and develop new cost-share programs to assist with well sealing costs.
4. Develop and distribute educational materials for homeowners, realtors, bankers and attorneys on the importance of disclosing and sealing wells.

Objective D: ***Address groundwater adequacy and sustainability of Brown County groundwater aquifers.***

1. Utilize the updated Minnesota Geological Survey atlas of Brown County groundwater resources in addressing concerns of our groundwater resources.
2. Partner with the MN DNR in their groundwater monitoring program.
3. Promote groundwater conservation efforts with urban and rural residents through educational resources, review of project proposals, and at community events.

GOAL 3: Minimize impacts to groundwater sources from industrial and rural development.

Objective A: ***Reduce impacts of rural and industrial development on groundwater resources.***

Actions:

1. Define and map areas that may have low availability of groundwater resources and high potential for contamination through the use of the MN Geological Survey data.
2. Obtain up to date information on water use practices involving rural development including feedlot needs and ethanol production.
3. Inform Planning and Zoning office on industrial uses that have high water use potential and develop plans that consider high water use impacts.
4. Work with DNR to consider planning for significant water use developments and review permit applications such as irrigation wells.

PRIORITY CONCERN 3:

Drainage – including possible inventory of existing system and need for improvements with the possibility for water storage. Buffer initiatives with emphasis on problem areas and erodible soils. Management focusing on public drainage system that provides agricultural production with benefits to water quality and quantity concerns.

III. DESCRIPTION OF DRAINAGE CONCERNS

Brown County's predominant land use is agricultural. Drainage has been and will remain an important issue affecting people's lives and livelihoods. The Brown County drainage system consists of approximately 90 ditch systems covering 340 miles of open drainage ditches and uncounted miles of private tile. The Brown County Commissioners act as the County Drainage Authority considering drainage repair and improvement issues.

The agricultural drainage system provides artificial drainage of water from the soil profile in order to allow crop production. The systems are designed to quickly and efficiently remove excess water creating the opportunity for large quantities of water to exit the system. This increased flow can have detrimental affects to the receiving waters that include ditches, streams, rivers and lakes. The excess flow causes erosion and carries with it various pollutants that can impact water quality.

Much of the drainage system is outdated and under designed to accept the ever increasing amount of tile that is installed. Understanding the existing system and its' potential will help to improve water quality. Considering options to reduce the load to the system including controlled drainage and wetland and water storage opportunities should be considered by the Board.

GOAL 1: Improve drainage management system based on water quality goals.

Objective A: ***Cooperate with Drainage Authorities to inventory current drainage system.***

Actions:

1. Utilize mapping and data management process from current GIS ditch layer for public drainage systems.
2. Field verify ditch systems to determine as built conditions.
3. Compile ditch information relating to previous repair and improvements.
4. Inventory conservation projects currently active on ditch network.

Objective B: ***Determine and map problem areas***

Actions:

1. Identify areas with high potential for bank failure or erosion concerns due to the amount of inputs to the system.
2. Identify areas with high maintenance costs and develop solutions that provide water storage, reduced erosion and reduced maintenance.
3. Prioritize drainage systems that currently impact an impaired water body.

Objective C: ***Reduce water inputs and provide water storage to the system.***

Actions:

1. Utilize GIS data to create potential water retention sites based on drained basins map.
2. Identify upstream practices that slow or reduce flow to receiving waters in problem areas.
3. Pursue funding opportunities for water storage or wetland restorations in high priority areas.

4. Explore funding mechanisms through the Ditch Authority that rewards landowners for their water retention efforts through incentives or reduced taxing.
5. Develop controlled drainage demonstration site.
6. Provide education to landowners considering drainage tile in regards to how drainage tile can affect the timing, duration, magnitude of channel flow, flooding, infiltration throughout the growing season and non-growing season.

Objective D: ***Develop education and incentive programs to increase conservation practices.***

1. Continue to encourage the County Ditch Authority to work on requiring ditch buffers to newly re-assessed ditches.
2. Pursue funding for alternatives to surface tile inlets through cost-share programs for rock tile inlets.
3. Provide information and educational resources on water retention and wetland restoration efforts to officials and landowners through tile project reviews and WCA applications.
4. Provide information and educational resources on controlled drainage to officials and landowners to landowners during proposed tile projects and at the Brown County Ag. Shows.
5. Develop economic worksheet considering water storage benefits to the system in reduced maintenance costs.
6. Encourage the County Drainage Authority to partner with other agencies for project support and funding.

PRIORITY CONCERN 4:

Wetlands/Water Retention – including protection and enhancement of existing wetland resources. Inventory of existing wetlands and potential areas for restoration and water retention projects. Wetland education to contractors involved with development projects.

IV. DESCRIPTION OF WETLAND/WATER RETENTION CONCERNS

Brown County has lost more than 90 percent of it's wetlands to drainage and development. Loss of wetlands leads to increased runoff creating the potential for water impairments. Ground water recharge and water storage are also impacted through the loss of wetlands.

Water storage needs to be considered a resource rather that a liability. Wetland restoration and water retention projects need to be developed that help to restore the natural hydrology. Restoration of wetlands and land use changes along with consideration of drainage policy geared toward keeping water in its place and reducing peak flows is critical.

Goal 1: Protect existing wetlands and increase wetland resources.

Objective A: ***Identify current wetlands and potential wetland restoration sites.***

Actions:

1. Create GIS map of wetlands currently managed through an easement or conservation programs through the NRCS, SWCD, and FWS.
2. Utilize agency GIS information on restorable wetland areas throughout Brown County

Objective B: ***Educate citizens and officials on wetland functions and importance.***

Actions:

1. Collaborate with agency and conservation group partners to share information gathered through the inventory process.
2. Develop information to distribute to contractors, developers and realtors on wetland identification by direct mailings biennially.
3. Provide wetland training opportunities biennially to identify different wetland types to local officials who make planning, development and permitting decisions.
4. Work with DNR and Planning and Zoning on lakeshore development wetland impact issues.
5. Provide lakeshore owners information on needed permits for vegetation removal and beach development by the DNR.
6. Utilize and encourage educational resources available from other agencies who work directly with wetland areas and their function.

Objective C: Encourage wetland restoration and management.

Actions:

1. Identify through the building permit process potential wetland impacts that may need consideration.
2. Protect existing wetland areas for their value to flood reduction, infiltration, sediment reduction, erosion control and nutrient reduction.
3. Administer the Wetland Conservation Act.
4. Work with DNR and USFWS to maintain existing wildlife and wetland areas.
5. Educate landowners to the benefits of converting drained wetlands in the WRP and CRP programs when WCA applications are submitted throughout the year.
6. Work with SWCD and other agencies to enroll individuals in wetland restoration programs.

PRIORITY CONCERN 5:

Human Wastewater – including the inventory of septic and municipal systems for compliance and needs. Cooperate with municipal systems to find improvements for systems and possible funding options. Upgrade of failing and non compliant individual septic systems. TMDL concerns addressed for fecal limits.

V. DESCRIPTION OF HUMAN WASTEWATER CONCERNS

The cities of Brown County rely on central collection sewer systems. With changing regulatory and technological advancements there is a need for the County to provide assistance for the upgrade of these systems to improve water quality by improving waste water discharges. An inventory of existing systems and cooperation with the municipalities will help to determine needs to seek funding and assistance on potential improvements.

The rural community relies on Subsurface Sewage Treatment Systems (SSTS) for the treatment of human waste. A high percentage of the systems do not meet current State standards. Properly installed systems provide for sewage treatment that does not affect surface and ground water resources.

GOAL 1: Eliminate Subsurface Sewage Treatment System (SSTS) contamination to surface and groundwater.

Objective A: ***Maintain onsite sewage treatment inspection program.***

Actions:

1. Provide site and soils investigations with contractors to verify design criteria.
2. Provide assistance, review and approval of system designs.
3. Complete site inspections at time of installation.
4. Maintain computer and GIS file system of compliant systems and design and installation records.

Objective B: ***Provide education and seek funding for septic program.***

Actions:

1. Provide educational materials on system design and maintenance to new septic system owners.
2. Provide pumping notice to homeowners for maintenance to systems.
3. Develop information to be used at meetings, events and shows on the importance of SSTS upgrade and maintenance.
4. Provide financial and technical status reports to County Officials.
5. Inventory of systems considered Imminent Threat to Public Health or Safety.
6. Continue seeking funds for low interest loan programs sponsored by Clean Water Partnerships and County Septic fund.

GOAL 2: Assist with improvements and upgrades to municipal and industrial wastewater treatment systems.

Objective A: Inventory of existing processes in waste water treatment facilities

Actions:

1. Work with waste water operators and municipal officials to gain understanding of current systems.
2. Develop inventory of current treatment plant operations.

3. Obtain permit information pertaining to facility discharges and their potential impacts to impaired waters.

Objective B: Inventory of needs and funding opportunities for improved technologies.

1. Provide technical assistance and support to communities with inadequate sewage collection and treatment.
2. Work with operators to determine needs to upgrade and improve treatment facilities.
3. Research technologies to update and improve water treatment facilities.
4. Seek funding to upgrade processes and facilities as requested.

ON GOING ACTIVITIES

Brown County Local Water Management is involved in several diverse activities and programs through it's involvement with the Planning and Zoning office and relationship with the Brown Soil and Water Conservation District. The following is a partial list of ongoing activities and Programs associated with the Brown County Water Plan:

-Wetland Conservation Act
-Planning and Zoning
-Brown County Feedlot Program
-Brown County Septic Inspection
-Geographic Information Systems
-Children's Water Festival
--Brown Nicollet Community Health
-MDA AgBMP Loan Program
-Brown County Low Interest Septic Loan Program
-Household Hazardous Waste Program
-Brown County Recycling Program
-Brown County Water Quality Monitoring Program
-Brown County Rain Barrel Educational Program

BROWN COUNTY LOCAL WATER MANAGEMENT PLAN
10 YEAR IMPLEMENTATION SCHEDULE FOR PRIORITY CONCERNS

PRIORITY CONCERN 1: SOIL EROSION	Timeline	Cooperators	Costs
GOAL 1: Address impaired surface waters and their TMDL's			
Objective A: ***Develop understanding of water quality issues.***			
1. Continue and expand water testing through Surface Water Assessments (SWAG) and submit data to the MPCA.	Continuous	CWP's, WP, Co	$20,000.00
2. Recruit volunteers for the MPCA's Citizen Stream Monitoring Program (CSMP) for impaired reaches.	Continuous	WP, SWCD, CWP's	$2,000.00
3. Recruit CSMP volunteers residing near the testing sites in the rural community for water bodies that have no previous sampling record.	Continuous	WP, SWCD	$2,000.00
4. Develop baseline data information through coordination with MPCA, MDA, MDH staff that will meet listing and delisting requirements.	Continuous	CWP's, WP, MPCA, MDA, MDH	$30,000.00
5. Follow approved sampling techniques and submit water quality data for analysis and review.	Continuous	CWP's, WP	$10,000.00
		TOTAL	$64,000.00
Objective B: ***Reduce the impairments in surface waters***			
1. Cooperate with SWCD and NRCS to market available conservation programs annually to landowners at Brown County Farm Show, publication of one (1) newspaper article in the Comfrey, Sleepy Eye, Springfield and New Ulm papers.	Continuous	WP, SWCD, NRCS, CWP's	$10,000.00
2. Develop strategies with the county drainage authority to address water quantity issues that explore alternatives to existing drainage management.	2008-2010	WP, Co, DA	$15,000.00
3. Utilize Counties Geographic Information Systems (GIS) data to inventory and target areas for best management practices	2008-2010	WP, Co, SWCD	$5,000.00
4. Provide educational opportunities on the TMDL process to the public through articles, meetings and personal contacts.	Continuous	WP, SWCD, MPCA	$2,000.00

5. Partner with Cities and Industries to define their role in the TMDL process and the practices they can utilize to reduce impacts.	Continuous	WP, Cities, MPCA	$2,000.00
6. Cooperate with the SWCD to install fifty (50) alternative tile intakes annually.	2013-2018	SWCD	$100,000
7. Cooperate with Brown County Emergency Management to include the buying out of homes in the floodplain, homes that are in danger of washing into the river, or are flooded on a regular basis.	2013-2018	WP, P & Z, FEMA	0
		TOTAL	$134,000.00

Objective C: *Delisting of existing impaired waters.*

1. Work with CWP's and MPCA in the development and implementation of Total Maximum Daily Load (TMDL) plans for impaired waters	Continuous	WP, MPCA, CWP's	$40,000.00
2. Provide County level assistance throughout study and implementation phases to coordinating agencies and organizations.	Continuous	WP	$10,000.00
3. Work with individuals and businesses to help develop erosion control, chemical use, and rainwater storage plans that will reduce their impacts to the developed implementation plan on impaired reaches.	Continuous	WP	$5,000.00
4. Use developed priority areas as guide on progress and update implementation strategy based on successes and continued sampling.	Continuous	WP	$5,000.00
		TOTAL	$60,000.00

GOAL 2: Reduce soil erosion and sedimentation on agricultural lands.

