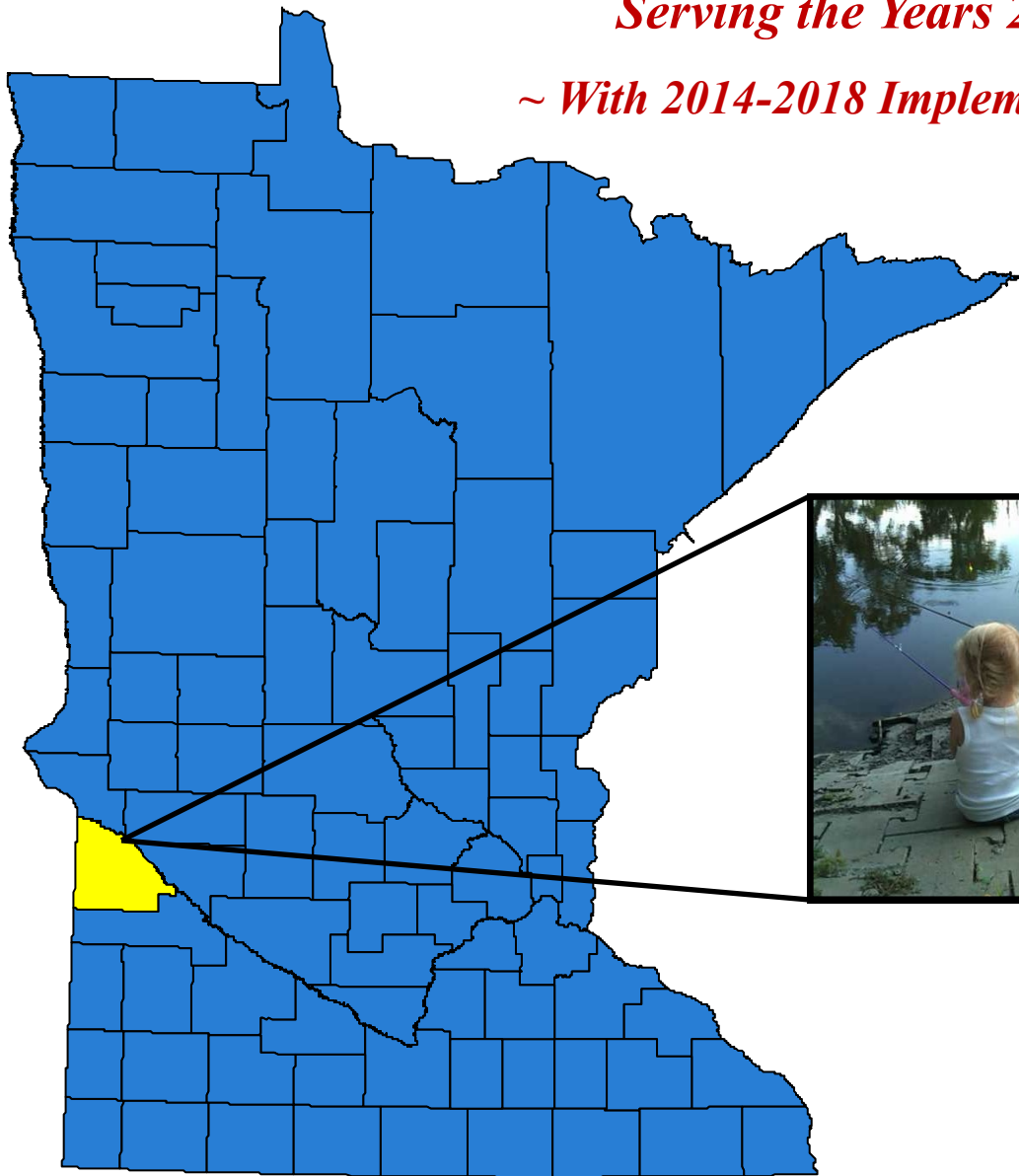


# Lac qui Parle County

## Local Water Management Plan

*Serving the Years 2014-2023*

*~ With 2014-2018 Implementation Plan ~*



*Prepared by*  
*The Lac qui Parle County Resource Commission,*  
*with assistance from Midwest Community Planning, LLC*

# Lac qui Parle County Resource Commission

~ *The Resource Commission works to coordinate and guide water resource management in Lac qui Parle County* ~

<b>Graylen Carlson</b>	County Commissioner (as appointed by the County Board)
<b>Darrell Ellefson</b>	Watershed Manager (as appointed by the Watershed District)
<b>Bob Ludvigson</b>	SWCD Supervisor (as appointed by the SWCD)
<b>Dave Craigmile</b>	Planning & Zoning (as appointed by the Planning & Zoning Board)
<b>Mark Bourne</b>	Township Officer (selection at discretion of the County Board)

## Members-At-Large

<b>Jeff Rheingans</b> ~ Crops	<b>Jim Nesvold</b> ~ Well Sealer
<b>Ron Enger</b> ~ Livestock/Cattle	<b>Jerry Stensrud</b> ~ Septics
<b>Kay Fernholz</b> ~ Organic	<b>Jeff Olson</b> ~ Seed Dealer/Edible Beans
<b>John Plathe</b> ~ Crops	<b>James Barthel</b> ~ Livestock/Dairy
<b>Mark Hastad</b> ~ Crops	<b>Myron Anhalt</b> ~ Livestock/Turkeys

## Local Units of Government

<b>Jennifer Breberg</b> ~ Environmental Officer
<b>Trudy Hastad</b> ~ LqPYB Watershed District
<b>Grant Bullemer</b> ~ LqP SWCD
<b>Jon Radermacher</b> ~ City of Madison
<b>Sonja Farmer</b> ~ City of Marietta
<b>Mary Homan</b> ~ LqPYB Clean Water Partnership

## Agency Advisors

<b>Burton Hendrickson</b> , Natural Resource Conservation Service
<b>David Sill</b> , Board of Water and Soil Resources
<b>Stacy Salvevold</b> , U.S. Fish and Wildlife Service
<b>Brad Olson</b> , Department of Natural Resources
<b>Katherine Pekarek-Scott</b> , Minnesota Pollution Control Agency

**Water Plan Coordinator** ~ **Terry Wittnebel**, LqP SWCD District Manager

**Lac qui Parle County**  
**Water Plan (2014-2023)**  
*~ Table of Contents ~*

---

---

**Executive Summary..... iv**

    A: Purpose of the Local Water Plan..... iv

    B: A Description of Lac qui Parle County’s Priority Concerns..... v

    C: Summary of Goals, Objectives, Action Steps, and Estimated Cost..... v

    D: Relationship to Other Plans..... x

**Chapter One: Lac qui Parle County Priority Concerns Scoping Document..... 1-1**

    Section One: Introduction to the Water Plan & Lac qui Parle County ..... 1-1

        A: Water Plan Background ..... 1-1

        B: Water Plan Accomplishments ..... 1-2

        C: Lac qui Parle County Profile ..... 1-9

    Section Two: Priority Concerns Scoping Document Planning Process ..... 1-11

        D: Resolution to Update the Lac qui Parle County Water Plan ..... 1-11

        E: Notice of Plan Update..... 1-11

        F: Water Plan Survey Results..... 1-11

        G: Water Plan Public Meeting ..... 1-16

        H: State & Local Stakeholder Comments ..... 1-18

    Section Three: Lac qui Parle County Priority Water Planning Issues ..... 1-22

        I: Resource Commission ..... 1-22

        J: Priority Water Planning Issues ..... 1-22

        K: Priority Issues Not Addressed by this Water Plan ..... 1-23

    Section Four: Lac qui Parle County Ongoing Water Plan Activities..... 1-24

<b>Chapter Two: Assessment of Priority Concerns .....</b>	<b>2-1</b>
Section One: Surface Water Quality: Reducing Priority Pollutants .....	2-2
A: Watersheds Assessment .....	2-2
B: TMDL Implementation Assessment.....	2-14
C: Feedlots and Livestock Management Assessment .....	2-24
D: Subsurface Sewage Treatment Systems Assessment .....	2-28
E: Erosion and Sediment Control Assessment .....	2-29
Section Two: Surface Water Management .....	2-34
F: Agricultural Drainage Assessment .....	2-34
G: Stormwater Management Assessment .....	2-42
H: Wetlands and Water Storage/Retention Assessment .....	2-44
I: Flooding Assessment .....	2-49
Section Three: Groundwater Quality and Quantity.....	2-53
J: Groundwater Quality Assessment .....	2-53
K: Groundwater Quantity Assessment .....	2-64
<b>Chapter Three: Goals, Objectives, and Action Steps.....</b>	<b>3-1</b>
A: Definition of Goals, Objectives and Action Steps .....	3-1
B: Action Step Information .....	3-1
C: Goals, Objectives, and Action Steps (2014-2018) .....	3-3
<b>Chapter Four: Water Plan Administration .....</b>	<b>4-1</b>
A: Plan Coordination .....	4-1
B: Implementation Plan and Priorities .....	4-1
C: Types and Sources of Water Plan Funds .....	4-4
D: Recommended State Cooperation .....	4-5
E: Intergovernmental Conflicts/Resolution Process .....	4-6
F: Water Plan Amendment Procedure.....	4-6
G: Water Plan Key Stakeholders.....	4-6

## Appendices

Priority Concerns Supporting Documents .....	Appendix A
Priority Concerns Input Forms/Correspondence .....	Appendix B
Public Review & Adoption Documents .....	Appendix C

## **Lac qui Parle County Water Plan:**

### *Executive Summary*

*The Lac qui Parle County Water Plan follows the provisions set forth in Minnesota State Statutes 103B.314 - Contents of Water Plan.*

#### **A. Purpose of the Local Water Plan**

According to Minnesota Statute 103B, each county is encouraged to develop and implement a local water management plan with the authority to:

- Prepare and adopt a local water management plan that meets the requirements of this section and section 103B.315;
- Review water and related land resources plans and official controls submitted by local units of government to assure consistency with the local water management plan; and
- Exercise any and all powers necessary to assure implementation of local water management plans.

Pursuant to the requirements of the law, the Lac qui Parle County Water Plan:

- Covers the entire area of Lac qui Parle County;
- Addresses water problems in the context of watershed units and groundwater systems;
- Is based upon principles of sound hydrologic management of water, effective environmental protection and efficient management;
- Is consistent with comprehensive water plans prepared by counties and watershed management organizations wholly or partially within a single watershed unit or groundwater system; and
- Will serve as a 10-year water plan (2014-2023), with a 5-year implementation plan (2014-2018). In 2018, the implementation plan will be updated.

In addition, the Water Plan will also serve as the Lac qui Parle County Soil and Water Conservation District's (SWCD) Comprehensive District Plan. This will be adopted by the SWCD's Board of Supervisors by Resolution.

## **B. A Description of Lac qui Parle County's Priority Concerns**

The Lac qui Parle County Resource Commission met on August 14, 2012, to review the Water Plan Survey results and the Priority Concerns Input Forms received (Appendix A contains a copy of the Sign in Sheets). Based upon the survey results, the comments received during the Water Plan Public Meeting, and the comments received in the Priority Concerns Input Forms, the Resource Commission identified the following as Lac qui Parle County's priority water planning issues (note: these issues are not ranked):

1. Surface Water Management
  - a. Agricultural Drainage
  - b. Stormwater Management
  - c. Wetlands and Water Storage/Retention
  - d. Flooding
  
2. Reducing Priority Pollutants ~ Surface Water Quality
  - a. TMDL Implementation
  - b. Feedlot/Livestock Management
  - c. Subsurface Sewage Treatment Systems
  - d. Erosion and Sediment Control
  
3. Groundwater Quality & Quantity
  - a. Wellhead Protection Areas
  - b. Irrigation
  - c. Drinking Water Quality
  
4. Plan Administration
  - a. Watershed Focus
  - b. Stakeholder Cooperation
  - c. Raising Public Awareness

## **C. Summary of Goals, Objectives, Action Steps, and Estimated Costs**

To address the priority concerns identified in the scoping process, the Lac qui Parle County Resource Commission held meetings and developed four goal areas. These four goal areas are further broken down into interrelated objectives that specific resource concerns. More importantly, each objective has a series of action steps designed to help address the priority concerns.

A summary of the County's Water Plan Goals, Objectives and Action Steps is provided below. Collectively they form the Implementation Plan for the County. In addition, a summary of annual estimated costs is provided. These estimated expenses are separated into Overall Costs and Local Costs. Overall Costs include all monies spent by water plan stakeholders, including the County, watershed districts, state agencies, and landowners. The Local Costs include funds spent and activities performed by Lac qui Parle County (including items such as the County's 103E administrative costs) and the Lac qui Parle County SWCD. The Lac qui Parle County Resource Commission recognizes that not all of the identified Action Items will be accomplished over the course of the Water Plan's time-frame, however, the intent is to accomplish as many implementation activities as feasible. Also keep in mind the costs identified are only estimates, and actual direct and/or indirect costs may be more or less than indicated. Finally, many of the Action Items will be dependent upon receiving grants. Chapter Three contains the Water Plan's complete Goals, Objectives, and Action Steps, and Chapter Four provides additional details on administering the Water Plan.

### **Goal 1: Protect and Improve Surface Water Quality by Reducing Priority Pollutants**

The first goal area focuses on addressing surface water quality issues. Objectives were developed for TMDL implementation (removing waters off the MPCA's 303d list of Impaired Waters), feedlots and fertilizers, Subsurface Sewage Treatment Systems (SSTS), and erosion and sediment control. Implementation steps under the first goal area include a wide range of the following surface water quality Best Management Practices (BMPs):

- **TMDLs.** Targeting the impaired subwatersheds with numerous types of cropland, surface water management, streambank, and livestock BMPs. Key examples include increasing tillage residue by 10-15%, cost-sharing installing alternative tile intakes, restoring wetlands, developing manure management plans, and stabilizing streambank erosion sites.
- **Feedlots/Fertilizers.** Using the County's Level 3 Feedlot Inventory (when completed) to prioritize and target BMPs; seeking cost-share/incentive funds for producers with fewer than 300 animal units to develop nutrient management plans; and improving 100 acres of pasture management by implementing BMPs, such as stream crossing, fencing, remote water systems, managed grazing, etc.
- **SSTS.** Seeking funds to inspect all SSTS in Lac qui Parle County's impaired subwatersheds and securing MPCA and MDA funding to provide low interest loans to upgrade noncompliant systems.
- **Erosion and Sediment Control.** Target erosion and sediment control BMPs along Emily Creek; working with producers to increase tillage residue; installing grade control



structures; targeting floodplain acres for new enrollment in long-term grassland programs; and assisting producers to adopt improved pasture management techniques such as rotational grazing, prescribed grazing, or other pasture improvement BMPs.