Objective A: *Identify areas that show potential for high erosion*

2. Identify and map areas to be targeted for implementation projects.	Continuous	WP, SWCD, Co	$10,000.00
3. Prioritize implementation projects based on impaired waters.	Continuous	WP, SWCD, CWP's	$1,000.00
4. Install 10,000 feet of terrace and two (2) grade stabilization structures annually.	2013-2018	SWCD, NRCS	$300,000
		TOTAL	$313,000.00

Objective B: *Cooperate with SWCD to promote and market conservation programs and practices.*

1. Provide education to landowners in targeted areas on BMP's and conservation programs available through County, State and Federal programs	Continuous	WP, SWCD, NRCS	$10,000.00

2. Work with the Brown County SWCD to pursue additional cost-share and incentive funding for BMP's.	Continuous	WP, SWCD, NRCS	$1,000.00
3. Work with County Board as the Ditch Authority to establish a long term or permanent buffer program.	2010-2012	WP, DA, Co	$200,000.00
5. Demonstrate conservation tillage, alternative drainage practices and BMP's through field days sponsored by the County, U of M, State Agencies and farm groups and businesses.	2010-2014	WP, SWCD, UofM, MDA	$40,000.00
		TOTAL	$251,000.00

GOAL 3: Reduce stream bank and ditch bank erosion.

Objective A: *Identify problems areas within the County.*

1. Utilize GIS data and ditch records to identify high priority areas prone to stream and ditch bank erosion.	2008-2010	WP, Co	$2,000.00
2. Conduct air photo reviews of priority areas.	2008-2010	WP, SWCD	$2,000.00
3. Conduct site visits and document erosion impacts.	2008-2014	WP, SWCD, CWP's	$5,000.00
4. Inventory and prioritize sites based on implementation potential.	2008-2014	WP, SWCD's, CWP's	$1,000.00
5. Utilize the DNR GIS information of locations of where erosion and bank stabilization projects have been permitted on pubic waters.	2013-2018	DNR, WP	0
6. Work with area DNR staff to calculate erosion rates, shear stress, and total sediment loads for stretches impaired with high sediment loads.	Continuous	DNR, SWCD, MPCA	0
		TOTAL	$10,000.00

Objective B: *Provide education and options to control stream and ditch bank erosion.*

1. Target sites on the inventory list to educate and provide assistance to landowners on erosion control measures.	2008-2014	WP, SWCD,CWP's	$10,000.00
2. Pursue funding for the implementation of buffer strips, stream bank stabilization practices, alternative upland treatments, and enforce 50' buffer from public waters.	Continuous	WP, SWCD,CWP's	$2,000.00
3. Develop and provide information on upland management practices including wetland restorations, water storage, and infiltration practices that help to store and meter water. Sites will be prioritized based on areas of the County that are most heavily drained and have the highest potential of water storage.	Continuous	WP, SWCD,CWP's	$2,000.00
4. Provide education and information on grazing management practices that reduce bank erosion.	Continuous	WP, SWCD,CWP's	$2,000.00

5. Seek and provide funding for demonstration projects for fencing or buffers that show benefits of bank stabilization	2008-2014	WP, SWCD,CWP's	$4,000.00
6. Work with County Drainage Authority to develop a plan that protects and enhances public waters wetlands and ditches that run through them and considers water retention and storage as part of ditch repair and improvements.		WP, DA, Co	$10,000.00
7. Work with Ditch Authority on possible funding of buffer incentives through the County.	2008-2014	WP, DA, Co	$20,000.00
8. Promote and complete one RIM/WRP Project annually in a high priority watershed that is identified as heavily drained.	2013-2018	SWCD, NRCS, WP	$100,000
9. Research and provide information on cost effective conservation practices that provide ditch and stream bank stabilization and report to County Board.	2008-2014	WP, DA, Co	$1,000.00
10. Work with SWCD and NRCS to encourage the re-enrollment of expiring CRP contracts that promote stream and ditch buffers.	Continuous	WP, SWCD, CWP's, NRCS	$4,000.00
11. Consider the requirement of a 50' permanent vegetated buffer along public waters in agricultural areas as part of the agricultural land use standard included in the local shoreland management ordinance.	Continuous	WP, P & Z, DNR	$1,000
12. Educate the property owners of riparian areas on implementing BMP's and/or erosion and bank stabilization projects.	Continuous	WP, P & Z, DNR	$1,000
13. Implement riparian BMP's on Brown County owned properties adjacent to riparian areas	2013-2018	WP, P & Z, RCRCA	$30,000
		TOTAL	$187,000.00

GOAL 4: Reduce urban runoff and storm water impacts to surface waters.

Objective A: *Assess urban non point source pollution in Brown County.*

1 Request opportunity to review Sleepy Eye, New Ulm, and Springfield's storm water system designs and current outlet systems.	2008-2010	WP, Cities	$2,000.00
2. Implement DNR recommended use of natural ponding areas and artificial stilling basins when feasible and require their use when necessary for storm water management.	Continuous	WP, DNR, MPCA	0
3. Consult with cities to determine flows at different storm event levels. Once flows are recorded, determine how to slow flows and retain more water on the landscape.	Continuous	WP, Cities, MPCA	$5,000.00

4. Consult with industries to determine discharges to storm sewer systems and permitted discharges.	2008-2010	WP, Cities, Industry	$6,000.00
5. Sample to determine types and quantities of pollutants seen in the storm water system and make recommendations to community officials on how to reduce the pollutants from being discharged.	2008-2014	WP, Cities, MPCA	$5,000.00
6. Work with State agencies to determine acceptable levels of pollutants and flow for storm water management.	2008-2010	WP, Cities, MPCA	$1,000.00
7. Assess the nature, cause, and effect of urban runoff and storm water pollution on surface waters from residential areas in New Ulm, Sleepy Eye, and Springfield through surveys of residents and water sampling.	2008-2014	WP, Cities, MPCA	$20,000.00
		TOTAL	$39,000.00

Objective B: ***Provide education to cities and citizens on runoff and storm water management.***

1. Provide information and education opportunities through Board Updates to local officials on non point source pollution, runoff and storm waster issues.	Continuous	WP	$5,000.00
2. Provide information to communities on the use of BMP's that reduce the effects of storm water runoff through newspaper articles, workshops, public events and newsletters.	Continuous	WP	$5,000.00
3. Provide education and training opportunities for implementation of storm water best management practices to city utility employees.	Continuous	WP	$20,000.00
4. Assist in providing WRAP workshops for local officials, contractors, and community members.	Continuous	WP	$3,000.00
5. Provide education opportunities to developers, and contractors on low impact development through direct mailings or contact when building permits are sought.	Continuous	WP	$5,000.00
6. Provide education opportunities through media releases like the SWCD newsletter and public events such as the New Ulm Home Show that highlight the role citizens play in non point source pollution through press releases and community events.	Continuous	WP	$2,000.00
7. Continue to sell and promote the rain barrel and composter pre-order sales to Brown County residents. The program shall reach out to area businesses to provide education on different design options for larger surface areas.	2013-2018	WP, Cities	$2,000.00
8. Educate ~~homeowners~~ County residents on the proper handling and disposal of household hazardous waste at the New Ulm Home Show, Brown County Ag. Show, Brown County Free Fair, the VSQG Program and at the collections themselves annually. Articles are also published in area newspapers 3 times per year on the proper handling and disposal of household hazardous waste.	Continuous	WP, Recycling	$3,000.00

8. Offer incentives, such as rebates provided through city municipalities to residents to encourage redirecting runoff to pervious surfaces for on-lot infiltration through the rain barrel program.	2010-2014	WP, Cities	$45,000.00
		TOTAL	$90,000.00

Objective C: *Implement Storm water and Runoff practices with cooperating Cities.*

1. Assist communities of Sleepy Eye, Springfield, and New Ulm to utilize existing and pursue additional Federal and State funding, as they become available for the implementation of urban best management practices	Continuous	WP, Cities	$10,000.00
2. Provide technical and financial assistance to communities to assist officials, developers, and contractors in fulfilling Phase II Storm water Program requirements.	Continuous	WP, Cities	$10,000.00
3. Encourage and provide information on the utilization of storm water management practices including retention, infiltration and storm water wetlands to the cities of Springfield, Sleepy Eye, New Ulm, Evan and Comfrey.	Continuous	WP, Cities	$4,000.00
4. Provide assistance on projects to follow erosion and sediment control regulations and techniques available from the MPCA and Minnesota Erosion Control Association (MECA).	Continuous	WP, Cities	$2,000.00
5. Encourage the development of Storm water Management Plans for the cities of Sleepy Eye, Springfield and New Ulm that consider practices that improve water quality including street sweeping, catch basin cleaning, leaf litter management, salt application, snow removal storage, ponds, filter strips, infiltration and plans for future improvements.	2008-2010	WP, Cities	$5,000.00
		TOTAL	$31,000.00

PRIORITY CONCERN 2: GROUNDWATER

	Timeline	Cooperators	Costs

GOAL 1: Protect ground water sources from pesticide and fertilizer contamination from agricultural and urban contamination.

Objective A: *Obtain Groundwater information relating to potential impacts.*

1. Compile and review monitoring data from MDA on pesticide application and	2008-2010	WP, MDA	$1,000.00

groundwater contamination.			
2. Review Brown County Groundwater Vulnerability Project information.	2008-2010	WP	$200.00
3. Continue to hold Nitrate testing clinics bi-annually at the Brown County Free Fair	Continuous	WP, MDH, BNC	$5,000.00
4. Review MN Geologic Survey information and focus on addressing unsealed wells in areas of high risk of groundwater contamination.	2013-2018	WP, MDH	$1,000.00
		TOTAL	$9,200.00

Objective B: *Provide education and information on proper agricultural and residential application rates.*

1. Use MDA guidelines to promote pesticide water quality Bump's	Continuous	WP, MDA	$1,000.00
2. Concentrate education activities through township meetings on priority areas that show greatest potential for groundwater impacts.	Continuous	WP, SWCD	$2,000.00
3. Work with and provide information to applicators and producers on following the University of Minnesota recommended application rates of farm chemicals through administering applicator tests.	Continuous	WP, SWCD, CWP's, Co	$5,000.00
4. Provide field day education opportunities bi-annually for ag suppliers, applicators and property owners on proper application practices of farm and yard chemicals .	Continuous	WP, SWCD	$5,000.00
5. Encourage soil sampling to gain a better understanding of soil needs before application.	Continuous	WP, SWCD, Co	$2,000.00
6. Provide technical and financial assistance to assist producers in adopting BMP's to reduce the impacts of manure runoff, soil erosion, runoff from fields through the Ag. BMP Loan Program.	Continuous	WP, SWCD, Co	$20,000.00
7. Develop residential educational resources on chemical and fertilizer application and alternatives to these chemicals. Education will take place through bi-annual tour of residents utilizing these practices in urban areas.	Continuous	WP, SWCD, MDA	$2,000.00
8. Provide educational resources and technical assistance to community groups, schools and at community events on utilizing BMP's.	Continuous	WP, SWCD	$2,000.00
		TOTAL	$39,000.00

GOAL 2: Protect drinking water sources

Objective A: *Recognize and support needs of public water supply wellhead protection.*

1. Encourage community and non-community public water suppliers to develop and implement wellhead protection plans	Continuous	WP, Cities, MDH	$2,000.00
2. Work with public water suppliers to reduce potential impacts to drinking water sources.	Continuous	WP, Cities, MDH	$5,000.00
3. Assist public water suppliers with the development of maps outlining the location of wells and radius of concern	2008-2012	WP, Cities, MDH	$1,000.00
4. Consider wellhead protection areas when making land use decisions.	Continuous	WP, Cities, MDH	$2,000.00
5. Utilize information provided by Minnesota Department of Health in source water assessments	Continuous	WP, Cities, MDH	$1,000.00
		TOTAL	$11,000.00

Objective B: *Encourage private well protection from contamination sources.*

1. Educate homeowners, realtors, and contractors on the importance of maintaining proper setbacks from private wells to potential contamination sources through mailings to realtors and information sheets to landowners during septic upgrades or building permit application	Continuous	WP, Cities, MDH	$2,000.00
2. Educate homeowners and realtors on the importance of well disclosure.	Continuous	WP, Cities, MDH	$2,000.00
3. Encourage homeowners to get private wells tested on a regular basis through a radio press release.	Continuous	WP, Cities, MDH	$1,000.00
		TOTAL	$5,000.00

Objective C: *Encourage proper sealing of unused or abandoned wells.*

1. Inventory locations of abandoned or unused wells.	2008-2012	WP, MDH	$50,000.00
2. Prioritize the sealing of unused or abandoned wells based on potential for contamination.	2008-2012	WP, MDH	$2,000.00
3. Use existing and develop new cost-share programs to assist with well sealing costs.	Continuous	WP, MDH, Co	$40,000.00
4. Develop and distribute educational materials for homeowners, realtors, bankers and attorneys on the importance of disclosing and sealing wells.	Continuous	WP, MDH	$4,000.00
		TOTAL	$96,000.00

Objective D: Address groundwater adequacy and sustainability of Brown County groundwater aquifers.

1. Utilize the updated Minnesota Geologic Survey atlas of Brown County	2013-2015	WP, U of M	$1,000.00

groundwater resources in addressing concerns of our groundwater resources.

2. Partner with the MN DNR in their groundwater monitoring program.	Continuous	WP, SWCD	$1,000.00
3. Promote groundwater conservation efforts with urban and rural residents through educational resources, review of project proposals	Continuous	WP, SWCD	$1,000.00
			$3,000.00

GOAL 3: Minimize impacts to groundwater sources from industrial and rural development.

Objective A: *Reduce impacts of rural and industrial development on groundwater resources.*

1. Define and map areas that may have low availability of groundwater resources and high potential for contamination through the use of the MN Geological Survey data.	2008-2009	WP, MDH, DNR, MGS	$2,000.00
2. Obtain up to date information on water use practices involving rural development including feedlot needs and ethanol production.	2008-2009	WP, MDH, Industry	$1,000.00
3. Inform Planning and Zoning office on industrial uses that have high water use potential and develop plans that consider high water use impacts.	Continuous	WP, P&Z	$1,000.00
4. Work with DNR to consider planning for significant water use developments and review permit applications such as irrigation wells.	Continuous	WP, DNR	$4,000.00
		TOTAL	$8,000.00

PRIORITY CONCERN 3: DRAINAGE

	Timeline	Cooperators	Costs

GOAL 1: Improve drainage management system based on water quality goals.

Objective A: *Cooperate with Drainage Authorities to inventory current drainage system.*

1. Utilize mapping and data management process from current GIS ditch layer for public drainage systems.	Continuous	WP, DA	$5,000.00
2. Field verify ditch systems to determine as built conditions.	2010-2016	WP, DA	$50,000.00
3. Compile ditch information relating to previous repair and improvements.	2008-2010	WP, DA	$10,000.00
4. Inventory conservation projects currently active on ditch network	2008-2010	WP, SWCD	$2,000.00

		TOTAL	$67,000.00

Objective B: ***Determine and map problem areas***

1. Identify areas with high potential for bank failure or erosion concerns failure due to the amount of inputs to the system	2008-2010	WP, SWCD	$2,000.00
2. Identify areas with high maintenance costs and develop solutions that provide water storage, reduced erosion and reduced maintenance	2008-2010	WP, DA, SWCD	$2,000.00
3. Prioritize drainage systems that currently impact an impaired water body.	2008-2010	WP	$2,000.00
		TOTAL	$6,000.00

Objective C: ***Reduce water inputs and provide water storage to the system.***

1. Utilize GIS data to create potential water retention sites based on drainage basins map.	2008-2010	WP	$4,000.00
2. Identify upstream practices that slow or reduce flow to receiving waters in problem areas.	Continuous	WP, SWCD	$1,000.00
3. Pursue funding opportunities for water storage or wetland restorations in high priority areas.	Continuous	WP, SWCD, Co	$500,000.00
4. Explore funding mechanisms through the Ditch Authority that rewards landowners for their water retention efforts through incentives or reduced taxing.	2010-2016	WP, DA, Co	$500,000.00
5. Develop controlled drainage demonstration site.	2010-2012	WP, DA, Co	$40,000.00
6. Provide education to landowners considering drainage tile in regards to how drainage tile can affect the timing, duration, magnitude of channel flow, flooding, infiltration throughout the growing season and non-growing season.	Continuous	WP	0
		TOTAL	$1,045,000.00

Objective D: ***Develop education and incentive programs to increase conservation practices.***

1. Continue to encourage the County Ditch Authority to work on requiring ditch buffers to newly re-assessed ditches.	Continuous	WP, DA, SWCD, Co	$300,000.00
2. Pursue funding for alternatives to surface tile inlets through cost-share programs for rock tile inlets.	Continuous	WP, DA, SWCD, Co	$50,000.00
3. Provide information and educational resources on water retention and wetland restoration efforts to officials and landowners through tile project reviews and WCA applications.	Continuous	WP, SWCD	$10,000.00
4. Provide information and educational resources on controlled drainage to officials and landowners during proposed tile projects and at the Brown County Ag. Show.	Continuous	WP, SWCD	$2,000.00

5. Develop economic worksheet considering water storage benefits to the system in reduced maintenance costs.	2010-2012	WP, SWCD	$5,000.00
6. Encourage the County Drainage Authority to partner with other agencies for project support and funding	2010-2012	WP	$100,000.00
		TOTAL	$467,000.00

PRIORITY CONCERN 4: WETANDS/WATER RETENTION	**Timeline**	**Cooperators**	**Costs**

GOAL 1: Protect existing wetlands and increase wetland resources

Objective A: ***Identify current wetlands and potential wetland restoration sites.***

1. Create GIS map of wetlands currently managed through an easement or conservation program through the NRCS, SWCD, and FWS.	2008-2012	WP, SWCD, BWSR	$5,000.00
2. Utilize agency GIS information and restorable wetland areas throughout Brown County	Continuous	WP, FWS	
		TOTAL	$5,000.00

Objective B: ***Educate citizens and officials on wetland functions and importance.***

1. Collaborate with agency and conservation group partners to share information gathered through the inventory process.	2008-2012	WP	$2,000.00
2. Develop information to distribute to contractors, developers and realtors on wetland identification through direct mailings bi-annually.	Continuous	WP, BWSR	$5,000.00
3. Provide wetland training opportunities to local officials who make planning, development and permitting decisions.	Continuous	WP, BWSR, COE	$5,000.00
4. Work with DNR and Planning and Zoning on lakeshore development wetland impact issues.	Continuous	WP, DNR, P&Z	$2,000.00
5. Provide lakeshore owners information on needed permits for vegetation removal and beach development by the DNR.	Continuous	WP, DNR, P&Z	$2,000.00

6. Utilize and encourage educational resources available from other agencies who work directly with wetland areas and their function.	Continuous	WP,DNR, BWSR, SWCD	$2,000.00
		TOTAL	$18,000.00

Objective C: ***Encourage wetland restoration and management.***

1. Identify through the building permit process potential wetland impacts that may need consideration.	Continuous	WP, P&Z	$10,000.00
2. Protect existing wetland areas for their value to flood reduction, infiltration, sediment reduction, erosion control and nutrient reduction.	Continuous	WP, DNR, BWSR	$5,000.00
3. Administer the Wetland Conservation Act	Continuous	WP, Co	$100,000.00
4. Work with DNR and USFWS to maintain existing wildlife and wetland areas.	Continuous	WP, DNR, USFWS	$2,000.00
5. Educate landowners to the benefits of converting drained wetlands in the WRP and CRP programs when WCA applications are submitted throughout the year.	Continuous	WP, SWCD	$10,000.00
6. Work with SWCD and other agencies to enroll individuals in wetland restoration programs	Continuous	WP, SWCD, NRCS	$30,000.00
		TOTAL	$157,000.00

PRIORITY CONCERN 5: HUMAN WASTEWATER	**Timeline**	**Cooperators**	**Costs**

GOAL 1: Eliminate Subsurface Sewage Treatment System (SSTS) contamination to surface and groundwater.

Objective A: ***Maintain onsite sewage treatment inspection program.***

1. Provide site and soils investigations with contractors to verify design criteria.	Continuous	WP, Co	$5,000.00
2. Provide assistance, review and approval of system designs.	Continuous	WP, Co	$5,000.00
3. Complete site inspections at time of installation.	Continuous	WP, Co	$10,000.00
4. Maintain computer and GIS file system of compliant systems and design and installation records.	Continuous	WP, Co	$2,000.00
		TOTAL	$22,000.00

Objective B: ***Provide education and seek funding for septic program.***

1. Provide educational materials on system design and maintenance to new septic system owners.	Continuous	WP, Co	$2,000.00
2. Provide pumping notice to homeowners for maintenance to systems.	Continuous	WP, Co	$5,000.00
3. Develop information to be used at meetings, events and shows on the importance of ISTS upgrade and maintenance.	Continuous	WP, Co	$2,000.00
4. Provide financial and technical status reports to County Officials.	Continuous	WP, Co	$1,000.00
5. Inventory of systems considered Imminent Threat to Public Health or Safety.	2010-2014	WP, Co	$60,000.00
6. Continue seeking funds for low interest loan programs sponsored by Clean Water Partnerships and County Septic fund.	Continuous	WP, Co	$1,500,000.00
		TOTAL	$1,570,000.00

GOAL 2: Assist with improvements and upgrades to municipal and industrial wastewater treatment systems.

Objective A: ***Inventory of existing processes in waste water treatment facilities***

1. Work with waste water operators and municipal officials to gain understanding of current systems.	2008-2010	WP, Cities	$5,000.00
2. Develop inventory of current treatment plant operations.	2008-2010	WP, Cities	$2,000.00
3. Obtain permit information pertaining to facility discharges and their potential impacts to impaired waters.	2008-2010	WP, Cities, MPCA	$2,000.00
		TOTAL	$9,000.00

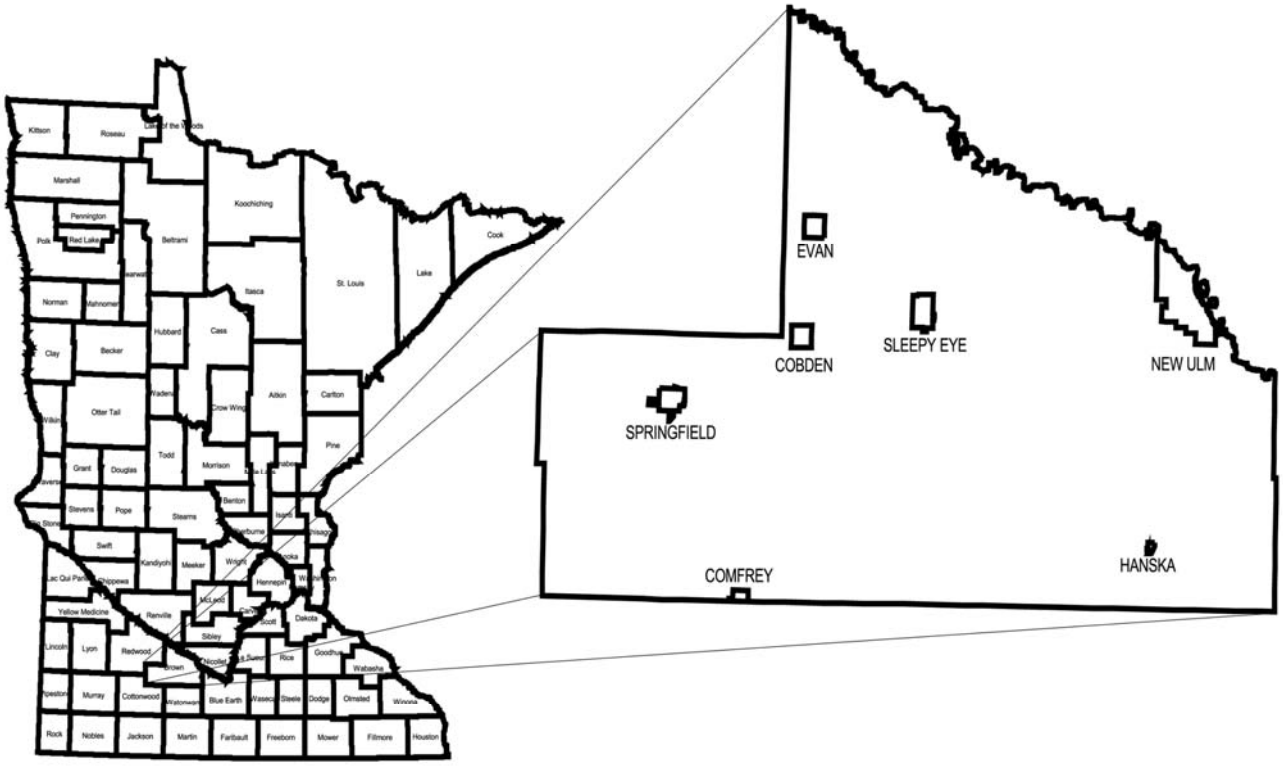
Objective B: ***Inventory of needs and funding opportunities for improved technologies.***