The various action steps identified to address the first goal area of surface water quality improvements in Lac qui Parle County are estimated to have an overall 5-year cost of \$4,175,500. Of this amount, \$560,000 is estimated to come from the County, including direct and indirect (in-kind) SWCD estimated costs. Many of these implementation activities will be eligible for grant funding.

## **Goal 2: Groundwater Quantity and Quality Initiatives**

The second goal area focuses on addressing groundwater quality and quantity issues. Objectives were developed for drinking water quality and groundwater quantity BMPs. Implementation steps include a wide range of the following groundwater Best Management Practices (BMPs):

- **Wellhead Protection Areas (WPA).** Participate in the preparation and implementation of wellhead protection plans for public water suppliers. Communities of Dawson, Madison, and Boyd are scheduled to be phased into the Wellhead Protection Program in 2017; targeting groundwater BMPs in Drinking Water Supply Areas (DWSAs) and WPAs; and sealing abandoned wells.
- **Safe Drinking Water.** Securing funding to provide technical assistance for the installation of BMPs; working with MN Geological Society and DNR to develop a hydrogeologic assessment as part of the County Geologic Atlas Program for Lac qui Parle County; conducting annual nitrate testing clinics; and holding annual pesticide and household hazardous waste collection days.
- **Groundwater Quantity.** Assist with groundwater quantity monitoring efforts and promote the adoption of measures to protect groundwater supplies; secure funding to cost share conversion of conventional irrigation systems to conservation systems; and seek funding to develop a County Water Conservation Plan.

The various action steps identified to address the second goal area of groundwater quality and quantity BMPs in Lac qui Parle County are estimated to have an overall 5-year cost of \$866,500. Of this amount, \$196,500 is estimated to come from the County, including direct and indirect (in-kind) SWCD estimated costs.

### **Goal 3: Surface Water Management Initiatives**

The third goal area is aimed at reducing surface water management/quantity issues, including separate objectives for agricultural drainage, stormwater management, wetlands/surface water retention, and flooding. The key implementation steps include the following:

- **Agricultural Drainage:** Increasing the number of stream miles protected by riparian buffers by one mile annually; seeking funds to provide incentive for implementation of saturated buffers on 15% ditches/streams within target watershed for each year of funding; and seeking funds to develop multipurpose drainage management plans.
- **Stormwater Management:** Work with landowners to help ensure that stormwater is managed properly and that both water quality and quantity issues are addressed; installing water and sediment control basins; and targeting the promotion of BMPs in critical areas of the landscape, encouraging use of federal, state, or other BMP implementation funds through the use of newsletter, news releases, radio, workshops, booth/display, personal contacts, or other means.
- **Wetlands/Water Retention:** Ensuring that wetlands and water storage/retention are managed properly and that both water quality and quantity issues are addressed; and creating an inventory using LiDar, terrain analysis, and other tools as they become available to identify the most important landscapes for wetland restoration for the purpose of water storage, sediment/nutrient reduction downstream, flood storage, and/or metering water flow.
- **Flooding:** Restoring one wetland annually in headwater areas of subwatersheds; improving residue management on 500 acres annually; and increasing the number of stream miles protected by riparian buffers/filter strips by one mile.

The various action steps identified to address the third goal area of surface water management issues in Lac qui Parle County are estimated to have an overall 5-year cost of \$1,615,000. Of this amount, \$265,000 is estimated to come from the County, including direct and indirect (in-kind) SWCD estimated costs.

#### **Goal 4: Plan Administration Initiatives**

The fourth goal area is aimed at effectively administering the Lac qui Parle County Water Plan. A specific objective was developed to “Engage the Citizens and Stakeholders on key water planning issues and implementation opportunities.” Implementation steps include the following:

- **Maintain Adequate Staffing.** Effectively administer the County’s Water Plan; SSTS, Shoreland, and Feedlot programs; and Wetlands Conservation Act (WCA).
- **Maintain Stakeholder Cooperation.** Partner with stakeholders on implementation activities to minimize expenditures and to maximize results; and create an annual work plan for the water plan.
- **Watershed Focus.** Assist the MPCA’s comprehensive monitoring efforts as part of the watershed approach and provide technical and/or financial assistance to partners.

The various action steps identified to address the fifty goal area of effectively administering the Water Plan in Lac qui Parle County are estimated to have an overall 5-year cost of \$120,000. Of this amount, approximately \$45,000 is estimated to come from the County, including direct and indirect (in-kind) SWCD estimated costs.

#### ***Summary of Estimated Costs***

The four water plan goal areas and their corresponding estimated costs are summarized below in Table 1. The initiatives identified in Chapter Three are estimated to cost approximately \$1,355,400 annually overall, with approximately \$213,300 coming from local/county funds.

**Table 1:  
Summary of Lac qui Parle County’s Water Plan  
Estimated Overall and Local Costs**

	<i>Overall</i>	<i>Local/County</i>
Goal Area One: Surface Water Quality	\$4,175,500	\$560,000
Goal Area Two: Groundwater Quality/Quantity	\$866,500	\$196,500
Goal Area Three: Surface Water Management	\$1,615,000	\$265,000
Goal Area Four: Plan Administration	\$120,000	\$45,000
<b>5-Year Estimated Costs</b>	<b>\$6,777,000</b>	<b>\$1,066,500</b>
<b>Average Annual Estimated Costs</b>	<b>\$1,355,400</b>	<b>\$213,300</b>

These estimated expenses are separated into Overall Costs and Local Costs. The Local costs include funds spent and activities performed (i.e., in-kind expenses) by Lac qui Parle County and the Lac qui Parle County SWCD.

**\*Note:** Please refer to Chapters Three and Four for a more detailed description of the estimated overall costs and the estimated total local costs to Lac qui Parle County and the Lac qui Parle County SWCD. Expenses may seem exaggerated, but actually represent the numerous stakeholders involved and a collaboration of their corresponding activities and budgets.

#### **D. Relationship to other Plans**

The Lac qui Parle County Resource Commission includes a diverse group of people representing a number of key water plan stakeholders. Assistance from the Resource Commission in the planning process, along with information requested from Local Governmental Units, helped to ensure the Water Plan, and its corresponding Goals, Objectives and Action Steps, were developed to be consistent with existing plans and official land use controls. As a result, the updated Lac qui Parle County Water Plan is believed to be consistent with the plans and official controls of the other pertinent local, State and regional plans and controls. In conclusion, there are no recommended amendments to other plans and official controls to achieve consistency with this Water Plan.

# **Chapter One: Lac qui Parle County**

## **Water Plan Priority Concerns Scoping Document**

### **Section One:**

#### **Introduction to the Water Plan & Lac qui Parle County**

##### **A. Water Plan Background**

The Lac qui Parle County Comprehensive Local Water Plan was first adopted in 1992. This Plan is the County's fourth generation Water Plan, with the current one expiring in May 2013. The Lac qui Parle County Soil and Water Conservation District is responsible for administering the County's Water Plan.

According to Minnesota Statute 103B, each county is encouraged to develop and implement a local water management plan with the authority to:

- (1) Prepare and adopt a local water management plan that meets the requirements of this section and section 103B.315;
- (2) Review water and related land resources plans and official controls submitted by local units of government to assure consistency with the local water management plan; and
- (3) Exercise any and all powers necessary to assure implementation of local water management plans.

Pursuant to the requirements of the law, this Lac qui Parle County Water Plan:

- Covers the entire area of Lac qui Parle County;
- Addresses water problems in the context of watershed units and groundwater systems;
- Is based upon principles of sound hydrologic management of water, effective environmental protection and efficient management;
- Is consistent with comprehensive water plans prepared by counties and watershed management organizations wholly or partially within a single watershed unit or groundwater system; and
- Will serve as a 10-year water plan (2014-2023), with a 5-year implementation plan (2014-2018). In 2018, the implementation plan will be updated.

## **B. Water Plan Accomplishments**

This Comprehensive Local Water Plan (CLWP) is reviewed annually when the annual work plan is prepared for the Natural Resources Block Grant (NRBG) application to the State of Minnesota's Board of Water and Soil Resources (BWSR). Priorities are reviewed as they are approved for the annual work plan as issues may have changed since the revised CLWP was adopted. The annual work plan is worked on by the coordinator with assistance from the Lac qui Parle County Resource Commission (LqPRC). The LqPRC may amend the plan as issues and priorities change.

Progress of the plan is reported to the LqPRC, and the Lac qui Parle County Board of Commissioners, and BWSR as well as news articles throughout the year. The LqPRC meets annually with additional meetings as needed.

### **Water Plan Accomplishments (2007 – 2011)**

#### **2007 Water Plan Coordinator's Report**

*Administrative* - Administrative funds cover the costs incurred by the SWCD for administering the County's Water Plan. Charges made by the SWCD are based on staff hours spent. Envelope and stamp purchases are reported, but the SWCD does not include copying costs, SWCD Board time, paper or other supply costs. Hours spent on an Ag Best Management Low Interest Loan Program (3%) have been added to Water Plan administrative costs because that program is designed to accelerate the implementation of the County's Water Plan by funding BMPs. \$500 was granted to the Southwest Minnesota Environmental Fair, held in Marshall in September. It is a special cooperative event open to all 6<sup>th</sup> grade students in 14-counties in SW Minnesota. Approximately 2,500 students attended, including all the 6<sup>th</sup> grade students from Lac qui Parle County.

The Water Plan covered mailing costs for the SWCD quarterly newsletter. The SWCD newsletter includes articles from the Water Plan itself, County Environmental Office, Lac qui Parle – Yellow Bank Watershed District and the Clean Water Partnership. The Newsletter is a joint effort between the SWCD, Farm Service Agency (FSA) and Natural Resources Conservation Service (NRCS).

Direction and oversight of Water Plan activities is provided by the Lac qui Parle Resource Commission. The Water Plan Coordinator met with the County Environmental Officer the end of 2006 to develop a list of potential members for the County Commissioners to appoint to the Resource Commission. In December, 2007, the SWCD, Clean Water Partnership Coordinator and the Watershed District Executive Director were also invited to help create that list. The

Water Plan covers mileage and per diem for Resource Commission members who are not reimbursed by their agency or organization but serve as members-at-large. The Resource Commission met three times in 2007.

The Resource Commission serves as the core of a Local Work Group that sets local priorities for the funding of applications for EQIP incentives payments or cost-share for best management practices to protect/enhance water quality. That meeting was held in October and one of the year's three meetings.

### ***Clean Water Partnership In-Kind***

The Water Plan contributed \$6,000 (as directed by the Resource Commission) to the Clean Water Partnership. The Plan Coordinator serves on the CWP TEAM and coordinates with the CWP on various educational projects. The CWP and Environmental Office use the Water Plan County Fair booth in the Wildlife Building.

***Land and Water Treatment*** - A total of 30 abandoned wells were sealed in 2007 with Water Plan money. Applicants were encouraged to apply for USDA Environmental Quality Incentives Program (EQIP) funding also. EQIP provided practice payment of \$500/well decommissioning. Local Water Plan money was added to bring cost-share up to 75%. The Water Plan has a \$500/well cap. There were four additional wells sealed for which EQIP practice payments exceeded the 75% cost-share. We feel the promotion of the local program was responsible for the additional well sealing. Applications with EQIP funding were given priority. After those applications were funded, wells were sealed in the order the applications were signed. The projects were reported in eLINK, an internet reporting system used by the Board of Water and Soil Resources. Each eLINK-reported project includes the financial information (including the landowner's share and other funding used) and is mapped in a GIS system. \$1,000 was pledged from land and water treatment funding for a cash match for the Clean Water Legacy project, the County Highway 31 Project, a river bank stabilization project.

### **2008 Water Plan Coordinator's Report**

***Administrative*** - Administrative funds cover the costs incurred by the SWCD for administering the County's Water Plan and the Ag Best Management Low Interest Loan Program (Three loans were processed, 2 for tillage equipment and 1 for a septic upgrade). Charges made by the SWCD are based on staff hours spent. Envelope and stamp purchases are reported, but the SWCD does not include copying costs, SWCD Board time, paper or other supply costs. \$500 was granted to the Southwest Minnesota Environmental Fair for 6th graders, held in Slayton in September. It is a special cooperative event sponsored by SWCDs and Water Plans from the 14 counties in southwestern Minnesota.

The Water Plan covered mailing costs for the SWCD newsletter. The newsletter is a joint effort between the SWCD, Farm Service Agency (FSA) and Natural Resources Conservation Service (NRCS). Intended to be a quarterly printing, it is not always possible to meet this goal due to varying agency workloads. The newsletter includes articles from the Water Plan, County Environmental Office, Lac qui Parle – Yellow Bank Watershed District and the Clean Water Partnership promoting programs and practices protecting water quality.

Direction and oversight of Water Plan activities is provided by the Lac qui Parle Resource Commission. The Water Plan Coordinator met with the County Environmental Officer, the SWCD, Clean Water Partnership Coordinator and the Watershed District Executive Director to develop a list of potential members for the County Commissioners to appoint to the Resource Commission. The Water Plan covers mileage and per diem for Resource Commission members who are not reimbursed by their agency or organization but serve as members-at-large. In 2008 the Resource Commission provided in put for writing the Lac qui Parle County Water Plan Revision. The Resource Commission met four times in 2008.

The Resource Commission serves as the core of a Local Work Group that sets local priorities for the funding of applications for EQIP incentives payments or cost-share for best management practices to protect/enhance water quality. That meeting was held in November, one of the year's four meetings.

***Clean Water Partnership In-Kind*** - The Water Plan contributed \$6,000 (as directed by the Resource Commission) to the Clean Water Partnership. The Plan Coordinator serves on the CWP TEAM and assists the CWP on various educational projects such as a booth at the Great Western Minnesota Get-Together (“What’s Your Eco-Footprint?”) and several water-related storytime/activity events. The CWP and Environmental Office use the Water Plan County Fair booth in the Wildlife Building.