1. Provide technical assistance and support to communities with inadequate sewage collection and treatment	Continuous	WP, Cities	$10,000.00
2. Work with operators to determine needs to upgrade and improve treatment facilities.	Continuous	WP, Cities	$30,000.00
3. Research technologies to update and improve water treatment facilities.	Continuous	WP, Cities	$4,000.00

4. Seek funding to upgrade processes and facilities as requested.	Continuous	WP, Cities	$2,000,000.00
		TOTAL	$2,044,000.00
		10 YEAR PLAN TOTAL	$6,760,200.00

BROWN COUNTY

PRIORITY CONCERNS SCOPING DOCUMENT



BROWN COUNTY
LOCAL WATER MANAGEMENT PLAN
June 26, 2007

The following Priority concerns Scoping Document for the Brown County Local Water Management Plan was developed in accordance with changes to the Comprehensive Local Water Management Act; Statutes: 103B.301-.335. This document lists the priority concerns selected by the Brown County Local Water Management Advisory Board based on public and agency input with an account of how these concerns were identified and selected.

INTRODUCTION

Brown County is located in South Central Minnesota and is bordered by Nicollet and Renville Counties to the North with the Minnesota River as the dividing line. Cottonwood and Watonwan Counties are on the southern border with Redwood County to the west and Blue Earth County to the east. County population based on the 2000 census estimates is 26,911 with the County Seat, New Ulm, estimated at a population of 13,594. Countywide the population has declined by 0.3 percent while New Ulm has seen a +3.5 percent increase in the period since the 1990 census data.

Land use in Brown County is a contrasting mixture of urban/rural and industrial/agricultural. Approximately 72% of the residents live in cities with a population greater than 500. Industrial activities are present in each of the three highest populated cities; New Ulm, Sleepy Eye and Springfield. Brown County is agriculturally oriented with 335,000 acres or 85% of land use in crop production with corn and soybeans being the primary crops. Hogs are the primary livestock in the County.

The geography of Brown County varies from the lake areas in the southeast to the bluffs and wooded ridges along the Minnesota and Cottonwood Rivers. The gently rolling plains and fields of western Brown County provide for much of the agricultural potential of the area. This flat area that once was part of the bed and shoreline of Glacial Lake Minnesota has been changed greatly by the extensive system of ditches and drain tiles used to improve drainage for production.

There are three Major Watershed Basins associated with Brown County. The northern portion of the County lies primarily within the Middle Minnesota River watershed. In this area the local drainage is north and east toward the Minnesota River which forms the northern border of Brown County. The east and southwestern portions of the County also lie within the Middle Minnesota Watershed and are drained by the Little Cottonwood River which confluences with the Minnesota River a few miles southwest of the County line. The central and western portions of the County lie primarily within the Cottonwood River Major Watershed. The Cottonwood River joins the Minnesota River south of the City of New Ulm. The south central portion of the County is drained by the Watonwan River Major Watershed with Lake Hanska watershed being the main source for drainage to the south of the County.

Brown County officially began the Comprehensive Water Management Planning process in August of 1987 with a Resolution requiring the development of a water plan. Information gathered from local, state, federal and academic resources was used to develop the plan. The Brown County Planning and Zoning Office currently coordinates the Local Water Management Planning process.

The first Brown County Water Management Plan was adopted by the Brown County Board of Commissioners in 1990. Subsequently a 1996 Water Plan Update was submitted for the 10 year plan update. An extension was requested in 2007 for the update with the current plan set to expire December 31, 2008.

LIST OF PRIORITY CONCERNS

A priority concern is an issue, resource, subwatershed or demographic area that has been identified as a priority by the plan authority.

6. **Soil Erosion Concerns –** including addressing of TMDL issues by watershed. Prevention of soil erosion and sedimentation from runoff and streambank erosion. Promotion of programs to improve residue management and conservation tillage. Incorporate urban aspects of stormwater management and runoff of impervious surfaces.

7. **Groundwater –** including addressing concerns with pesticide and fertilizer use in agricultural and urban areas. Wellhead protection and well sealing opportunities. Address potential water quantity issues involved with industrial and rural development and city water use needs.

8. **Drainage –** including possible inventory of existing system and need for improvements with the possibility for water storage. Buffer initiatives with emphasis on problem areas and erodible soils. Management focusing on public drainage system that provides agricultural production with benefits to water quality and quantity concerns.

9. **Wetlands/Water Retention –** including protection and enhancement of existing wetland resources. Inventory of existing wetlands and potential areas for restoration and water retention projects. Wetland education to contractors involved with development projects.

10. **Human Wastewater –** including the inventory of septic and municipal systems for compliance and needs. Cooperate with municipal systems to find improvements for systems and possible funding options. Upgrade of failing and non compliant individual septic systems. TMDL concerns addressed for fecal limits.

PRIORITY CONCERNS IDENTIFICATION

The following outlines the process that Brown County utilized to gather input for developing the priority concerns.

September 6, 2005: Brown County Board of Commissioners passed a resolution to update the Brown County Comprehensive Water Management Plan.

December 12, 2005: A Notice of Decision to Revise and Update the Local Water Management Plan invitation to submit Priority Concerns Input, water related land resources plans, and official controls were sent to local units of government, adjacent counties and State review agencies as required in the notification process.

December 14, 2005: notice to Water Plan Advisory Task force notifying them of the revision and update of the Local Water Management Plan. Members noticed include:

James Berg	Diana Schaefer	Sylvester Hauser
Ron Geiger	Karen Swenson	James Broich
Wayne Schoper	Tom Maher	Chris Hughes

June 27, 2006: Brown County Board of Commissioners passed a resolution requesting a two year extension for the Brown County Comprehensive Water Management Plan.

March-May 2007: Information gathering with adjacent counties including Blue Earth, Nicollet, Le Sueur, Faribault, Renville and Redwood through various meetings, phone conversations and e-mails.

May 14, 2007: Public Survey posted on the Brown County web site for comment and submittal

May 18, 2007: Paper copies of Public survey sent to all County Elected Official at the Township, City and County level requesting input and advising constituents of the plan update and contact information to submit information.

May 21, 2007: Ads sent to all County publication to be run weekly until end of comment period to promote Public Input Survey. Press release to radio stations to be run during comment period.

June 22, 2007: End of Public Comment period

June 25, 2007: Meeting with SWCD board to give a presentation of the current water plan update process and the steps that will be taken to acquire public input. The SWCD Board then asked questions and had discussion on the concerns and needs that the Board would like to see included in the planning process that relate to the ag community.

July 11, 2007: Public Notice sent to Sleepy Eye, Springfield and New Ulm for Public Input Meeting scheduled for July 24, 2007.

July 12, 2007: The Brown County Local Water Management Advisory Task Force met to discuss the water plan update process and their role in developing the priority concerns. Members were sent all information received from the input process to review and comment on for the meeting. After review and discussion the task force selected the top five priority concerns to address in the Priority Concerns Scoping Document.

July 24, 2007: A public meeting was held in the Commissioners Meeting Room at the Brown County Courthouse in New Ulm at 11:20 a.m. In attendance were:

Chris Hughes, BWSR	Dennis Frederickson, State Senate
Sylvester Hauser, Citizen	Frederick Juni, Citizen
Elmer Guggisberg, Citizen	Kurt Nesbitt, New Ulm Journal
Charles Enter, County Administrator	James Olson, County Attorney
Andrew Lochner, Commissioner	Charles Guggisberg, Commissioner
Dennis Potter, Commissioner	James Berg, Commissioner
Richard Seeboth, Commissioner	Paul Davis, Brown County

Summary of the Proceedings (July 24, 2007 Public Meeting):

The meeting was called to order by Chairman Andrew Lochner. Paul Davis began the meeting with a summary of the Water Plan update process and the steps that have been taken so far. It was explained that the meeting is an opportunity for the public to make comment on the water plan update and provide input for the Priority Concerns Scoping Document that will be submitted to BWSR. The draft PCSD that is presented has been developed from agency and public comments and was discussed by the Local Water Management Advisory Task Force to set the five priority concerns. After review and approval by BWSR the priority concerns will be used to develop the goals and actions that will be used in the work plan.

Commissioner Lochner asked for any additional comments from the attendees.

Andrew Lochner stated his concerns about manure management comments made by the State agencies. He felt that the County does a good job of following the feedlot rules and felt that this may be a blanket statement to cover poor application practices. He feels this is a concern that we are already addressing through the feedlot program.

Sylvester Hauser hoped we would not consider the suggestion from the public comments that the County implement a “ditch tax”. He stated that these systems are already very expensive to run and maintain at the landowners expense through the ditch authority.

Charles Guggisberg commented on soil erosion and clean water concerns stating that slowing down the flow of water is beneficial to water quality but farmers see their outlet water as being clear yet the river is dirty. He pointed to studies on controlled drainage that the County should consider to benefit agriculture and water quality. He also stated his disappointment in the rock inlets and the lack of research on their effectiveness, durability and maintenance. He has some on his own land and they appear to work well but is unsure if they are benefiting water quality. Chris Hughes noted that the long term benefits have been one of the reasons that BWSR hasn’t allowed the alternative intake structure to be considered under cost share. He gave several research examples to look into for consideration in the water plan.

Frederick Juni commented that Ag isn’t the “whipping boy” that it used to be since the mold board plow has been replaced by improved tillage practices. Production agriculture isn’t the bad guy nearly as often as it used to be. Commissioner Berg stated that agriculture still has its’ issues but we need to look at all areas to figure out where the problems are.

Dennis Frederickson stated that the committees in the State Senate have water issues as a high priority and enforcement of the Clean Water Act (CWA) Rules adds to the importance of the water plan as a guide to improve water quality. This is not a city versus rural issue; pollution comes from all of us. He stated that there will be a need for more resources to help comply with the CWA rules that are coming. The State will be looking into buffer strips and drainage maintenance to find and fund beneficial practices that improve water quality. Cellulose production benefits and their ability to compete with row crops are also high on the agenda. Dedicated funding for clean water projects, land conservation projects and cultural resources has also been proposed.

Commissioner Lochner asked for any further comments. A motion was made to bring the final draft of the Priority Concerns Scoping Document with the addition of the public meeting comments to the next meeting.

The meeting was adjourned by Chairman Lochner at 11:45.

Citizen Input:

Brown County Local Water Management Plan Citizen Survey Results:

The Brown County Planning and Zoning Office received a total of 36 responses by the deadline. Respondents were asked to either mail, submit electronically or deliver surveys to the Planning and Zoning Office of the Brown County Courthouse. The Public Survey responses were as follows:

Public Survey Top Responses

Section 1
Greatest Impacts to Water Quality

1. **Soil Erosion and Runoff**
2. **Pesticide and Fertilizer Use**
3. **Solid Waste / Hazardous Waste**
4. **Drinking Water Quality**
5. **Drainage and Flooding**

Section 2
Top 10 Priorities

1. **Upgrade Failing Septic Systems**
2. **Stormwater Runoff / Impervious Surfaces**
2. **Improper Disposal of Hazardous Waste**
3. **Over Application of Lawn and Garden Chemicals**
4. **Municipal Wastewater Treatment Facilities**
5. **Increased Funding for Conservation Practices**

5. Establishment of Water Retention Areas / Upland Storage
6. Streambank Erosion
6. Increase Promotion of Conservation Practices / Programs
6. Over Application of Agricultural Chemicals

Local Water Management Plan Survey Results:

1. **Check 5 of the issues you believe have the greatest impact on water quality in Brown County.**

28 Soil Erosion and Runoff
16 Drainage and Flooding
9 Livestock Waste
15 Human Wastewater
21 Solid Waste/ Hazardous Waste
17 Urban Impacts/Stormwater
24 Pesticide and Fertilizer Use
20 Drinking Water Quality
8 Protection of Sensitive Areas
9 Environmental Education and Outreach
3 Other _____

2. **Within the following major issues check 10 items you feel are a top priority.**

Soil Erosion and Runoff
____11_____Streambank Erosion
____11_____Increased promotion of conservation practices/programs
____12_____Increased funding for conservation practices
_____8_____ Improve crop residue management
_____5_____ Low interest loan funds for tillage equipment
_____6_____ Tile intake alternatives (rock inlets, buffers)

Drainage and Flooding
____12_____Establishment of water retention areas/upland storage
____10_____Establishment of buffers on waterways
_____8_____ Wetland restorations
_____3_____ Inventory of drainage system and needs
____10_____ Upgrade/improvement of public drainage system

Livestock Waste
_____7_____ Feedlot runoff
_____8_____ Runoff from fields where manure is applied
_____7_____ Over application of manure/Manure management plans
_____7_____ Dead animal disposal

_____9_____ Enforcement of setback rules for manure application near surface waters

Human Wastewater

____21_____Upgrading failing septic systems
_____4_____ Operation and maintenance of upgraded systems by homeowners
_____3_____ Education for homeowners on operation and maintenance
____14_____ Municipal wastewater treatment facilities

Solid Waste/Hazardous Waste

____10_____ Recycling practices by homeowners and businesses
____18_____Improper disposal of hazardous waste (including appliances, tires, etc)
_____2_____ Backyard burn barrels
_____7_____ Increased education on recycling programs
_____4_____ Establishment of a County Recycling Center
_____4_____ Access to recycling facilities for rural residents
_____1_____ Hazardous waste spill response

Urban Impacts/Stormwater Runoff

_____5_____ Low impact development (reducing hard surfaces, stormwater treatment)
_____7_____ Wastewater / Stormwater connections
_____4_____ Households not connected to city sewer
_____1_____ Construction site runoff
____18_____ Stormwater runoff / Impervious surfaces (chemicals, salts, auto products)

Pesticide and Fertilizer Use

____11_____ Over application of agricultural chemicals
____17_____ Over application of lawn and garden chemicals
_____2_____ Increased education for producers
_____6_____ Increased education for homeowners

Drinking Water Quality

____10_____ Coliform bacteria in wells creating unsafe drinking water
_____8_____ Nitrate-Nitrogen in wells over the drinking water standard
_____5_____ Abandoned wells and aquifer contamination
_____9_____ Testing for private wells
_____6_____ Well sealing programs

Protection of Sensitive Areas

_____9_____ Increased wetland restorations
_____4_____ Protection of shoreland areas from over development
_____6_____ Promotion of set-aside programs for shoreland agricultural uses
_____1_____ Utilizing resource planning information in land use decisions
_____7_____ Wetland protection and education

Need for Additional Environmental Education and Outreach

_____5_____ Increased use of field days/test plots/tours

_____8_____ Increased education in schools
____10_____ Increased information for homeowners through internet, newsletters, brochures

Other Comments From Public Survey

Section 1:

- Golf course and lawn fertilization and chemicals
- I think most erosion is along the river banks
- Ethanol plants usage (drop in water table)

Section 2: comments added to body of survey

- Landfills
- DNR is so hard to work with
- EQUIP continual funding for minimum till
- Wetland restoration on prairie
- Increase education on chemicals to residential yards
- Education on recycling – more uses for more products

Additional Comments:

- Brown County has only one active trout stream which is Spring Creek in northern Home Township. The DNR has spent a considerable amount money getting public easements along this creek for public use. The County should take pro-active actions to help DNR redevelop this creek and stock it with trout.
- Some of these issues leaves the farmer with no options. The key is farmers would do some of these things if it wouldn't mean a big hit to their bottom line.
- We hear about the wetlands we are losing. How can this be when we are not allowed to drain a wetland.
- Our wetland areas are all but gone. It is good to see more and more holding ponds.
- I feel we need better and tighter controls on agricultural waste and chemicals, especially violations and spills.
- Bad water does not come from animal run off or manure spread if your large city holding ponds don't contaminate the ground
- Slow the runoff
- With the cost of chemical and fertilizer I would doubt that any farmer would overspray or waste fertilizer. There is also overkill on the protection of wetland protection (lack of reality and common sense) It seems that the person in town can do anything they choose but the farmer is regulated extensively on chemicals and fertilizer.

- Having lived my young years along the Big Cottonwood River I spent a lot of time there. Erosion along the banks is a big problem and it comes from the great expansion of drainage tile lines as well as the increase in size of tile. If the merky water is going to be cleaned up you need rock intakes or some type of filter system or put in more tile (feet) and decrease the size. You also need areas for water to slow down so dirt can settle out before going into the rivers and lakes. Chemicals are a major problem also. I have a low wet area in my pasture that turned dirt black and stayed that way for years. No vegetation whatsoever. It happened as a result of a beautiful spring and farmers got their corn and beans all planted and sprayed. The ground was loose and dry and then we got a 5" rain. The water could not get through the culvert in the road fast enough so it backed up in the wet area in my pasture. All the vegetation was killed in this wet area and when the wind would blow across the water the far edge would turn a pink red color like the inside of a watermelon. I went to a farm sale where a farmer had a container that he left sit with Pursuit in it. The moisture had evaporated from the container and left a pink red crystallized looking material. So I believe the reddish pink color on the wet area in my pasture was Pursuit because that was the In Chemical of the time.
  Likewise with Roundup its safe so they say but its side effects are a problem. There are two bacteria present, the good bacteria in the ground from alf, soybeans and grasses. Then the other bacteria which is when things turn rotten and stink. The good bacteria if in ample supply will dominate and breakdown the bad so you have a process where the soil and water will be clean. Roundup kills all good bacteria
  We have a process going today of applying millions of tons of chemicals to our soil and in some cases saturating our soil with manure not direct from the animals but fermented which is a whole different ball game.
  The water in Mound Creek Wellner Hageman dam is pathetic Go LOOK!!
  It has this dark green residue with floating globs of crap its so green coming from the Red Rock Dells is looks like pea soup or worse.
  I read the book "Confession of a Economic Hit Man". I find it hard to believe that we are being told all the facts about how chemicals affect our environment and until the University Research people cannot be held hostage by the Big Chemical Companies you will not get unbiased information.
  Our lakes are fast becoming a body of water when you look at it has a layer of crap that you could walk on. It might be fertilizer plays a role but there is more to the story than just fertilizer. When I went to school I was taught water vapors go up and it come back down as rain. I don't know how these layers of crap can go up so maybe it's the vapor from all the chemicals going up and coming down forming all the crap on our waters.
  This problem will never be solved if the Chemical companies are going to fund the research!!!
  I challenge you to solve the problem.

  P.S. This is like 911 It could be prevented if people paid attention to details

Local, State and Federal Agency Written Responses Received:

Minnesota Dept. of Agriculture

Concern 1. Pesticide impacts to shallow groundwater in sensitive areas.

Concern 2. Pesticide impacts to surface water.

Concern 3. Conservation Tillage and Drainage.

- TMDL concerns (turbidity and phosphorous) of wind and water erosion
- Proper drainage with soil conservation practices that reduce erosion

Concern 4. Manure Management and ISTS

- Septic systems as sources of fecal coliform is surface waters
- Manure and nutrient management plans for land application

Board of Water and Soil Resources

Concern 1. Prevention of Erosion of Agricultural Soils

- Recommend increased adoption of soil conservation practices
- Promote and market conservation programs with participating agencies
- Stormwater and construction site management practices
- Identify problems areas and promote best management practices

Concern 2. Drainage System Management Plan

- Update mapping and data management processes
- Inventory ditch system to analyze and prioritize problem areas
- Establish a repair and maintenance schedule for systems

Concern 3. Maintain, Enhance and Increase Wetlands and Natural Corridors

- Complete a drained wetland inventory and identify restoration areas
- Promote and market wetland preservation and restoration efforts

Environmental Quality Board

Concern 1. Ground Water Contamination Susceptibility

- Development concerns in sensitive ground water areas

Concern 2. TMDL – Impaired Waters

- Industrial development concerns and increased loads to impaired waters

Minnesota Dept. of Natural Resources

Concern 1. Holding Water on the Landscape – Hydrograph Restoration

- Water as a resources not a liability in rural and urban settings
- Restoration of wetlands and change in land use practices to store water

- Promote retention structures and leaving precipitation where it lands

Concern 2. Creation of Buffers on Ditches, Streams and Rivers

- Natural vegetation to reduce non-point source pollution, stabilize banks
- Increase and improve green corridors for species movement

Concern 3. Fish Passage

- Eliminate fish barriers to increase species diversity and habitat

Concern 4. River and Stream Channel Restoration

- Restore flow regimes to channelized streams to relieve flooding

Concern 5. Agricultural Best Management Practices

- Land use practices determine water quality issues, promote BMP's

Minnesota Pollution Control Agency

Concern 1. Impaired Waters/Total Maximum Daily Loads (TMDL)

- Prioritize impaired waters, development of TMDL projects
- Monitoring activities by County for identifying and planning
- County action and timeline for improving impairments

Concern 2. Feedlots and Land Application of Manure

- Feedlot compliance and land application tracking, open lot agreements
- Cost share assistance for site improvement

Concern 3. Drainage System Management and Open Tile Intakes

- Prioritize issues with an aging drainage system and future management
- Environmental assessment by drainage authority for proposed projects
- Ditch buffers and intake buffers to reduce sediment and nutrient loads

Concern 4. Erosion and Runoff Control

- Agricultural, urban and lakeshore development create significant erosion

Concern 5. Wellhead Protection and Ground Water Issues

- Integrate wellhead protection strategies with cities, map recharge areas

Minnesota Dept. of Health

Concern 1. Recognize and Support Public Water Suppliers in Wellhead Protection

- Work with suppliers to protect drinking water supplies

Concern 2. Recognize Non-community Water Supplies and Inner Well Management Zone

Concern 3. Continue Support for Brown-Nicollet-Cottonwood Water Quality Data

Concern 4. Support Well Sealing with Priority in Wellhead Protection Areas

Brown-Nicollet-Cottonwood Water Quality Board

Concern 1. Riparian Buffers and Filter Strips

- Provide assistance to agencies for buffer initiatives on drainage system

Concern 2. Non Compliant Septic Systems

- Low interest loan program for updating systems

Concern 3. Conservation Drainage

- Integrate conservation practices in system repair and replacement

New Ulm Area Sport Fishermen

Concern 1. Agricultural and Municipal Drainage Activity

- Utilize most effective practices in ag and stormwater management

Concern 2. Bring all Septic Systems into Compliance

Concern 3. County Lake Water Quality

- Education for land use and impacts to water quality and recreation

Priority Concerns Selection

Priority concerns were selected by the Task Force after examination of the concerns submitted by the agencies comments and from the public survey and submitted comments.

It is not possible to address all concerns. The five selected were broad enough to cover most of the issues that were presented in the comments. The focus will allow the staff the ability to write goals that should be focused on with the funds and time available.

No plans or official controls were received from any state review agencies or local units of government.

Priority Concerns Not Addressed by the Plan

Additional concerns that were submitted but not included in the Priority Concerns Scoping Document may be potentially addressed by other agencies, groups or county offices that cooperate and work with the Water Plan and the Planning and Zoning Office.

One example would be the concerns of hazardous waste disposal and collection which is covered by the Solid Waste and Recycling Department. The Soil and Water Conservation District also works with the Water Plan to develop educational opportunities and to implement the Wetland Conservation Act.