***Land and Water Treatment*** - Water Plan funds sealed 25 abandoned wells in 2008. Two of those wells were in emergency circumstances. Applicants were encouraged to apply for USDA Environmental Quality Incentives Program (EQIP) funding also. EQIP provided practice payment of \$343/well decommissioning. Local Water Plan money was added to bring cost-share up to 75% with a \$500/well cap. Applications with EQIP funding were given priority. After those applications were funded, wells were sealed in the order the applications were signed. The projects were reported electronically to the Board of Water and Soil Resources. Twenty applications for well decommissioning are waiting for 2009 funds. \$1,000 was used to purchase willow stakes used for the Clean Water Legacy project (County Highway 31 Project), a river bank stabilization project.



## **2009 Water Plan Coordinator's Report**

**Administration-** Administrative funds cover the costs incurred by the SWCD for administering the County's Water Plan and the Ag Best Management Practices Low Interest Loan Program (2 loans were processed, both for ag waste management). Charges made by the SWCD are based on staff hours spent. Envelope and stamp purchases are reported, but the SWCD does not include copying costs, SWCD Board time, paper, labels, or similar supply costs.

Direction and oversight of Water Plan activities is provided by the Lac qui Parle Resource Commission. Per diem and mileage are paid for Resource Commission members who are not reimbursed by their agency or organization but serve as members-at-large. (The Water Plan Coordinator met with the County Environmental Officer, the SWCD, Clean Water Partnership Coordinator and the Watershed District Executive to develop a list of potential members for the County Commissioners to appoint to the Resource Commission.) The Resource Commission met two times in 2009. The Water Plan contributed \$6,000 (as directed by the Resource Commission) to the Clean Water Partnership. The Plan Coordinator serves on the CWP TEAM.

**Education** - To help achieve a coordinated resource protection message within the county, the Water Plan Coordinator twice met in 2009 with the County Environmental Officer, the SWCD, Clean Water Partnership Coordinator and the Watershed District Executive for program updates. The Water Plan assisted with the mailing costs of the SWCD newsletter. The newsletter is a joint effort between the SWCD, Farm Service Agency (FSA) and Natural Resources Conservation Service (NRCS). Intended to be a quarterly printing, it is not always possible to meet this goal due to varying agency workloads and budgets. The newsletter includes articles from the Water Plan, County Environmental Office, Lac qui Parle – Yellow Bank Watershed District and the Clean Water Partnership.

The Water Plan Coordinator had a booth at the ECFE Family night (safer alternative cleaning products), did several classroom presentations and a workshop, and participated in two parades with the SWCD ("helping bring YOU clean water"). The Water Plan coordinator assisted the CWP on various educational projects such as a booth at the Great Western Minnesota Get-Together ("Raingardens"), several water-related storytime/activity events, an Earth Day event, Girl Scout Day camp (water quality at the LqP River), a local high school science class canoe trip (local programs protecting water quality). The CWP used the Water Plan County Fair booth in the Wildlife Building.

With the CWP and SWCD, a weekly live radio program was aired from April through November. Topics from NRCS and the Environmental Office were also included. \$500 was granted to the Southwest Minnesota Environmental Fair for 6th graders, held in Marshall in September. It is a special cooperative event sponsored by SWCDs and Water Plans

from the 11 counties in southwestern Minnesota. Water plan funds were used to purchase some education materials and signage for a CWP rain garden demonstration site.

***BMP Application/Installation*** - Water Plan funds sealed 20 abandoned wells in 2009. Applicants were encouraged to apply for USDA Environmental Quality Incentives Program (EQIP) funding also. EQIP provided practice payment of \$343/well decommissioning. Local Water Plan money was added to bring cost-share up to 75% with a \$500/well cap. Input from the Resource Commission changed prioritization to be in the order the applications were signed unless well information provided on the application indicated it was an immediate hazard. The application form was also updated to allow for pen and ink update of the sealing estimate after 18 months. The projects were reported electronically to the Board of Water and Soil Resources. Twelve applications for well decommissioning are waiting for 2010 funds.

### **2010 Water Plan Coordinator's Report**

***Administration*** - Administrative funds cover the costs incurred by the SWCD for administering the County's Water Plan and the Ag Best Management Practices Low Interest Loan Program. Charges made by the SWCD are based on staff hours spent. Envelope and stamp purchases are reported, but the SWCD does not include copying costs, SWCD Board time, paper, labels, or other office supply costs. The LqP County Commissioners suspended appointing the Resource Commission for 2010, so work plan implementation activities & budget remained the same as 2009. The LqP SWCD Board approved well sealing cost share activities and provided other direction/oversight as needed.

The Coordinator attended AgBMP Loan Program workshop in Redwood Falls. In spite of promotion efforts there were no new AgBMP loans conveyed, although there were several inquiries. There were also several inquiries about well contamination and testing which were referred to Countryside Public Health.

Traveling with a County Commissioner, Clean Water Partnership Coordinator, and LqPYB Watershed Manager, the Water Plan Coordinator attended the Water Management Summit in St. Cloud. The Coordinator worked with the Environmental Officer and 4 livestock producers to submit an Ag Waste Water Quality Grant, but the application deadline could not be met. Planning continues in anticipation of a 2011 application.

The Water Plan contributed \$6,000 (as previously directed by the Resource Commission) to the Clean Water Partnership. The Coordinator assisted the CWP with several grant applications, served on the CWP TEAM, and supported/participated in 4 TMDL stakeholder meetings.

**Education** - A water quality activity was presented to middle school classes. \$500 supported the annual Environmental Fair for 6th graders, an 11-county environmental learning event. Financial support and a presentation (local programs protecting water quality) were provided at a high school science class canoe trip. The Water Plan partnered with the LqPYB CWP to organize & present Recycle the Rain Workshop (how to make your own rain barrel). An RC&D grant was applied for and received to help provide additional water quality activities for Dawson Riverfest. Funds were used to purchase a wooden rain barrel and other educational activity supplies for use at this event; the rain barrel became a drawing prize received by a community member living near the LqP River.

A booth at the Great Western MN Get together, a river clean-up project, a weekly live radio program April through October, and the SWCD quarterly newsletter were also cooperative efforts. A link was placed on the SWCD website to Salt Lake birding weekend, an action item in the County Water Plan Recreational Goal. The CWP and Environmental Office used the Water Plan County Fair booth in the Wildlife Building. Laminating film and printer ink cartridges were purchased with Water Plan funds to support both Water Plan and CWP education activities.

**BMP Application/Installation** - Decommissioning wells remains a local priority, identified in the LqP County Water Plan Priority Issue: Groundwater Protection, Objective A: Help all landowners act to protect the County's groundwater quality. Cost share is provided at 75% not to exceed \$500/well. Of the 21 wells decommissioned, 10 were a hazard to animals or humans falling in, 14 were in well pits and/or subject to flooding, and 4 were within ½ mile of a public water supply. The projects were reported electronically to the Board of Water and Soil Resources. Five applications for well decommissioning have been submitted for 2011 funds.

### **2011 Water Plan Coordinator's Report**

**Administration** - Administrative funds cover the costs incurred by the SWCD for administering the County's Water Plan and the Ag Best Management Practices Low Interest Loan Program. Charges made by the SWCD are based on staff hours spent. Envelope and stamp purchases are reported, but the SWCD does not include copying costs, SWCD Board time, paper, labels, or other office supply costs.

Again in 2011 the LqP County Commissioners suspended appointing the Resource Commission, although a recommendation was sent in November to reorganize the Resource Commission for 2012. This year's Water Plan funding was less than 2010. The focus for work plan implementation activities remained the same as 2010, with the budget for each category reflecting a proportionate reduction. The LqP SWCD Board of Supervisors approved the well sealing cost share activities at their monthly board meetings, and provided other

direction/oversight as needed. In spite of program promotion efforts only 2 AgBMP loans were conveyed, although there were multiple inquiries. One producer commented that the low interest was nearly the same as that charged by his bank, so he was thinking he's save himself some paperwork & simply use a bank loan for his project.

The Water Plan Coordinator attended the BWSR Academy 10/25-27/11. Of special interest were the sessions pertaining to writing Water Plan revisions. The Coordinator and the LqP County Feedlot Officer continued to advocate readily-available assistance for small livestock producers. The Coordinator collaborated with LqPYB CWP on several grant applications, attended scheduled TEAM meetings, and assisted with writing TMDL implementation plan. Postage was purchased with administration funds. As directed by the last Resource Commission, \$3,000 (less than before due to grant period ending) was used to support the Lac qui Parle Yellow Bank Clean Water Partnership.

**Education** - A water quality activity was presented to LqPValley 6th graders 5/10/11. \$500 supported the annual Environmental Fair for 6th graders, an 11-county environmental learning event. The Water Plan partnered with the LqPYB CWP to develop & present Blue Thumb Garden Party (workshop featuring rain barrels, rain gardens, & compost). This partnership also developed Canoe, Cook, Camp; A Gal's Get-Away Adventure on the Lac qui Parle River planned for 6/17-18, but the event had to be cancelled due to low registration. In addition, the Water Plan helped the CWP with a community spring street cleanup campaign (bag it; don't let it go down the storm drain) and community rain garden maintenance. The Water Plan had a booth of "green choices" in Dawson at Grace Lutheran church's "Living Green" event 6/29. A free Nitrate Testing Clinic was held 7/27. Several residents had readings below the safety threshold, yet high enough that residents will continue regular monitoring, one discovered his water treatment system wasn't functioning, and two residents were referred to a certified lab for retesting. A Conservation Drainage Workshop on 8/17 shared local research on the benefits of controlled drainage. A weekly radio program April through October, and a newsletter sent to landowners and operators were also cooperative outreach efforts. The CWP used the Water Plan County Fair booth located in the Wildlife Building.

**BMP Application/Installation** - Eighteen wells were decommissioned in 2011. Of those, 4 were a hazard to animals or humans falling in, 5 were in well pits and/or subject to flooding, 1 was adjacent to the septic and 2 were near a barnyard, 1 had collapsed, and 5 were within ½ mile of a public water supply. Decommissioning wells remains a local priority, identified in the LqP County Water Plan Priority Issue: Groundwater Protection, Objective A: Help all landowners act to protect the County's groundwater quality. Cost share is provided at 75% not to exceed \$500/well. The projects were reported electronically to the Board of Water and Soil Resources. Eleven new applications are pending 2012 funding.

### C. Lac qui Parle County Profile

Lac qui Parle County is located in west-central Minnesota, approximately 150 miles west of the Minneapolis-St. Paul Metropolitan Area. As Map 1A shows, there are 7 cities and 22 townships within the County. The City of Madison is the County Seat of Lac qui Parle County. The County shares borders with Big Stone County to the north; Swift and Chippewa Counties to the east; Yellow Medicine County to the south; and Deuel and Grant Counties in South Dakota to the west.

According to the 2000 census, the County has a total area of 778 square miles, of which 765 square miles (or 98.31%) is land and 13 square miles (or 1.70%) is water. Map 2A (found in Chapter Three) shows there are three major watersheds in Lac qui Parle County: Yellow Medicine; Lac qui Parle River, and the Upper Minnesota River Watersheds. The County's northern boundary is defined by the Minnesota River, with the Lac qui Parle River and the Yellow Bank River flowing through the County. Agricultural land is currently and will remain the dominant type of land use.

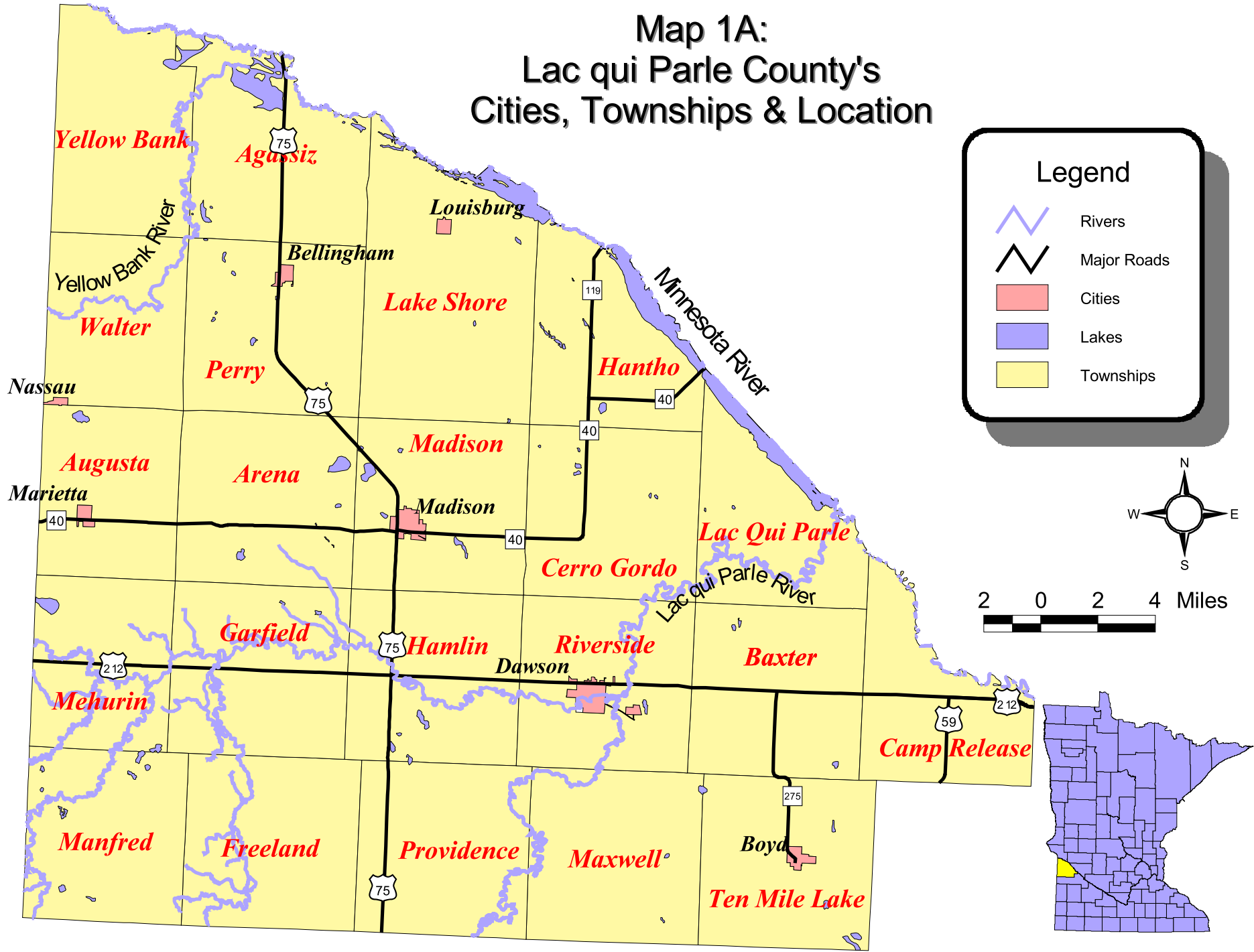
Table 1 shows Lac qui Parle County's Census population since 1960, which is currently around 7,259 residents (2010 Census). Lac qui Parle County has steadily lost population since 1970 and is projected to continue this trend over the next 10 years. This is a common trend among rural counties throughout Minnesota.