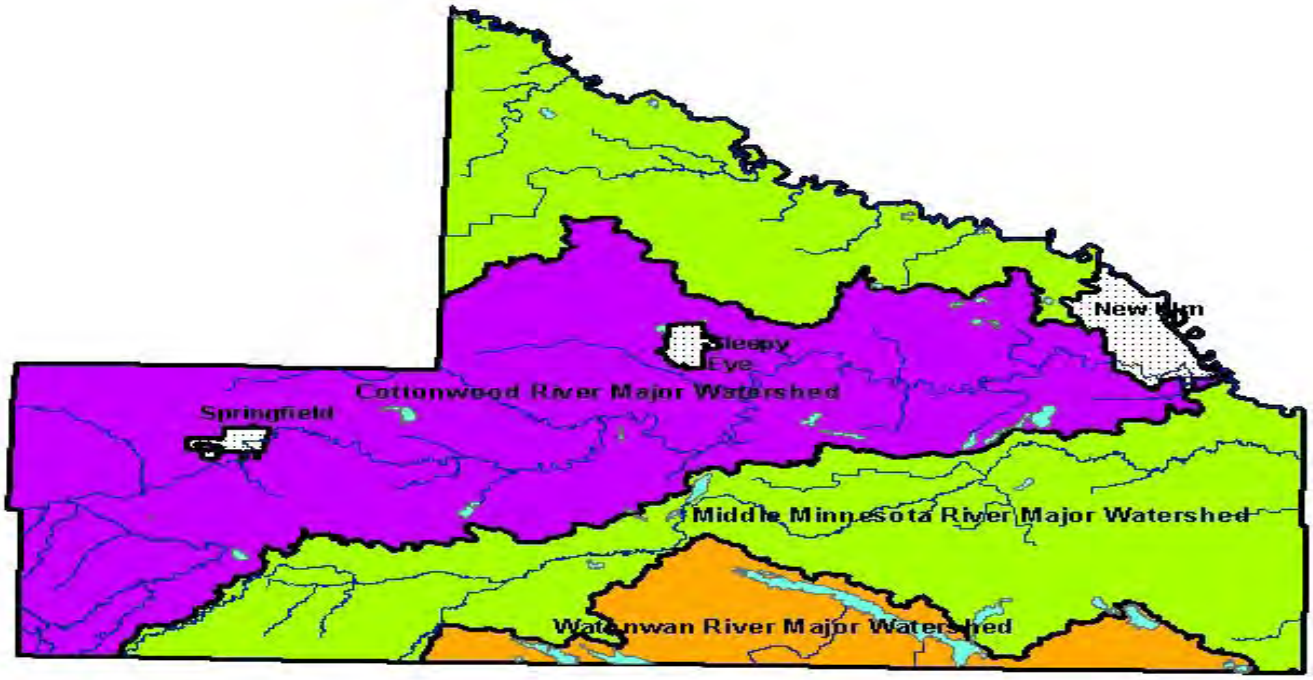
The County will work to define the goals, objectives and actions for each of the priority concerns that have been developed from all the input received.

LIST OF ACRONYMS

BMP – Best Management Practice
Co – County
COE – Corps of Engineers
CRP – Conservation Reserve Program
CSMP – Citizens Stream Monitoring Program
DA – Ditch Authority
GIS – Geographic Information System
MDA – Minnesota Dept. of Agriculture
MDH – Minnesota Dept. of Health
MDNR or DNR – Minnesota Dept. of Natural Resources
MECA – Minnesota Erosion Control Association
MGS – Minnesota Geologic Survey
MPCA – Minnesota Pollution Control Agency
NRCS – Natural Resources Conservation Service
P & Z – Planning and Zoning
SSTS – Subsurface Sewage Treatment System
SWCD - Soil and Water Conservation District
TMDL – Total Maximum Daily Load
U of M – University of Minnesota
USFWS – United States Fish and Wildlife Service
WCA – Wetland Conservation Act
WP – Water Planning
WRP – Wetland Reserve Program

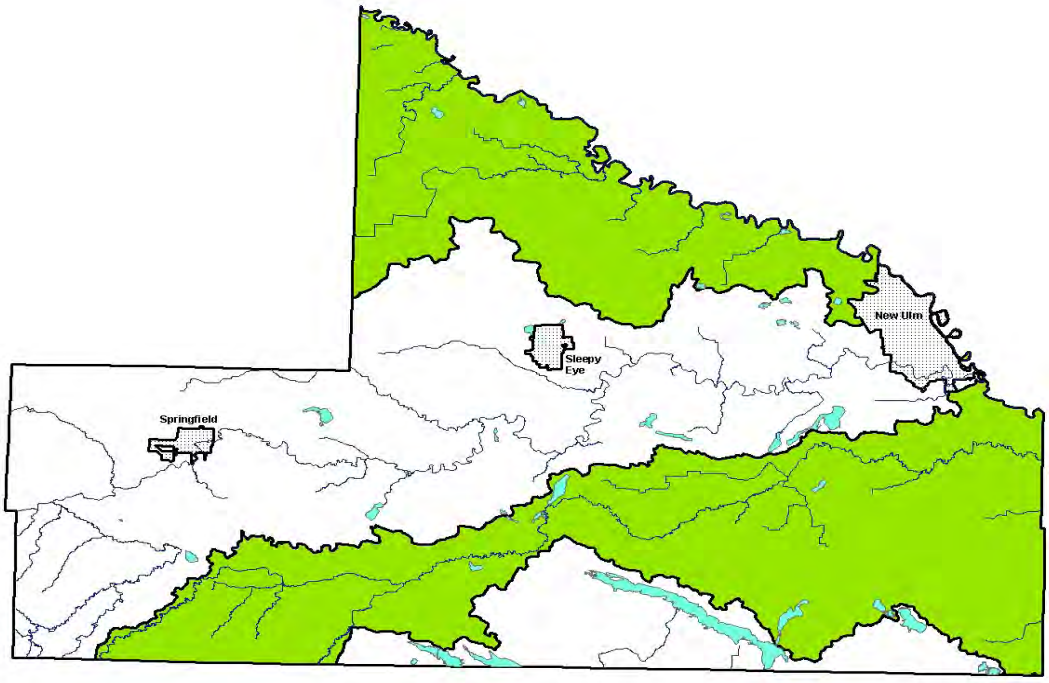
Brown County Watersheds:

There are three Major Watershed Basins associated with Brown County including the Middle Minnesota River, Cottonwood River, and Watonwan River watersheds. Within the last 20 years, there have been major conservation projects that have been put in place on the landscape, such as buffering the Minnesota River corridor and floodplain with permanent conservation easements. There have also been numerous private land projects that have been completed with the help of the Brown County SWCD, NRCS and non-profit partners. With economies changing so have land use practices. While farming has been the backbone of Brown County's economy, the agricultural landscape has changed since the first water plan in 1990. In many areas pasture and perennial crops have been replace by annual row crops. Communities of New Ulm, Springfield and Sleepy Eye have all expanded their city boundaries. With changes in land use sometimes come challenges in protecting water quality. The following are descriptions of the surface water features and land use practices within these watersheds.



Middle Minnesota River Watershed:

The northern portion of the County lies primarily within the Middle Minnesota watershed and is the largest watershed in Brown County. This watershed is primarily agricultural oriented with 75% of the watershed being cultivated land, 16.5% wooded or not cultivated, 5.5% urban/impervious, and 1.5% open water. Significant conservation practices have been installed in the watershed with the protection of the Middle Minnesota Floodplain areas through RIM/WRP and are now a permanent feature of the landscape. The largest surface water features of the watershed are the Minnesota River and Little Cottonwood River. Largely the watershed once had many shallow wetlands and shallow prairie lakes, many of which no longer exist.



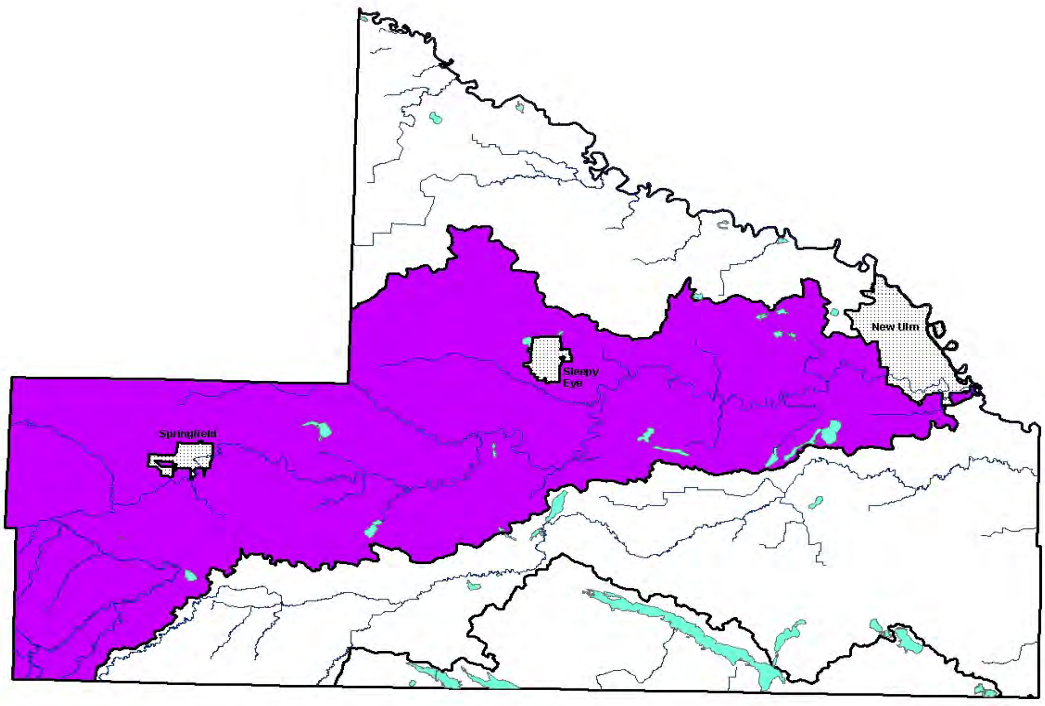
303(d) Listing Information:

- Little Cottonwood River: Headwaters to MN River – ID: 07020007-515
  - Aquatic Life Impairment: Turbidity, TMDL Required
  - Aquatic Recreation Impairment: Fecal Coliform, TMDL Required
- Minnesota River: Cottonwood R to Little Cottonwood R – ID: 07020007-503
  - Aquatic Life Impairment: Turbidity, TMDL Required
  - Aquatic Recreation Impairment: Fecal Coliform, Removed From Inventory
  - Aquatic Consumption Impairment: Mercury in Fish Tissue, TMDL Approved
  - Aquatic Consumption Impairment: PCB_1 in Fish Tissue, TMDL Required
- Minnesota River: Fort Ridgely Creek to Spring Creek – ID: 07020007-511
  - Aquatic Consumption Impairment: Mercury in Fish Tissue, TMDL Approved
  - Aquatic Consumption Impairment: PCB_1 in Fish Tissue, TMDL Required

- Minnesota River: Little Rock Creek to Eightmile Creek – ID: 07020007-509
    - Aquatic Consumption Impairment: Mercury in Fish Tissue, TMDL Approved
    - Aquatic Consumption Impairment: PCB_1 in Fish Tissue, TMDL Required
- Minnesota River: Spring Creek to Little Rock Creek – ID: 0702007-510
    - Aquatic Consumption Impairment: Mercury in Fish Tissue, TMDL Approved
    - Aquatic Consumption Impairment: PCB_1 in Fish Tissue, TMDL Required
- Minnesota River: Wabasha Creek to Fort Ridgely Creek – ID: 07020007-512
    - Aquatic Consumption Impairment: Mercury in Fish Tissue, TMDL Approved
    - Aquatic Consumption Impairment: PCB_1 in Fish Tissue, TMDL Required

Cottonwood River Watershed:

The central portion of the County lies within the Cottonwood River Watershed. The Cottonwood River meanders the entire length of Brown County, running west to east, before eventually ending up spilling into the Minnesota River south of New Ulm. The landscape of the Cottonwood River is different than the Minnesota River, whereas the Cottonwood River has a faster flow and more of a rolling landscape. Because of the rivers fast flowing waters, many of the gravel deposits are located in the watershed. Like the Minnesota, the Cottonwood is largely agricultural in land use (75%), with 17.5% being wooded or not cultivated, 6.5% urban/impervious, and 1% open water. There are a few significant lakes within this watershed including Clear Lake, Sleepy Eye Lake, Boise Lake, and Altermatt Lake.

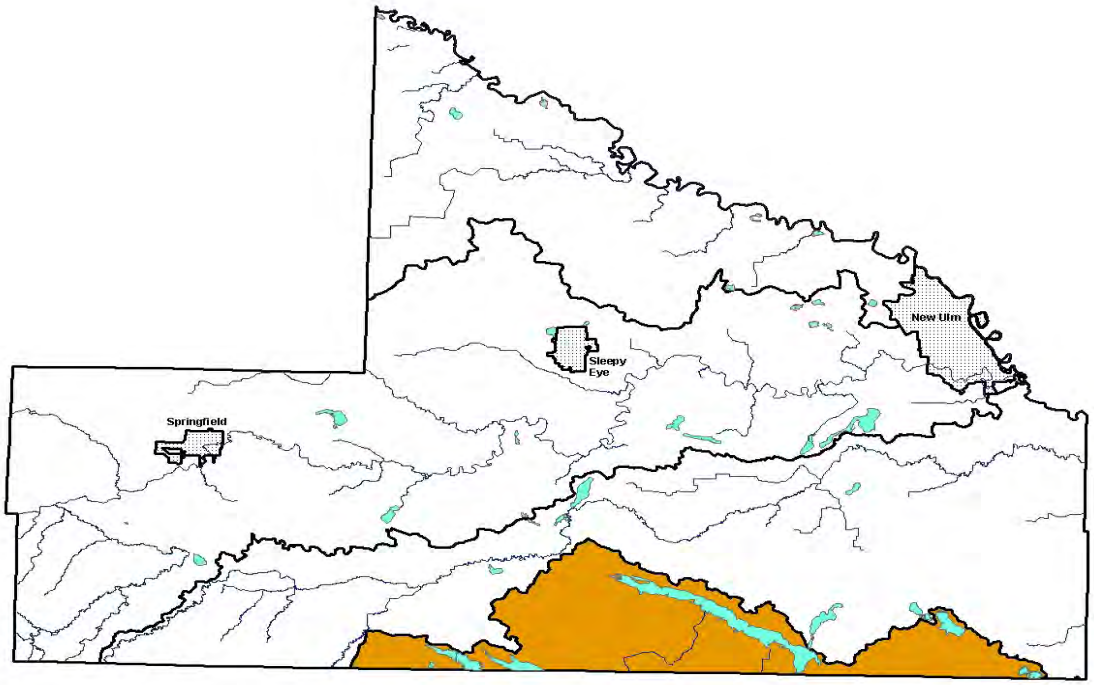


303(d) Listing Information:

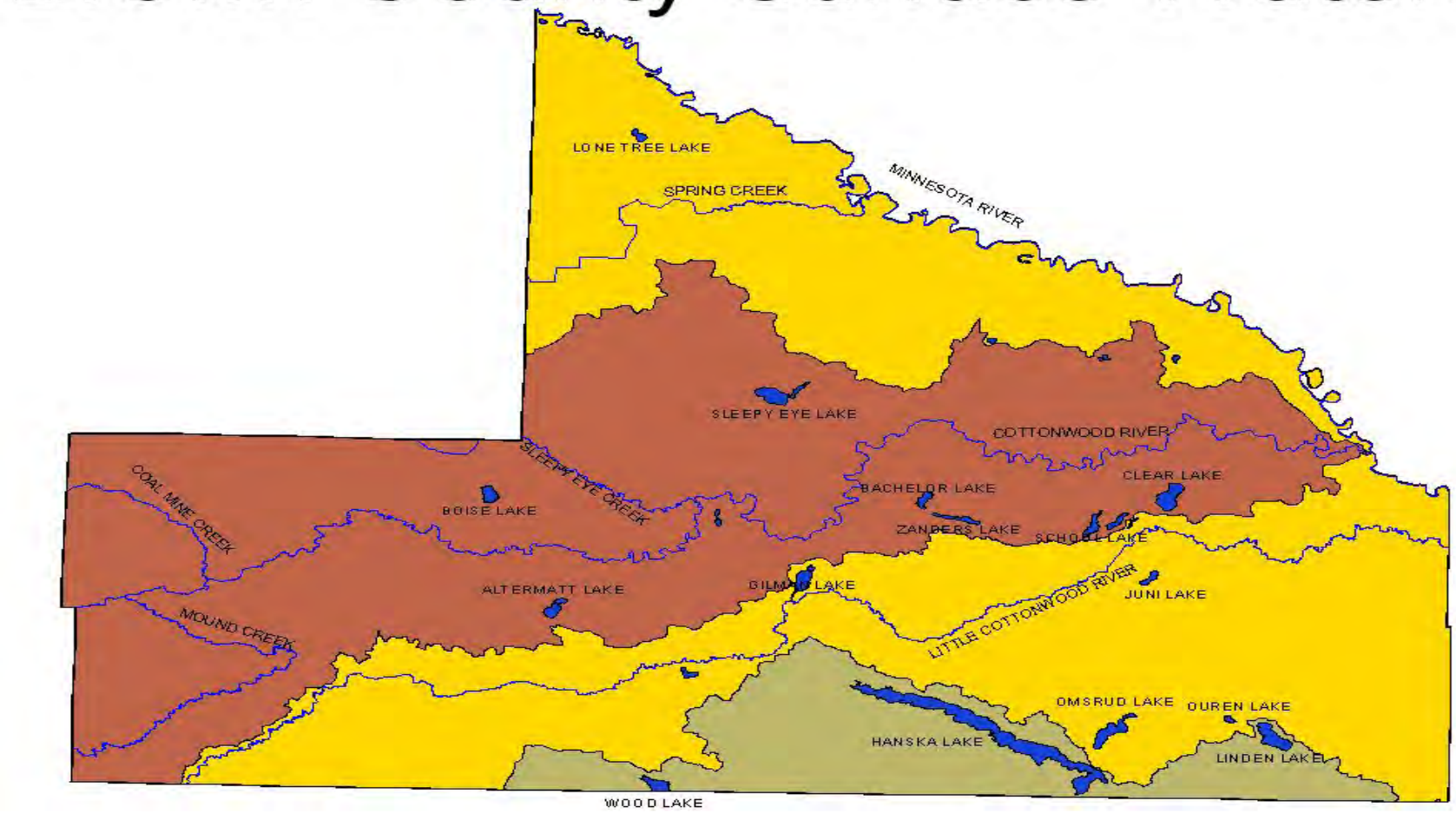
- Cottonwood River: Coal Mine Creek to Sleepy Eye Creek – ID: 07020008-508
  - Aquatic Recreation Impairment: Fecal Coliform, TMDL Required
  - Aquatic Life Impairment: Turbidity, TMDL Required
  - Aquatic Consumption Impairment: Mercury in Fish Tissue, TMDL Approved
- Cottonwood River: JD 30 to Minnesota River – ID: 07020008
  - Aquatic Recreation Impairment: Fecal Coliform, TMDL Required
  - Aquatic Life Impairment: Turbidity, TMDL Required
  - Aquatic Consumption Impairment: Mercury in Fish Tissue, TMDL Approved
- Cottonwood River: Mound Creek to Coal Mine Creek – ID: 07020008-507
  - Aquatic Consumption Impairment: Mercury in Fish Tissue, TMDL Approved

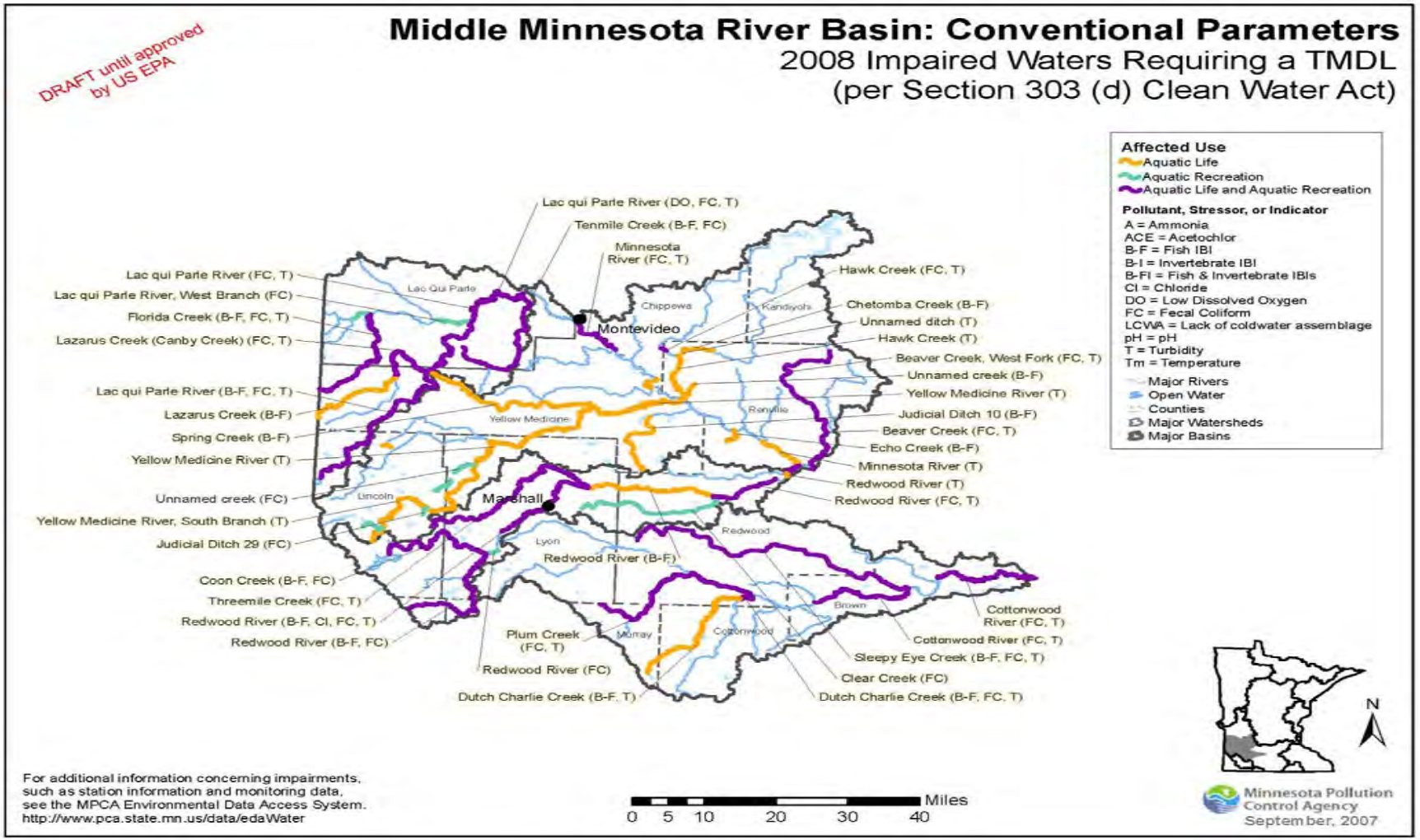
- Cottonwood River: Sleepy Eye Creek to JD 30 – ID: 07020008-509
    - Aquatic Consumption Impairment: Mercury in Fish Tissue, TMDL Approved
- Sleepy Eye Creek: Headwaters to Cottonwood River – ID 07020008-512
    - Aquatic Life Impairment: Fish Bioassessments, TMDL Required
    - Aquatic Recreation Impairment: Fecal Coliform, TMDL Required
    - Aquatic Life Impairment: Turbidity, TMDL Required
- Sleepy Eye Lake: ID – 08-0045-00
    - Aquatic Recreation Impairment: Nutrient/Eutrophication Biological Indicators, TMDL Required