**Table 1:**  
**Lac qui Parle County's Population since 1960\***

Area	Population	Change	
		#	%
1960	13,330	N/A	N/A
1970	11,164	-2,166	-16.2%
1980	10,592	-572	-5.1%
1990	8,924	-1,668	-15.7%
2000	8,067	-857	-9.6%
<b>2010</b>	<b>7,259</b>	<b>-808</b>	<b>-10%</b>
<b>Totals since 1960</b>		-6,071	-46%

*\*Source: U.S. Census*

# Map 1A: Lac qui Parle County's Cities, Townships & Location



**Section Two:  
Priority Concerns Scoping  
Document Planning Process**

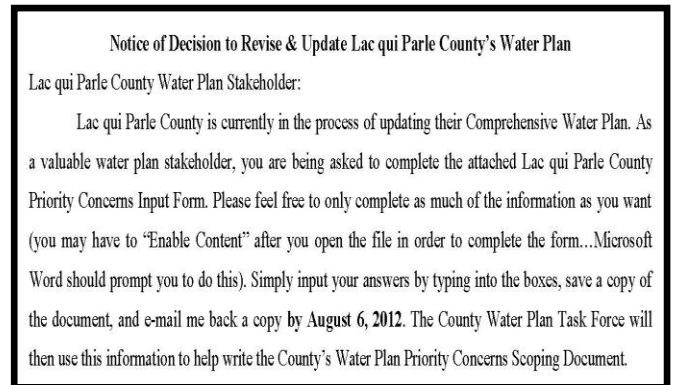
**D. Resolution to Update the Lac qui Parle County Water Plan**

The first step in the Water Planning Process was for the Lac qui Parle County Board of Commissioners to approve a resolution indicating the County was officially updating its Water Plan. This action took place on May 15, 2012, at the regularly scheduled County Board meeting. A copy of the resolution appears in Appendix A.

**E. Notice of Plan Update**

An official “Notice of Plan Update” for the Lac qui Parle County Water Plan was sent on June 28, 2012, to contacts as prescribed by Minnesota Statutes 103B ([www.revisor.mn.gov/statutes](http://www.revisor.mn.gov/statutes)) and according to the “Routing Information” contained on BWSR’s website under the Resource Management and Planning tab: [www.bwsr.state.mn.us/planning/routing.html](http://www.bwsr.state.mn.us/planning/routing.html) A copy of the Notice of Plan Update can be found in Appendix A.

**Figure 1:  
Notice of Plan Update  
~ Found in Appendix A ~**



**F. Water Plan Survey Results**

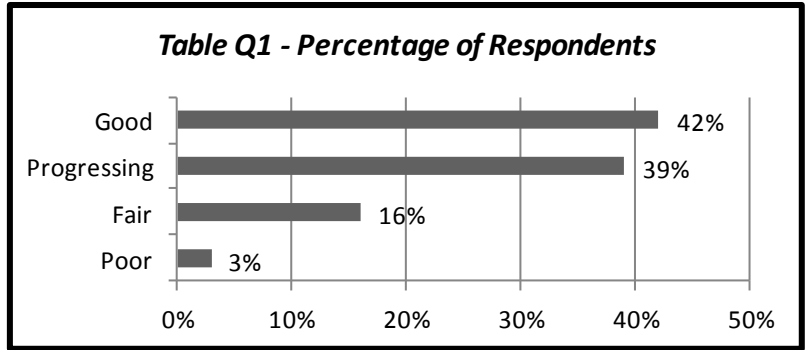
Lac qui Parle County created a Lac qui Parle County Comprehensive Local Water Management Survey in 2012. The survey was mailed, emailed, made available online, and was available through the County’s Soil and Water Conservation District. Thirty-three people completed Lac qui Parle County’s Water Plan Survey. The survey results are presented with corresponding tables. Appendix A contains a copy of the actual survey used.

**Lac qui Parle County  
Water Plan Survey Results**

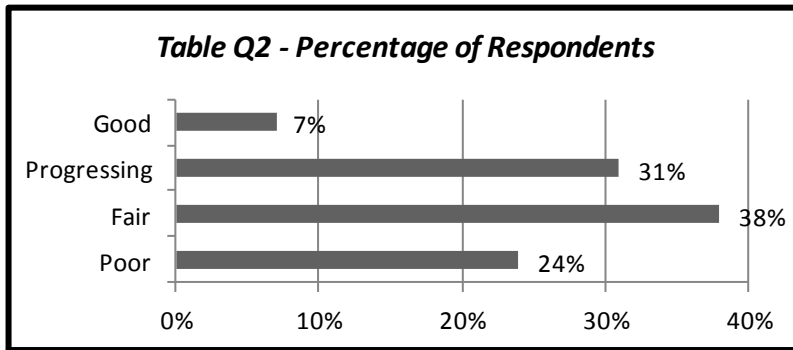
~ Please refer to the Appendix for a copy of the actual survey ~

**Question 1:**

**How do you rate the progress of erosion control and runoff in the past 20 Years?**



**Table Q2 - Percentage of Respondents**

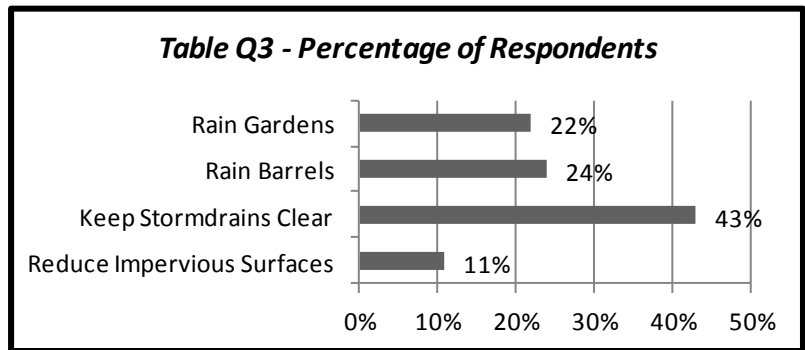


**Question 2:**

**How do you rate the progress of city runoff containing fertilizer and grass clippings?**

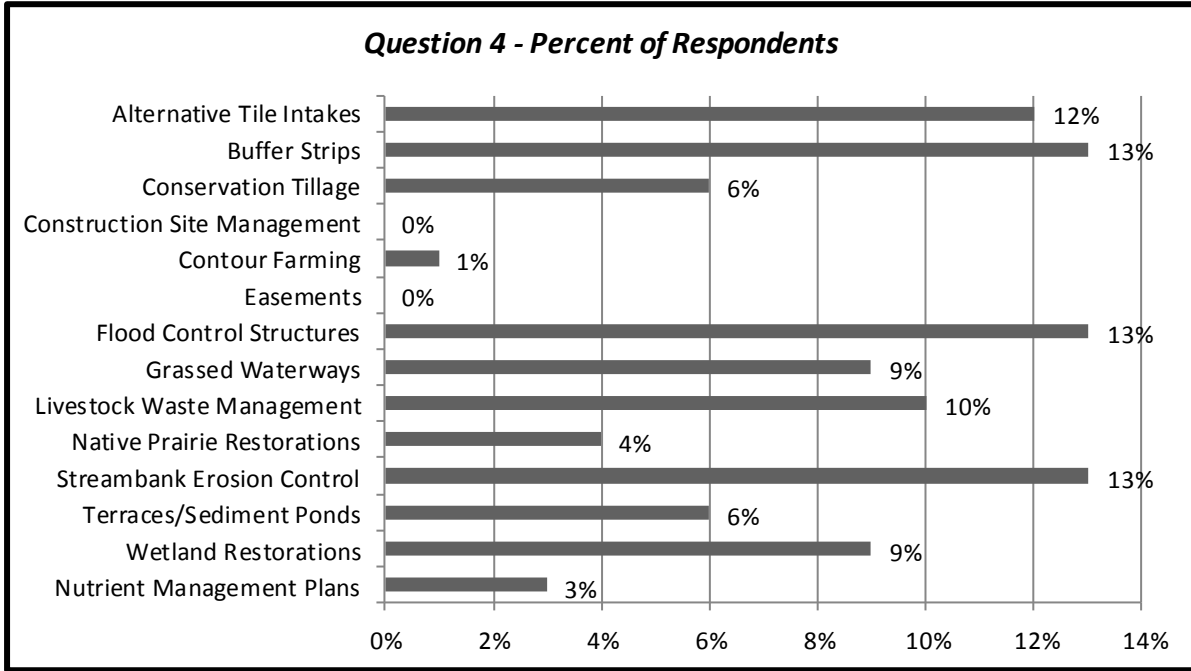
**Question 3:**

**What urban practices would you like to install or take responsibility for to reduce stormwater runoff?**

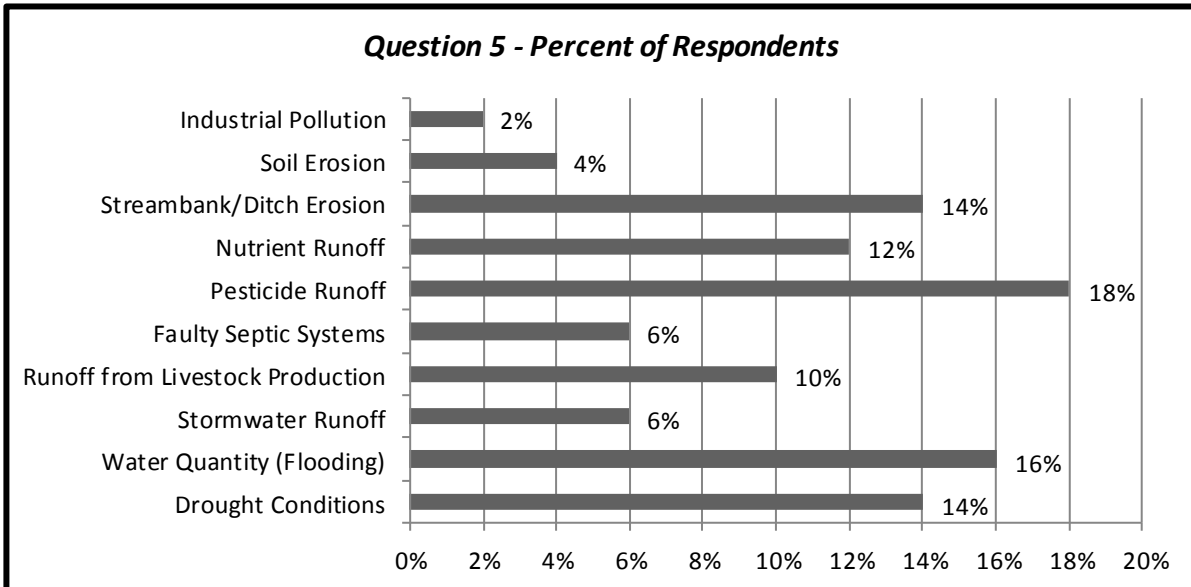




**Question 4:**  
**What rural practices do you feel money would be best spent on?**  
**Please choose your top two choices...**

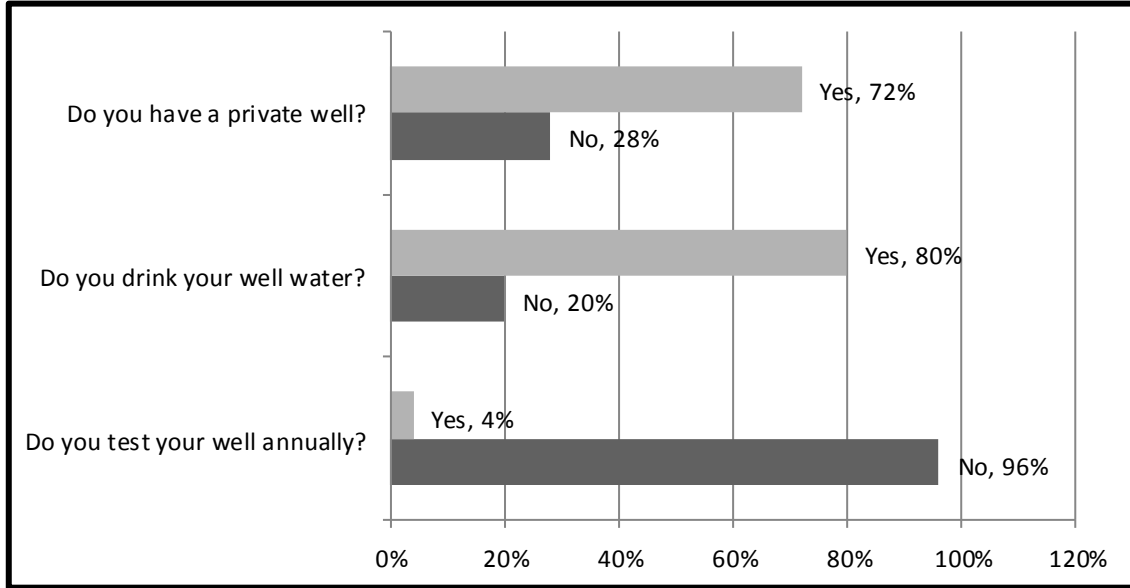


**Question 5:**  
**What do you think is the most likely source of water quality concern**  
**Lac qui Parle County will be faced within the next 10 years?**  
**Please select one...**