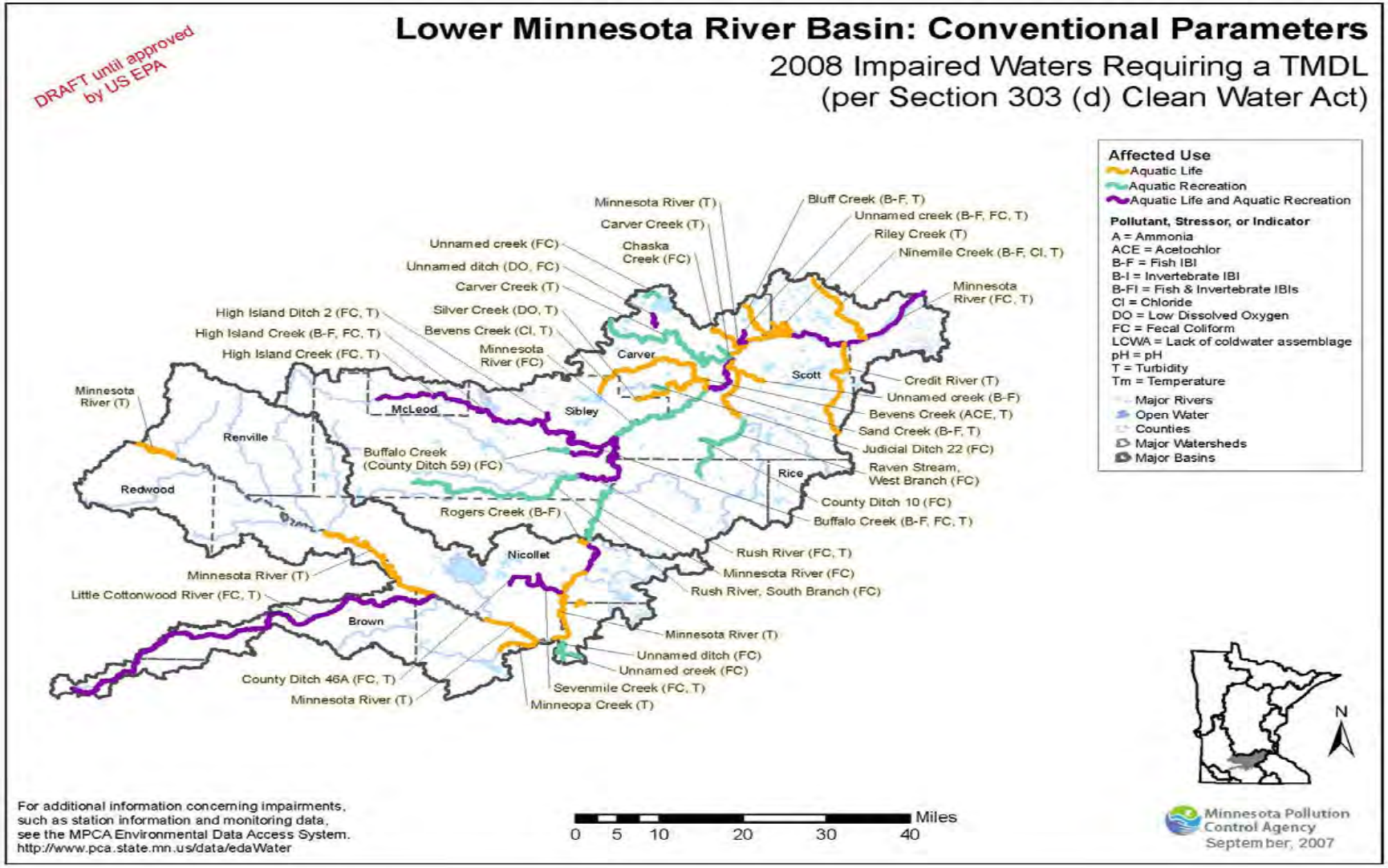
Watonwan River Watershed:
The southernmost portion of the County consists of the Watonwan River Watershed. Although the smallest in land area for Brown County's watershed, it is home to the largest lake – Lake Hanska. Lake Hanska is the most heavily used water body in Brown County for both recreation and angling. Along with Lake Hanska the Watonwan River Watershed is also home to Linden Lake and Wood Lake. Wood Lake is a significant sized wetland and provides important wildlife habitat. Like the Minnesota and Cottonwood River Watersheds, the Watonwan River Watershed's landscape is dominated by agriculture (77.5%), followed by wooded or uncultivated lands (11.5%), open water (6.5%), and urban/impervious (4.5).



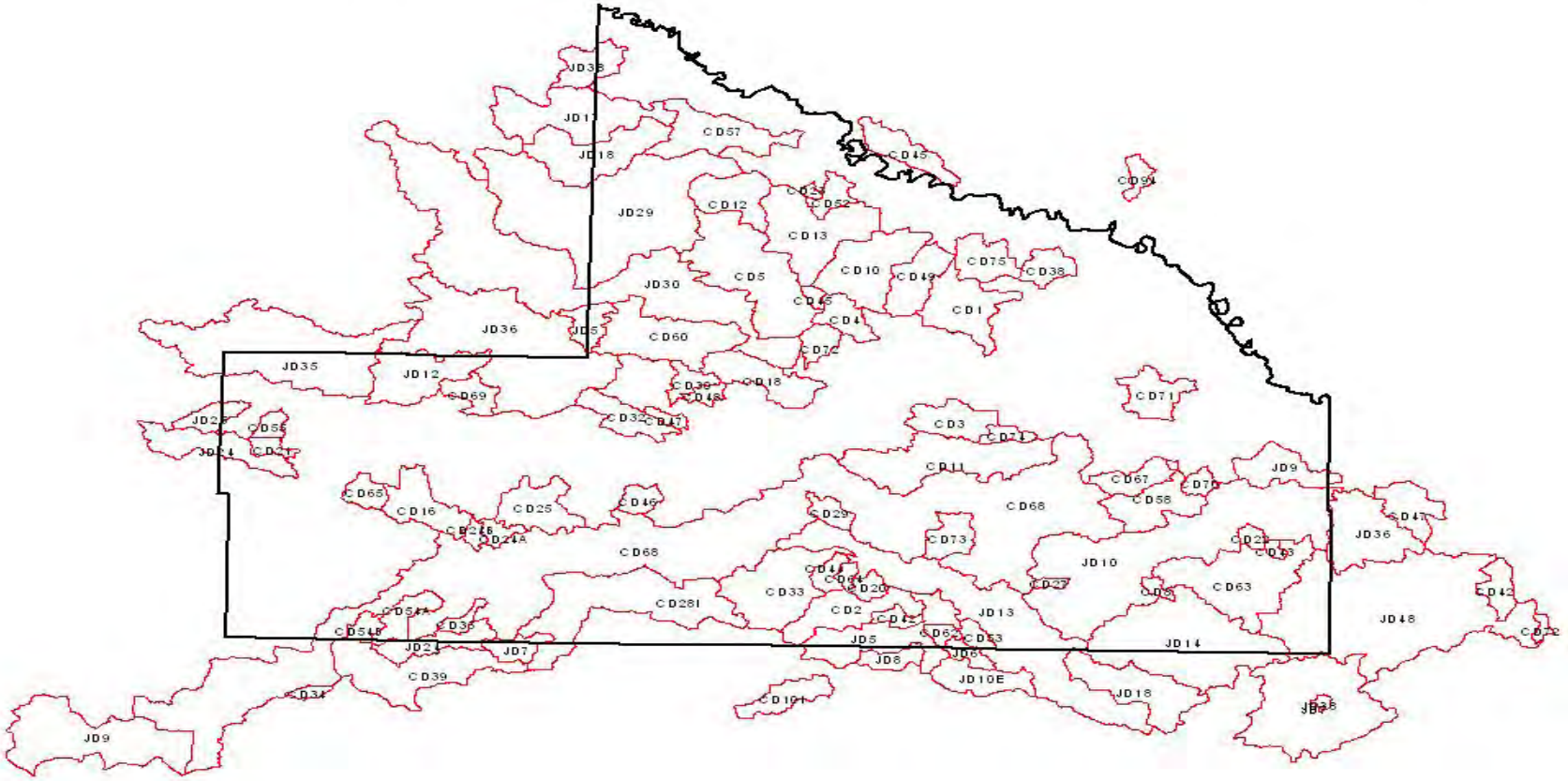
Brown County Surface Waters




DRAFT until approved by US EPA
Middle Minnesota River Basin: Conventional Parameters
2008 Impaired Waters Requiring a TMDL
(per Section 303 (d) Clean Water Act)
Affected Use
Aquatic Life
Aquatic Recreation
Aquatic Life and Aquatic Recreation
Pollutant, Stressor, or Indicator
A = Ammonia
ACE = Acetochlor
B-F = Fish IBI
B-I = Invertebrate IBI
B-FI = Fish & Invertebrate IBIs
Cl = Chloride
DO = Low Dissolved Oxygen
FC = Fecal Coliform
LCWA = Lack of coldwater assemblage
pH = pH
T = Turbidity
Tm = Temperature
Major Rivers
Open Water
Counties
Major Watersheds
Major Basins
Lac qui Parle River (DO, FC, T)
Tenmile Creek (B-F, FC)
Minnesota River (FC, T)
Lac qui Parle River (FC, T)
Lac qui Parle River, West Branch (FC)
Florida Creek (B-F, FC, T)
Lazarus Creek (Canby Creek) (FC, T)
Lac qui Parle River (B-F, FC, T)
Lazarus Creek (B-F)
Spring Creek (B-F)
Yellow Medicine River (T)
Unnamed creek (FC)
Yellow Medicine River, South Branch (T)
Judicial Ditch 29 (FC)
Coon Creek (B-F, FC)
Threemile Creek (FC, T)
Redwood River (B-F, Cl, FC, T)
Redwood River (B-F, FC)
Plum Creek (FC, T)
Redwood River (FC)
Dutch Charlie Creek (B-F, T)
Hawk Creek (FC, T)
Chetomba Creek (B-F)
Unnamed ditch (T)
Hawk Creek (T)
Beaver Creek, West Fork (FC, T)
Unnamed creek (B-F)
Yellow Medicine River (T)
Judicial Ditch 10 (B-F)
Beaver Creek (FC, T)
Echo Creek (B-F)
Minnesota River (T)
Redwood River (T)
Redwood River (FC, T)
Redwood River (B-F)
Cottonwood River (FC, T)
Cottonwood River (FC, T)
Sleepy Eye Creek (B-F, FC, T)
Clear Creek (FC)
Dutch Charlie Creek (B-F, FC, T)
Lac Qui Parle
Chippewa
Kandiyohi
Yellow Medicine
Renville
Lincoln
Lyon
Redwood
Brown
Murray
Cottonwood
Montevideo
Marshall
N
0 5 10 20 30 40
Miles
For additional information concerning impairments, such as station information and monitoring data, see the MPCA Environmental Data Access System. http://www.pca.state.mn.us/data/edaWater
Minnesota Pollution Control Agency
September, 2007


DRAFT until approved by US EPA
Lower Minnesota River Basin: Conventional Parameters
2008 Impaired Waters Requiring a TMDL
(per Section 303 (d) Clean Water Act)
Affected Use
Aquatic Life
Aquatic Recreation
Aquatic Life and Aquatic Recreation
Pollutant, Stressor, or Indicator
A = Ammonia
ACE = Acetochlor
B-F = Fish IBI
B-I = Invertebrate IBI
B-FI = Fish & Invertebrate IBIs
Cl = Chloride
DO = Low Dissolved Oxygen
FC = Fecal Coliform
LCWA = Lack of coldwater assemblage
pH = pH
T = Turbidity
Tm = Temperature
Major Rivers
Open Water
Counties
Major Watersheds
Major Basins
Minnesota River (T)
Carver Creek (T)
Unnamed creek (FC)
Unnamed ditch (DO, FC)
Carver Creek (T)
Silver Creek (DO, T)
Bevens Creek (Cl, T)
Minnesota River (FC)
Chaska Creek (FC)
Bluff Creek (B-F, T)
Unnamed creek (B-F, FC, T)
Riley Creek (T)
Ninemile Creek (B-F, Cl, T)
Minnesota River (FC, T)
High Island Ditch 2 (FC, T)
High Island Creek (B-F, FC, T)
High Island Creek (FC, T)
Minnesota River (T)
McLeod
Sibley
Carver
Scott
Credit River (T)
Unnamed creek (B-F)
Bevens Creek (ACE, T)
Sand Creek (B-F, T)
Judicial Ditch 22 (FC)
Raven Stream, West Branch (FC)
Rice
County Ditch 10 (FC)
Buffalo Creek (B-F, FC, T)
Renville
Buffalo Creek (County Ditch 59) (FC)
Redwood
Rogers Creek (B-F)
Nicollet
Rush River (FC, T)
Minnesota River (FC)
Rush River, South Branch (FC)
Minnesota River (T)
Little Cottonwood River (FC, T)
Brown
Minnesota River (T)
Unnamed ditch (FC)
Unnamed creek (FC)
Sevenmile Creek (FC, T)
Minneopa Creek (T)
County Ditch 46A (FC, T)
Minnesota River (T)
N
For additional information concerning impairments, such as station information and monitoring data, see the MPCA Environmental Data Access System. http://www.pca.state.mn.us/data/edaWater
Miles
0 5 10 20 30 40
Minnesota Pollution Control Agency
September, 2007

Brown County Ditchsheds



Brown County Ditch System