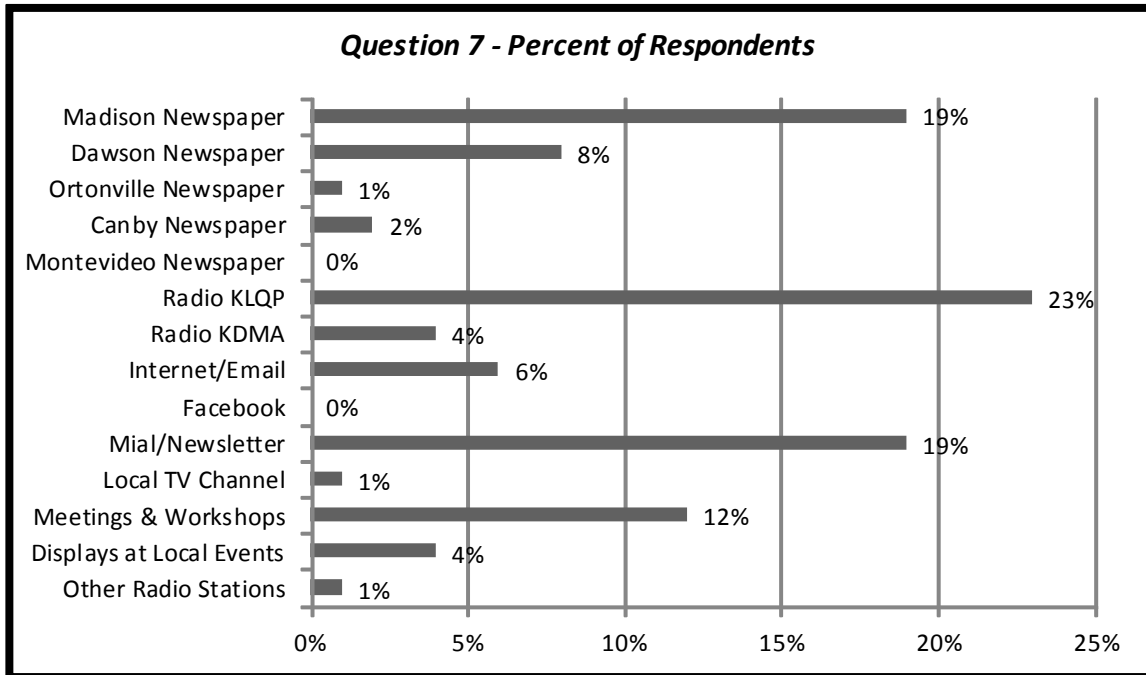
**Question 6:**

**Please answer the following questions regarding your drinking water supply?**



**Question 7:**

**What do you feel is the best way to reach you with new education on water plan topics?**



*Question 8:*

**Are there topics that you would like to learn more about? Please list:**

- Ring dike flood protection for farmstead
- Tile inlet alternative

*Question 9:*

**Do you have any concerns in your area that you feel need to be addressed?**

**If so, please explain...**

- Tile has nearly eliminated temporary wetlands, in the spring are very important
- lake cleanup
- storm water control in Nassau
- runoff - fields too close to drainage ditches
- river flooding
- flooding from South Dakota
- flooding
- Flooding – coordination with highway department regarding bridge culvert capacity
- Flooding – ditch should be cleaned
- Government land is holding back too much water & is flooding crop & hayland
- Dawson city water – taste is not good
- Neighbors blocking water flow every time it gets very wet
- Mainstream rivers becoming filled with falling trees
- More well water tests available for small fee/free

*Question 10:*

**Do you have any concerns about the continued improvement of our soil and water resources the Resource Commission might address through its ongoing voluntary approach with Lac qui Parle County residents?**

- Drainage of wetlands not allowed because of federal legislation – should have local control
- Field drain tile is positive for our environment & awareness of tiling benefits to landowners & nonfarmers

## **G. Water Plan Public Meeting**

Lac qui Parle County hosted an open house on July 30, 2012, from 4:00 p.m. to 6:00 p.m. The purpose of the meeting was to invite Lac qui Parle citizens to voice their concerns on which County water planning issues they would like to see addressed in the Lac qui Parle County Water Plan. A copy of the sign-in sheet appears in Appendix A. The following issues were identified and discussed:

### **Flooding**

- A. One property owner expressed his concern that flooding on his property and nearby has occurred more frequently recently than did historically. He requested that a ring-dyke be installed so that he can access his property even during spring flooding.
- B. Parts of the County experiences cross-over flooding from adjacent watersheds, especially a result of the Coteau elevation difference.
- C. Part of the FEMA floodplain map may not be correct.
- D. Beaver dam, plugged culvert, or similar has blocked water near a portion of the railroad. A question arose on the railroad's jurisdiction of dealing with flooding issues.
- E. The County continues to have a beaver nuisance control program.

### **TMDL Plan**

- A. There are 19 impairments on 11 reaches in the Lac qui Parle and Yellow Bank watersheds.
- B. A TMDL Assessment Report has been developed: The Lac qui Parle, Yellow Bank – Bacteria, Turbidity, and Low Dissolved Oxygen. More information is available by visiting the MPCA's website at:
- C. <http://www.pca.state.mn.us/index.php/water/water-types-and-programs/minnesotas-impaired-waters-and-tmdls/tmdl-projects/minnesota-river-basin-tmdl-projects/project-lac-qui-parle-river-dissolved-oxygen.html>
- D. The TMDL Plan and implementation steps will be incorporated into the Lac qui Parle County Water Plan.

### **Feedlots**

- A. More incentives should be developed to ensure that feedlot operators follow their manure management plans.
- B. County is currently working on a Level 3 Feedlot Inventory. This should identify a number of projects that would benefit by receiving grant assistance

## **Groundwater**

- A. Countryside Public Health conducts drinking water testing
- B. Participant was worried about not being able to continue irrigating out Lac qui Parle River due to its TMDL listing.
- C. County has a program to install well kits in flood prone areas.

## **Drainage**

- A. The County would benefit from conducting a hydro-geologic study to determine how best to manage surface water resources.
- B. Wetland restoration and other water retention projects should be pursued.
- C. LiDar and other GIS data should be used for water and land use planning decisions.
- D. Temporary water storage and properly placed water control structures are important to overall drainage management.
- E. The impacts of pattern tiling need to be better understood.
- F. The County should consider creating a drainage management plan.

## **Other Water Plan Issues**

- 1. County has approximately 20,000 acres in CRP.
- 2. Current proposed revisions to the Clean Water Act may extend jurisdiction from navigable water to all types of surface water.
- 3. Urban storm water runoff need to be addressed, especially the use of lawn chemicals and the impact of grass clippings on local water resources.
- 4. A lot of State funds are currently available to implement water plan activities
- 5. All water plan stakeholders should be pushed to identify how they can partner with the Lac qui Parle County Water Plan
- 6. Lac qui Parle County Water Plan Survey was discussed and participants were encouraged to complete during the Open House or online at:

<http://www.surveymonkey.com/s/B2FDT89>

## H. State & Local Stakeholder Comments

At the beginning of Lac qui Parle County’s water planning process, the County’s key water planning stakeholders were asked to submit comments on priority water planning issues and suggested implementation activities. This was accomplished by completing either a Lac qui Parle County Priority Concerns Input Form, or by simply submitting a letter. The following stakeholders submitted comments:

- The Minnesota Department of Agriculture
- The Minnesota Pollution Control Agency
- The Minnesota Board of Water and Soil Resources
- Lac qui Parle Soil & Water Conservation District

Table 2 summarizes the priority concerns identified by each of the stakeholders. The “Survey” column in Table 2 combines the response from Lac qui Parle County Water Plan Survey. Based upon the stakeholders comments received, *Lac qui Parle County’s top three priority issues are:*

- 1) **Soil Erosion/Sediment Control**
- 2) **Drainage Management**
- 3) **Surface Water Quality/TMDLs (Impaired Waters)**

### *Minnesota Department of Agriculture (MDA)*

The MDA submitted a Priority Concerns Input Form for Lac qui Parle County. A copy of the form, dated July 27, 2012, is contained in Appendix B. The MDA’s identified the following five priority water planning concerns:

1. Agricultural Drainage, Wetlands and Water Retention
2. Groundwater and Surface Water Protection: Agricultural Chemicals and Nutrients/Water Use/Land Management in Wellhead Protection Areas
3. Manure Management and Livestock Issues
4. Agricultural Land Management
5. Targeting of BMPs, Aligning Local Plans and Engaging Agriculture

The MDA also created a webpage which communicates and profiles their top five priority water planning concerns. The webpage provides links to each of the five priority concern areas, including information on why the issue is important, what actions need to be taken, and links to more information on the subject. For more information, please visit the following MDA link:

[www.mda.state.mn.us/protecting/waterprotection/waterplanning.aspx](http://www.mda.state.mn.us/protecting/waterprotection/waterplanning.aspx)

### ***Minnesota Pollution Control Agency (MPCA)***

The MPCA submitted a letter outlining their top four priority concerns for Lac qui Parle County. A copy of the map and letter, dated August 1, 2012, can be found in Appendix B. The MPCA submitted the following four priority concerns for Lac qui Parle County:

1. Impaired Waters/Total Maximum Daily Loads (TMDL)
2. Watershed Approach
3. Agricultural Drainage Management
4. Update of the LWM Plan information relative to MPCA Programs

### ***Minnesota Board of Water and Soil Resources (BWSR)***

The BWSR submitted a Lac qui Parle County Priority Concerns Input Form on August 8, 2012 (a copy of the correspondence can be found in Appendix B). BWSR identified the following four top priority concerns:

1. Erosion and Sediment Control; Nutrient Management on Agricultural Land
2. Feedlot Program Management and Non-Conforming Subsurface Septic Treatment Systems
3. Drainage Water Management Planning/Drainage System Maintenance and Repair
4. Address Accelerated Runoff Impacts via Wetland Restoration, Protection, and Enhancement/Water Storage

***Lac qui Parle County Soil and Water Conservation District***

The Lac qui Parle County Soil and Water Conservation District submitted a Priority Concerns Input Form which can be found in Appendix B. Based upon the information submitted, the SWCD identified the following four priority concerns:

1. Erosion and Sediment Control; Nutrient Management on Agricultural Land
2. Feedlot Management and Non-Conforming Subsurface Septic Treatment Systems
3. Drainage Water Management Planning/Drainage System Maintenance and Repair
4. Wetland Restoration, Protection and Enhancement/Water Storage



**Table 2:**  
**Lac qui Parle County Water Plan**  
**Summary of Stakeholder's Priority Concerns**  
*(Please refer to the text)*

Priority Concern/Issue	Stakeholder					
	BWSR	Dept. of Ag	MPCA	SWCD	Survey**	Task Force
Soil Erosion/Sediment Control	Yes*	Yes		Yes*	Yes	Yes
Feedlots/Nutrient Management	Yes	Yes		Yes	Yes	Yes
Septic Systems (SSTS)	Yes			Yes	Yes	Yes
Drainage Management	Yes	Yes*	Yes	Yes	Yes	Yes
Wetlands/Water Retention	Yes	Yes*		Yes	Yes	Yes
Groundwater quality/quantity		Yes			Yes	Yes
Surface Water Quality/TMDLS		Yes	Yes*	Yes	Yes	Yes
Best Management Practices		Yes		Yes	Yes	Yes
Stakeholder Cooperation		Yes	Yes			Yes
Watershed Approach			Yes			Yes
Natural Habitat					Yes	Yes
Urban/Stormwater Management					Yes	Yes
Public Education					Yes	Yes

*Survey\*\* = Comments received from the County's Water Plan Survey*

*\* = Stakeholder's Top Priority Concern*

**Section Three:  
Lac qui Parle County  
Priority Water Planning Issues**

**I. Resource Commission**

Lac qui Parle County maintains a Resource Commission which meets regularly on water plan initiatives (the members are listed on the inside cover of this document). In addition, the group is used throughout the water planning process to help identify priority issues and to develop the water plan's Goals, Objectives, and Action Steps.

**J. Priority Water Planning Issues**

The Lac qui Parle County Resource Commission met on August 14, 2012, to review the Water Plan Survey results and the Priority Concerns Input Forms received (Appendix A contains a copy of the Sign in Sheets). Based upon the survey results, the comments received during the Water Plan Public Meeting, and the comments received in the Priority Concerns Input Forms, the Resource Commission identified the following as Lac qui Parle County's priority water planning issues (note: these issues are not ranked):

1. Surface Water Management
  - a. Agricultural Drainage
  - b. Stormwater Management
  - c. Wetlands and Water Storage/Retention
  - d. Flooding
  
2. Reducing Priority Pollutants ~ Surface Water Quality
  - a. TMDL Implementation
  - b. Feedlot/Livestock Management
  - c. Subsurface Sewage Treatment Systems
  - d. Erosion and Sediment Control

3. Groundwater Quality & Quantity
  - a. Wellhead Protection Areas
  - b. Irrigation
  - c. Drinking Water Quality
  
4. Plan Administration
  - a. Watershed Focus
  - b. Stakeholder Cooperation
  - c. Raising Public Awareness

#### **K. Priority Issues Not Addressed by this Water Plan**

All of the priority issues identified in the Lac qui Parle County Water Plan Survey and received in Lac qui Parle County's Priority Concerns Input Forms, will either directly or indirectly be addressed in Lac qui Parle County's updated Water Plan. This is particularly important to Lac qui Parle County, since BWSR and the other State agencies have indicated that projects are less likely to receive grant money unless they are mentioned in Local Water Management Plans.

*As a result of not excluding any priority concern identified by a water plan stakeholder, Lac qui Parle County does not anticipate needing to resolve any differences between Lac qui Parle County's Priority Water Plan Issues and other state, local and regional concerns.*

## **Section Four: Lac qui Parle County Ongoing Water Plan Activities**

Lac qui Parle County has numerous ongoing programs and land use controls that are directly linked to the County's Water Plan. These ongoing activities include educational efforts on key water planning issues, stream monitoring, and Best Management Practices (BMPs) implementation. In addition, County staff regularly attends water management meetings, educational conferences, and promotes water protection projects. The County also annually provides cost-share to fund various watershed groups and similar organizations. All of these activities directly are related to implementing the Local Water Management Program (i.e., "Water Plan").

In addition to implementing the County's Water Plan, the County also accomplishes numerous water plan initiatives through implementing the following County programs. **Table 3 shows that Lac qui Parle County has spent over \$422,667 in funds on all of these ongoing activities between the five-year period of 2007 and 2011.**

- ***County Feedlot Program*** – Lac qui Parle County has a county feedlot program, administered through the Minnesota Pollution Control Agency (MPCA). This means the county works with producers on registration, permitting, inspections, education, and complaint follow-up.
- ***Subsurface Sewage Treatment System (Program SSTS)*** – Lac qui Parle County enforces MN Rules Chapter 7080-7083 through the Lac qui Parle County SSTS Ordinance. This Ordinance helps ensure that septic systems are designed and maintained properly, and includes a compliance inspection requirement when property is transferred (seller's responsibility).
- ***Shoreland Management Program*** – Lac qui Parle County assists the Minnesota Department of Natural Resources (DNR) with administering the Shoreland Management Act. This Act regulates land use development within 1,000 feet of a lake and 300 feet of a river and its designated floodplain.
- ***Wetland Conservation Act Program (WCA)*** – Lac qui Parle County assist the Minnesota Board of Water and Soil Resources (BWSR) with administering the Minnesota Wetland Conservation Act of 1991. The goals of the Act are to maintain a "no-net-loss of wetlands", minimize any impacts on wetlands, and to replace any lost wetland acres affected by development.

**Table 3:**  
**Lac qui Parle County's**  
**Natural Resource Block Grant Expenditures**  
**~ 2007 – 2011 ~**

Year - Category	2007		2008		2009		2010		2011		5-Year Totals		
	State	Match	State	Match	State	Match	State	Match	State	Match	State	Match	Overall
<b>Feedlot<sup>1</sup></b>	\$9,020	\$7,500	\$9,988	\$5,250	\$9,444	\$5,250	\$7,500	\$5,250	\$16,830	\$11,781	\$52,782	\$35,031	\$87,813
<b>SSTS<sup>2</sup></b>	\$9,885	\$0	\$10,000	\$0	\$10,000	\$0	\$9,931	\$0	\$9,931	\$0	\$49,747	\$0	\$49,747
<b>LWM<sup>3</sup></b>	\$20,346	\$12,933	\$20,346	\$14,510	\$20,346	\$13,348	\$21,160	\$11,761	\$15,193	\$8,784	\$97,391	\$61,336	\$158,727
<b>Shoreland<sup>4</sup></b>	\$2,995	\$2,995	\$2,995	\$2,995	\$2,995	\$2,995	\$2,995	\$2,995	\$2,585	\$2,585	\$14,565	\$14,565	\$29,130
<b>WCA<sup>5</sup></b>	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$8,860	\$8,630	\$48,860	\$48,630	\$97,490
<b>Sub-Total</b>	\$52,246	\$33,428	\$53,329	\$32,755	\$52,785	\$31,593	\$51,586	\$30,006	\$53,169	\$31,780	\$263,115	\$159,562	\$422,677
<b>Totals</b>	<b>\$85,674</b>		<b>\$86,084</b>		<b>\$84,378</b>		<b>\$81,592</b>		<b>\$84,949</b>		<b>\$422,677</b>		

**Feedlot<sup>1</sup>** – Refers to the County's Feedlot Program

**SSTS<sup>2</sup>** – Refers to the County's Subsurface Sewage Treatment Systems Program

**LWM<sup>3</sup>** – Refers to the County's Local Water Management Program

**Shoreland<sup>4</sup>** – Refers to the County's Shoreland Program

**WCA<sup>5</sup>** – Refers to the County's Wetland Conservation Act Program

## Chapter Two: Assessment of Priority Concerns

---

This Chapter provides an assessment of the priority concerns identified throughout the Water Plan’s priority concerns scoping process. These concerns were identified by a variety of stakeholders and were selected by the Lac qui Parle County Water Plan Task Force. Please refer to Chapter One of this Water Plan for more information.

The priority concerns scoping process identified numerous priority issues that can be categorized into four larger topic areas; Surface Water Quality; Surface Water Quantity; Groundwater Quality & Quantity; and Plan Administration. The Task Force acknowledges the priority issues could have been organized differently and they also realize that some priority issues pertain to more than one of the larger topic areas. This Chapter provides assessments for the first three categories. The fourth category, Plan Administration, is profiled in Chapter Four. As a result, this Chapter contains assessments on the following water resource topics:

1. Reducing Priority Pollutants ~ Surface Water Quality
  - A. Watersheds Assessment
  - B. TMDL Implementation Assessment
  - C. Feedlot/Livestock Management Assessment
  - D. Subsurface Sewage Treatment Systems Assessment
  - E. Erosion and Sediment Control Assessment
2. Surface Water Management ~ Surface Water Quantity
  - F. Agricultural Drainage Assessment
  - G. Stormwater Management Assessment
  - H. Wetlands and Water Storage/Retention Assessment
  - I. Flooding Assessment
3. Groundwater Quality & Quantity
  - J. Groundwater Quality Assessment
  - K. Groundwater Quantity Assessment

***Did you know...?***

There is a difference between watersheds and watershed districts. A watershed is the area of land where both surface and groundwater drains to the same place. Watershed Districts are special purpose units of government with a board of managers appointed by the county boards of commissioners. They have taxing and regulatory authority. As a result, watershed boundaries are larger natural geographic boundaries, while watershed districts are political boundaries.

## **Section One: Surface Water Quality ~ Reducing Priority Pollutants**

This section of the Water Plan provides an assessment of Lac qui Parle County's surface water quality. To begin with is a subsection on Lac qui Parle County's Watersheds, followed by subsections on Impaired Waters, Feedlots and Livestock Management, Subsurface Sewage Treatment Systems, and Erosion and Sediment Control.

### **A. Watersheds Assessment**

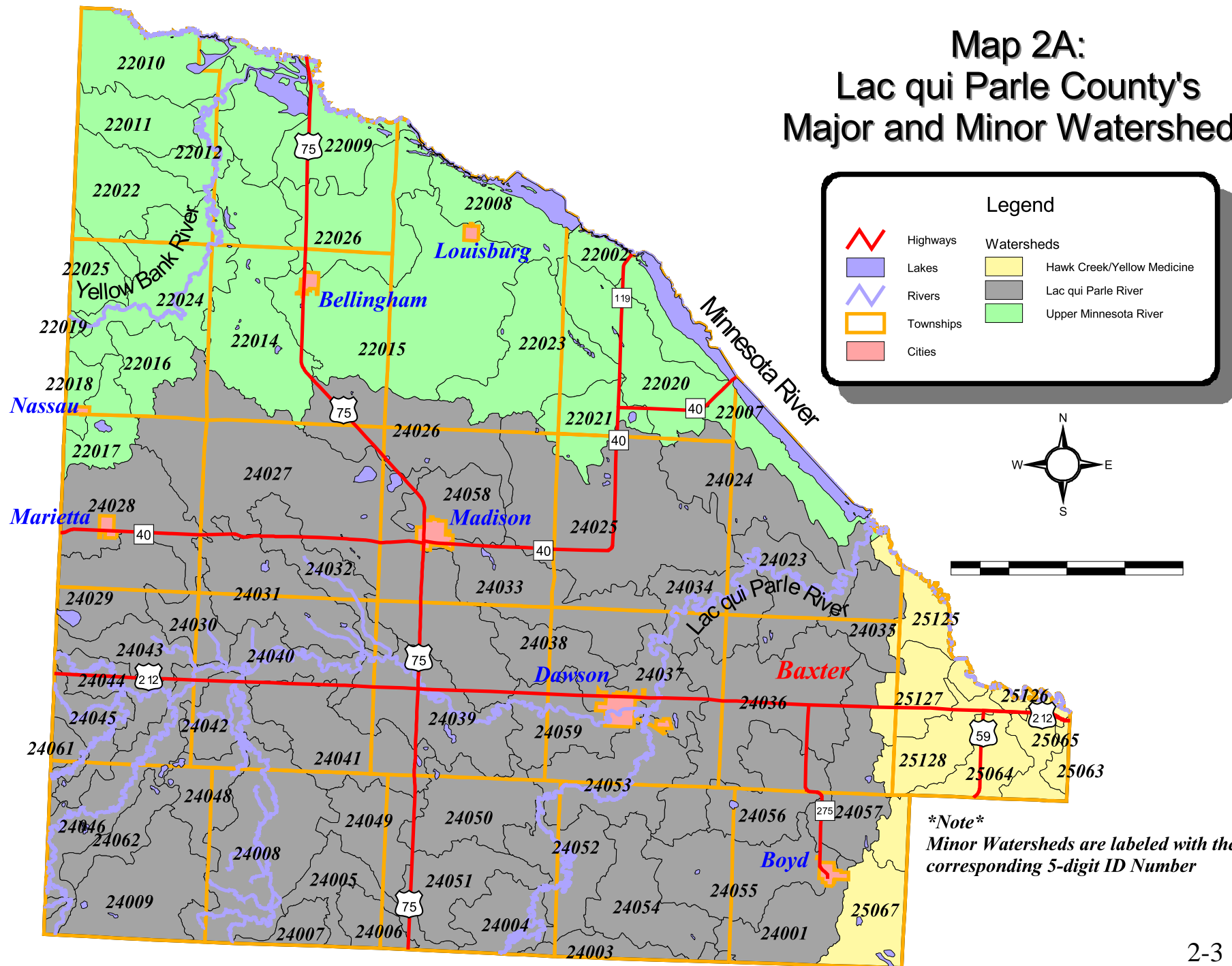
Lac qui Parle County is located within three major watersheds: the Lac qui Parle, Yellow Medicine and Upper Minnesota River Watersheds (refer to Map 2A). All three watersheds are part of the Minnesota River Basin.

#### **Lac qui Parle River Watershed**

The largest watershed in the County is the Lac qui Parle Watershed (refer to Map 2B). In addition to Lac qui Parle County, it is located in Lincoln, Yellow Medicine Counties, and portions of Deuel County in South Dakota. There are six municipalities in the watershed, with the City of Madison being the largest. The Lac qui Parle Watershed area is approximately 1,097 square miles or 702,119 acres, of which, 487,336 acres are located in Minnesota and 214,783 acres are located in South Dakota. The watershed is subdivided into 78 minor or sub-watersheds. The minor watersheds range in size from 2,844 acres to 32,090 acres, with the mean size approximately 9,002 acres.

The Lac qui Parle Watershed is situated in the Northern Glaciated Plains Ecoregion. Further sub-division places Minnesota's portion of the watershed fall within one of two geomorphic settings: the Coteau des Prairies and the Blue Earth Till Plain. The Coteau des Prairie is characterized by landscapes with long northeast facing slopes that are undulating to rolling (4-6%), and loamy, well-drained soils (approximately 72 percent is classified as having a high water erosion potential). The portion of the watershed within the Blue Earth Till Plain is represented by nearly level to gently sloping lands, ranging from 0-6% in steepness. Soils are predominantly loamy, with landscapes having a complex mixture of well and poorly drained soils. Drainage of depressional areas is often poor, and tile drainage is common. The Lac qui Parle River and its tributaries, public and private drainage systems, lakes and wetlands, define the drainage network of the major watershed. The Lac qui Parle River flows to its confluence with the Minnesota River above the Lac qui Parle Dam. The total distance of the stream network within Minnesota is 1,434 miles, with 1,052 miles of intermittent streams and 382 miles of perennial streams.

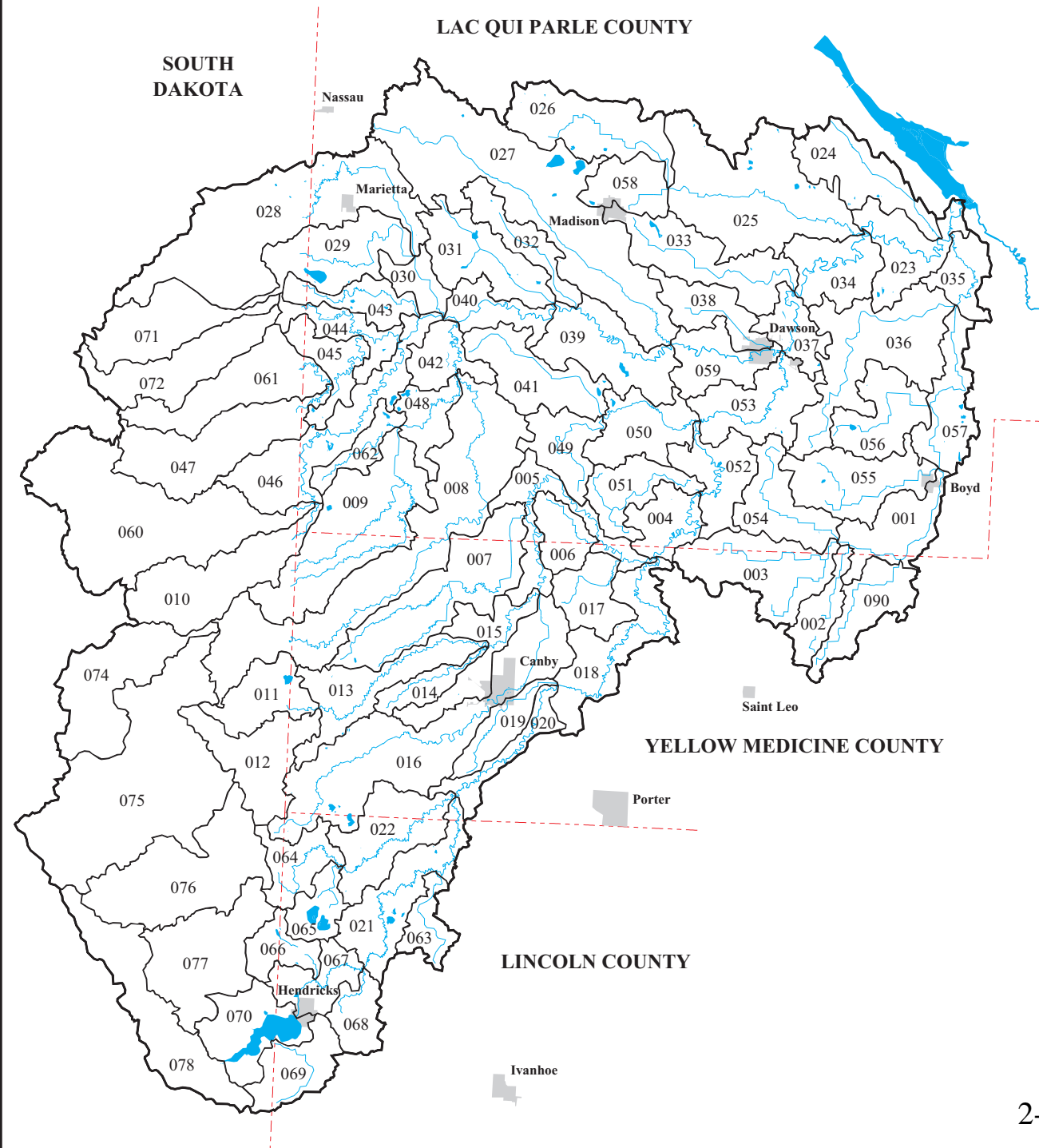
# Map 2A: Lac qui Parle County's Major and Minor Watersheds





Map 2B:

# LAC QUI PARLE RIVER MAJOR WATERSHED MINOR WATERSHEDS AND ID NUMBERS



### MAP KEY

- Stream
- Lake
- City
- County Line
- Minor Watershed Boundary
- 015  
Three Digit  
Minor Watershed Number

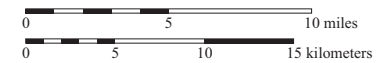
Each minor watershed is assigned a unique five digit number. The first two digits are the major watershed number. The last three digits are the minor watershed number.

24 015 Unique five digit identifier

- Minor watershed number
- Major watershed number



Projection: Universal Transverse Mercator, Zone 15



Prepared for: Minnesota River Basin Data Center  
 Prepared by: Minnesota State University, Mankato  
 Water Resources Center GIS section.  
 Authors: Cis Berg and John Rongstad  
 Date: March 30, 1999  
 Data for this map was prepared and composed using  
 ESRI ARC/INFO ARCPLLOT.


The Lac qui Parle River has its ultimate origin in Lake Hendricks on the South Dakota border in northwestern Lincoln County. Winding northward as an intermittent stream on the Coteau des Prairies (meaning Highland of the Prairies, so named by French explorers), a morainal plateau and important drainage divide that also occupies the headwaters of several of the Minnesota River's major tributaries, the stream plunges down the slope of the Coteau for about eight stream miles and drops approximately 250 feet. Except for a few isolated wetlands set aside by state and federal agencies, many of the Coteau's wetlands have been drained and converted to cultivated fields. In addition, a large proportion of the Coteau's small creeks and streams have been ditched and straightened, permitting earlier planting and allowing more acres to be placed into production.

Near Canby, the Lac qui Parle enters the Blue Earth till plain, and then begins a long, slow course generally northeast across the western panhandle of Yellow Medicine County and diagonally across Lac qui Parle County to the Minnesota River. It falls 210 feet in its final eighteen-mile descent into the Minnesota Valley. In both the headwaters and lower gorge sections it flows through wooded valleys, and on the low plains an occasional willow or cottonwood grows along the banks. Paralleling the river's course down the Coteau is Canby Creek, a small trout stream joining the Lac qui Parle farther downstream. As it flows toward the Minnesota, the Lac qui Parle receives its largest tributary near Dawson, the West Branch, which drains much of western Lac qui Parle County and originates in South Dakota. In the lower Minnesota Valley reach, the Lac qui Parle collects from the south, Ten Mile Creek (the lower section is also known as Three Mile Creek), and other small tributaries, the majority having been largely channelized or ditched.

According to information compiled by the Department of Soil, Water, and Climate at the University of Minnesota, over 69% of the tillable acres within Minnesota's section of the Lac qui Parle Watershed have a high potential for water erosion, 29% are ranked as having moderate water erosion potential, and 1.7% have the potential for significant wind erosion. As a result, erosion control and water conservation are important within this watershed.

Land use is primarily agricultural, with approximately 79% of the available acres utilized for production of grain crops, mainly corn and soybeans. Of these acres, the majority (96%) are classified as moderately productive. Sixty eight percent of agricultural lands are classified as well drained, thirty one percent as poorly drained and roughly one percent have been tilled to improve drainage. 1996 estimates placed 11% of the Lac qui Parle Watershed's agricultural acres as grasslands, enrolled in the federal Conservation Reserve Program. Table 2A provides the 2013 conservation lands summary for all of Lac qui Parle County.

**Table 2A:**  
**Lac qui Parle County Conservation Lands Summary**  
 ~ Prepared by BWSR as of 8-1-2013 ~

Conservation Reserve Program (CRP)	12,431 acres	
Continuous CRP	11,405 acres	
Conservation Reserve Enhancement Program (CREP)	8,006 acres	
Reinvest in Minnesota (RIM)	926 acres	
RIM – Wetlands Reserve Program (WRP)	185 acres	
Wetlands Reserve Program (WRP)	0 acres	
<i><b>Total Resource Acres</b></i>	32,953 acres	
<i><b>Cropland Acres</b></i>	410,614 acres	 <span style="font-size: 1.2em; vertical-align: middle;"><b>8% of cropland!</b></span>

**The Upper Minnesota River Watershed**

The Upper Minnesota River Watershed is one of the twelve major watersheds of the Minnesota River Basin. It is located in west central Minnesota within Big Stone, Chippewa, Lac qui Parle, Stevens, Swift, Traverse counties and northeastern South Dakota and southeastern North Dakota (refer to Map 2A). There are twelve municipalities in the watershed, with the City of Ortonville being the largest. The Upper Minnesota River watershed area is approximately 2,097 square miles or 1,341,917 acres, of which 487,068 acres are located in Minnesota and 854,849 acres are located in the Dakotas. The watershed is subdivided into 99 minor watersheds (also referred to as sub-watersheds). The minor watersheds range in size from 1,207 acres to 70,071 acres, with 13,555 acres being the average size.

Below Ortonville, the Minnesota River passes through the Big Stone-Whetstone Reservoir (constructed during the 1970s). Further down, the Yellow Bank River, whose headwaters are also in South Dakota, enters into the Minnesota River. The Upper Minnesota then meets Marsh Lake and Lac qui Parle Lake (meaning “the Lake that Speaks”). Both Marsh and Lac qui Parle Lakes are natural impoundments, dammed by alluvial fans of sediment deposited at the mouths of two major tributaries, the Pomme de Terre and Lac qui Parle rivers respectively. The Pomme de Terre River comes down from the hills of the lake country to the north. The Lac qui Parle River originates in the Coteau des Prairies, flows northeast through the prairies of the southwest, then confluences with the Minnesota River near the City of Watson. Although they are natural reservoirs, the lakes were subject to some natural fluctuation; thus dams were built at the outlets for greater water control. The outlet of the Upper Minnesota River Watershed is below the Lac qui Parle Reservoir, 288 miles upstream from the mouth of the Minnesota River.

Land use within the Watershed is primarily agricultural, with 76% of the available acres utilized for production of grain crops, mainly corn and soybeans. Of these acres, approximately 15% have been tilled to improve poorly drained soils. The majority of the crop-lands (82%) are classified as moderately productive. Approximately 39% of the lands draining into the Upper Minnesota River have a high water erosion potential and 26% have the potential for significant wind erosion. Water erosion potential is highest on lands draining the Coteau region.

### ***Yellow Bank River Subwatersheds***

The larger Upper Minnesota River Watershed has three smaller subwatersheds, which are partially located in Lac qui Parle County, that form what is commonly referred to as the “Yellow Bank River Watershed.” They consist of the North Fork Yellow Bank River subwatershed, the South Fork Yellow Bank River subwatershed, and the Yellow Bank River subwatershed (refer to Map 2C).

***Lac qui Parle Yellow Bank Watershed District*** – The Lac qui Parle – Yellow Bank Watershed District is located in west central Minnesota, on the southwest side of the Minnesota River (refer to Map 2C). The western boundary of the District is 57 miles long and is formed by the Minnesota – South Dakota border from 1 mile south of Ortonville to 3 miles south of Lake Hendricks. ***The northern District boundary encompasses a small portion of the Upper Minnesota River Watershed, adjoining the Upper Minnesota River Watershed District in the extreme northwestern part of the County.*** On the northeast, the Minnesota River forms the boundary from the Marsh Lake Dam to near the Lac qui Parle Dam. From the Lac qui Parle Dam the boundary extends almost due south to the Yellow Medicine County Line, then extends southwesterly to join the Yellow Medicine River Watershed District. The watershed district boundary contains about 988 square miles of land. Approximately 74 % of the land surface is located in Lac qui Parle County (735 square miles), 19 % in Yellow Medicine County (186 square miles), and 7 % in Lincoln County (67 square miles). The total land area drained by the two rivers is approximately 1,708 square miles, of which 719 square miles are located in South Dakota.

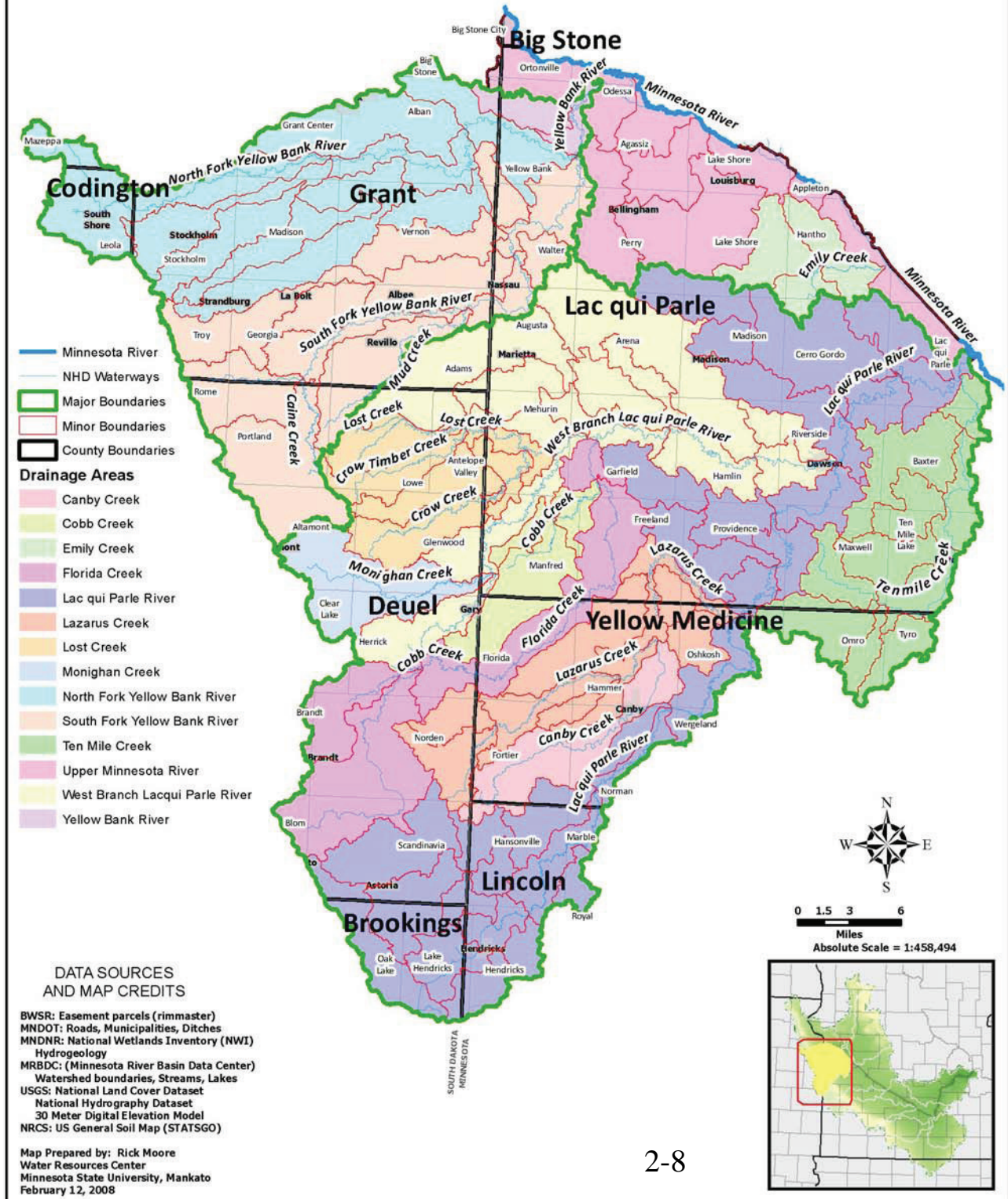
The District’s draft Watershed Management Plan was updated in 2009. According to the Plan, the District was involved in approximately 649 water quality/management projects over the previous 10 years.

Map 2D shows the watershed’s elevation, sloping from “high” in the southwest, to “low” towards the Minnesota River. This helps to show why erosions and sediment control is a priority water planning issue for Lac qui Parle County.

Map 2C:

# POLITICAL BOUNDARIES

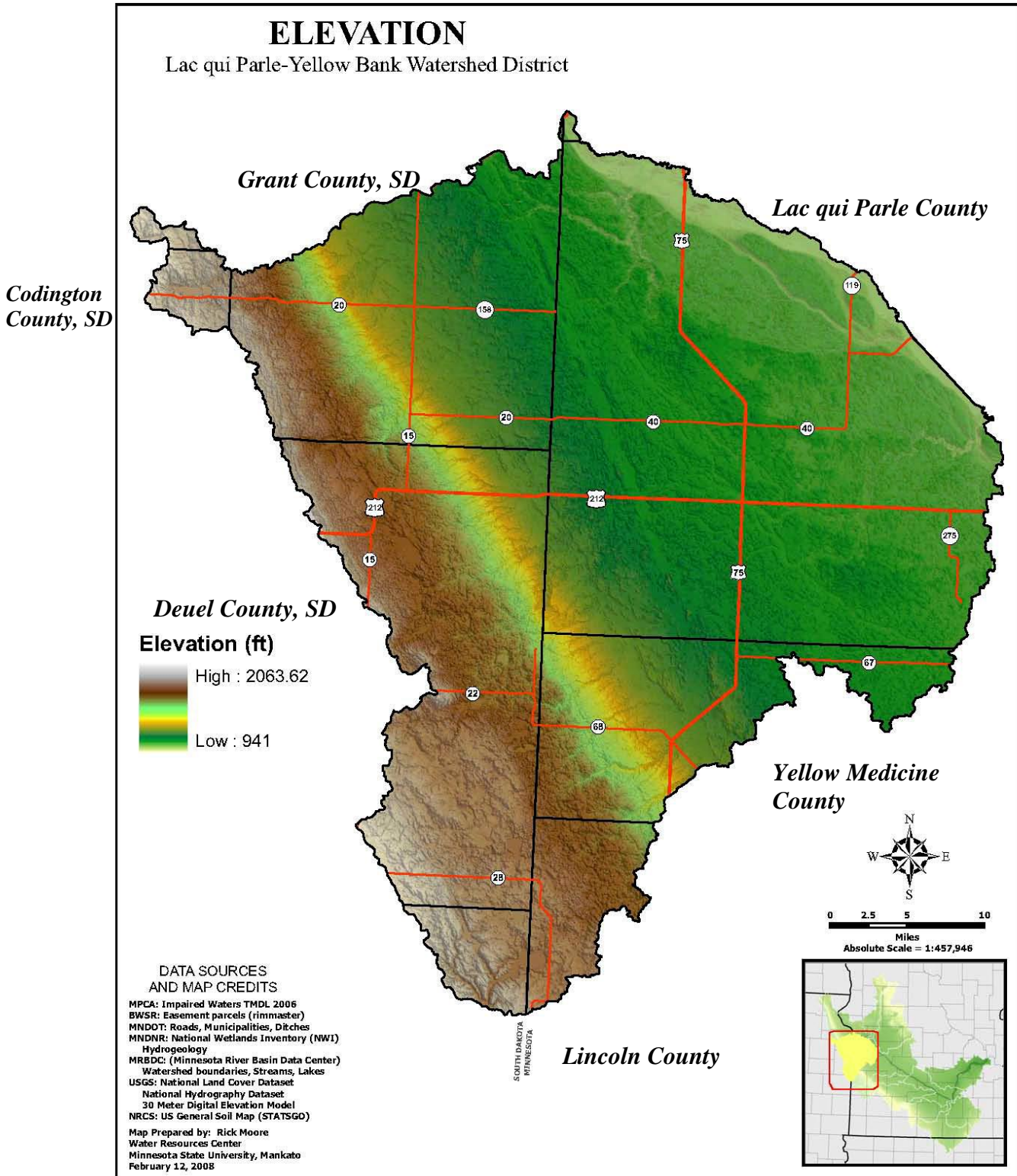
Lac qui Parle-Yellow Bank Watershed District



Map 2D:

**ELEVATION**

Lac qui Parle-Yellow Bank Watershed District

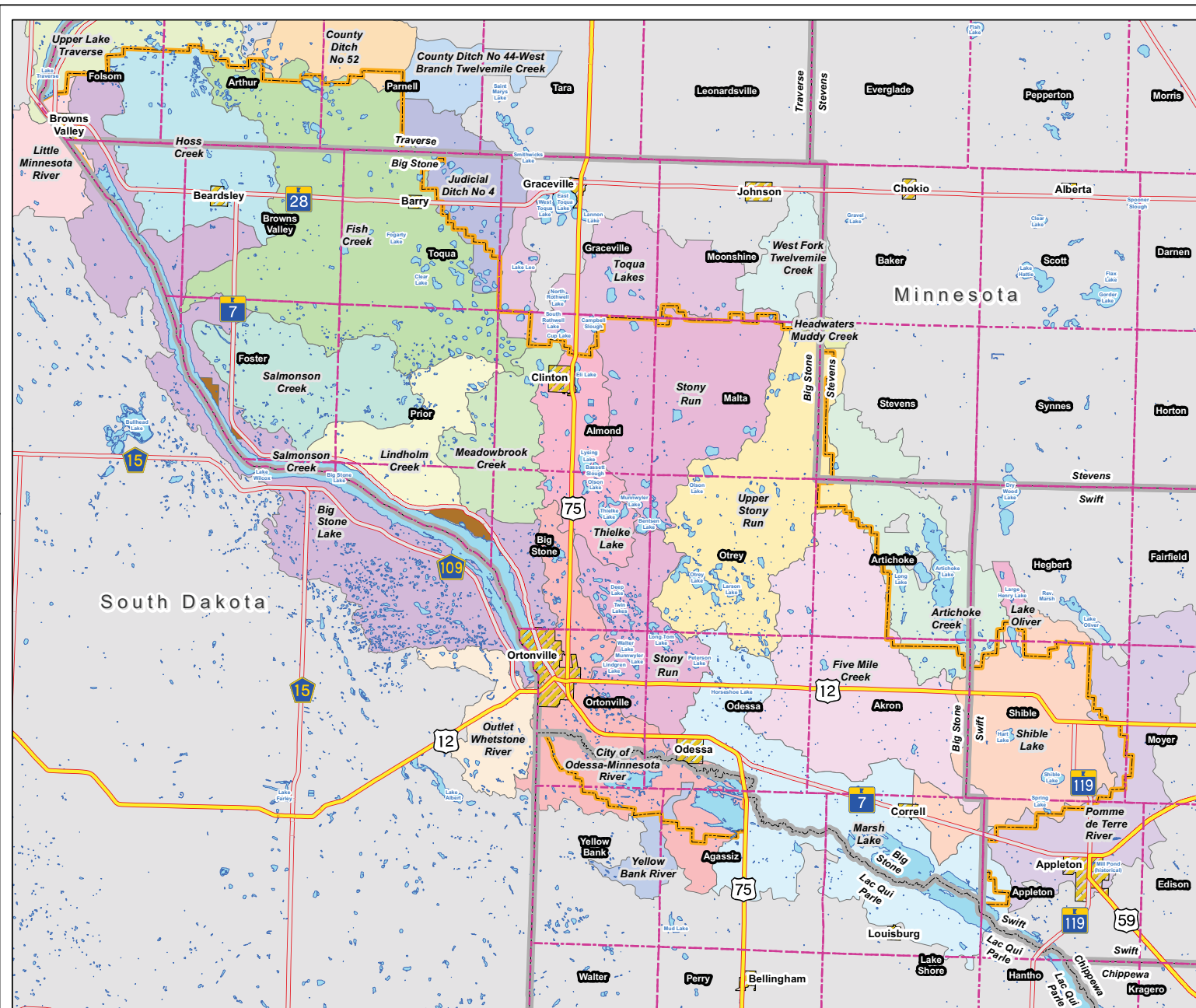


***Upper Minnesota River Watershed District*** - The Upper Minnesota River Watershed District is one of Minnesota's 46 active watershed districts in Minnesota. The District was formed in 1967 and is especially important due to its role in managing the headwaters of the Minnesota River. Southwest of the Minnesota River, the District includes (refer to Map 2E) the northern part of Agassiz and Yellow Bank Townships in Lac qui Parle County west of U.S. Highway 75, covering approximately 18 square miles. This portion of the County also includes the Big Stone National Wildlife Refuge. Notice the District's main subwatershed in Lac qui Parle County is referred to as the "City of Odessa-Minnesota River" subwatershed. The Marsh Lake subwatershed is also located in Lac qui Parle County, however, the Watershed District's political boundaries do not include this portion of Lac qui Parle County.

The District's overall plan established one main water quality goal, which is to "Maintain or improve water quality of all surface water and groundwater resources within the District." To achieve the goal of maximizing water quality within the District, the following objectives are listed:

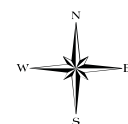
1. Promote advanced treatment of wastewater at all point sources within the District and promote advanced treatment of surface water discharge as new technologies become available.
2. Uphold the existing laws controlling discharge of conventional and toxic pollutants into surface waters from point sources.
3. Monitor water quality when necessary and feasible to protect surface and ground water resources.
4. Encourage responsible, efficient use of fertilizers and pesticides in agricultural and urban settings.
5. Encourage land use and agricultural practices that reduce the movement of nutrients, sediments and other substances off surfaces and into groundwater and surface water resources.
6. Encourage the maintenance, restoration, enhancement or creation of wetlands that may be important for nutrient entrapment.
7. Assist the Minnesota Pollution Control Agency with the assessment and creation of any TMDL's necessary to address impaired waters with the District.
8. Assist with educating and informing District residents how individual actions may impact water quality. Involve citizens in water quality monitoring.

# Upper Minnesota River Watershed District

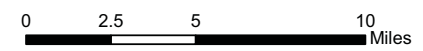


**Legend**

- Townships
- US Highway
- State Highways
- Municipalities
- County Boundaries
- NHD Waterbody (Lakes)
- Big Stone Lake State Park
- Upper Minnesota River Watershed



2-11



Sources: MN DNR, SD DOT, MN DOT, NHD

Figure 2 12 Digit Subwatersheds					
Scale: AS SHOWN	Drawn by: SMW	Checked by:	Project No.: 5304-006	Date: 1/31/2012	Sheet: 1 of 1
			P: 763.493.4522 F: 763.492.5572		



## **Yellow Medicine River Watershed**

The Yellow Medicine River-Hawk Creek Major Watershed is one of the twelve major watersheds of the Minnesota River Basin. It is located in west central Minnesota within Chippewa, Kandiyohi, Lac qui Parle, Lincoln, Lyon, Redwood, Renville, Yellow Medicine counties and northeastern South Dakota (refer to Map 2F). The Watershed actually consists of two large sub-watersheds: the Hawk Creek lies north of the Minnesota River and the Yellow Medicine lies to

the south. As a result, only the Yellow Medicine sub-watershed covers part eastern Lac qui Parle County. The segments of this watershed that are of concern to Lac qui Parle County are:

- Several small streams in Camp Release Township that drain directly into the Minnesota River; and
- Some drainage systems in eastern Ten Mile Lake Township that are the headwaters of Stoney Run Creek, which also drains directly into the Minnesota River.

### ***Did you know...?***

The Yellow Medicine River Watershed District (YMRWD) is located in southwestern Minnesota, encompassing 685 square miles. No portion of the District, however, falls within Lac qui Parle County. District boundaries are distributed in Lincoln (39%), Lyon (23%), and Yellow Medicine (38%) counties. ***For more information, visit:***

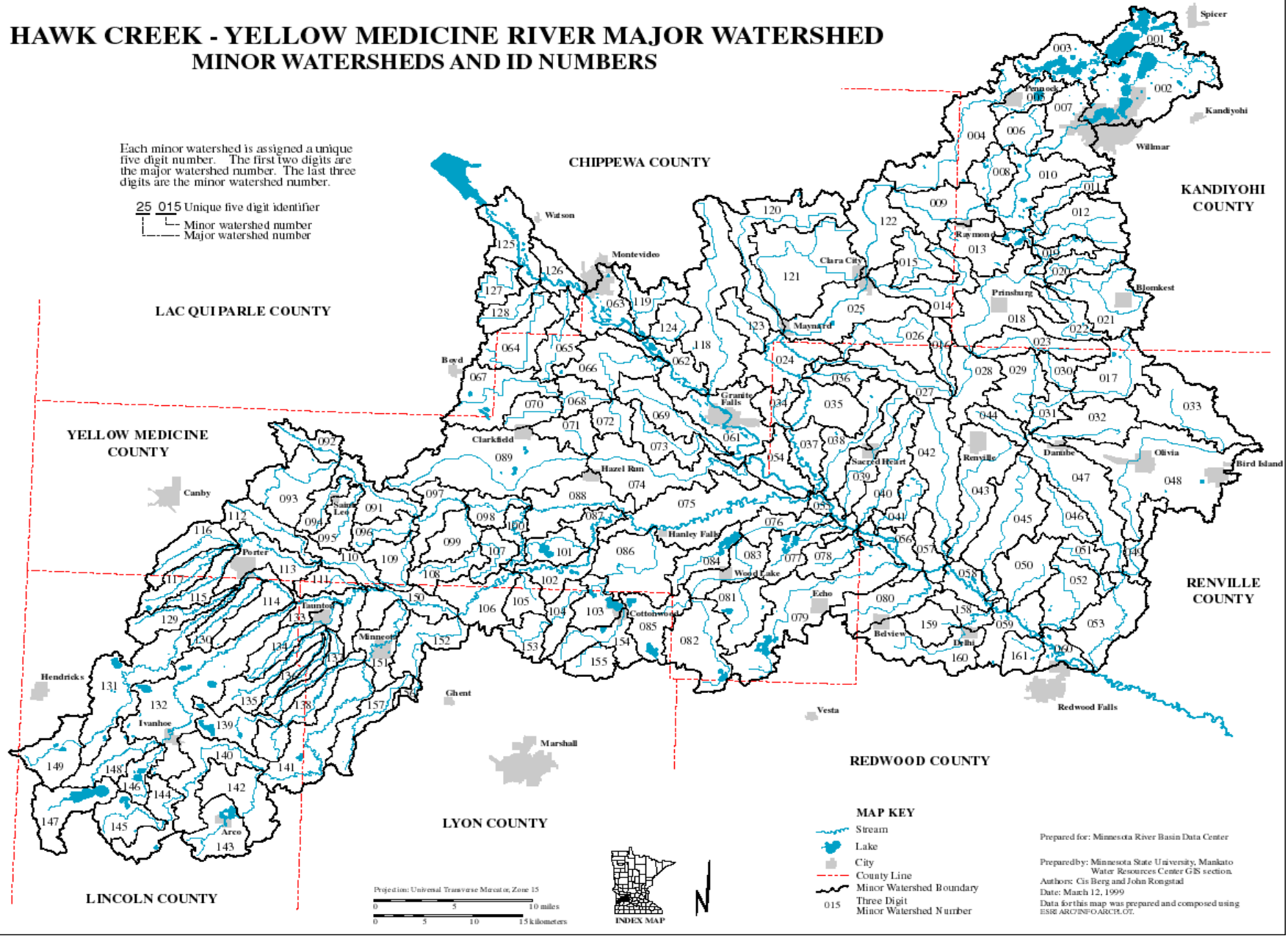
<http://www.ymrwd.org/>

Map 2F:

## HAWK CREEK - YELLOW MEDICINE RIVER MAJOR WATERSHED MINOR WATERSHEDS AND ID NUMBERS

Each minor watershed is assigned a unique five digit number. The first two digits are the major watershed number. The last three digits are the minor watershed number.

25 015 Unique five digit identifier  
 └─ Minor watershed number  
 └─ Major watershed number



Lac qui Parle County Water Plan (2013-2023)

Prepared for: Minnesota River Basin Data Center  
 Prepared by: Minnesota State University, Mankato  
 Water Resources Center GIS section  
 Authors: Cjs Berg and John Romstad  
 Date: March 12, 1999  
 Data for this map was prepared and composed using  
 ESRI ARCTIC/INFO/ARC/INFO.

## B. TMDL - Impaired Waters Assessment

***Why are Impaired Waters a Priority Concern?*** The Federal Clean Water Act requires states to adopt water quality standards to protect the nation's waters. These standards define how much of a pollutant can be in a surface and/or groundwater while still allowing it to meet its designated uses, such as for drinking water, fishing, swimming, irrigation or industrial purposes. When a water body cannot meet its designated uses due to pollution, it is considered an Impaired Water.

The Minnesota Pollution Control Agency (MPCA) produces a list of Minnesota's Impaired Waters every two years, referred to as the 303d List of Impaired Waters. The list identifies impaired water bodies and identifies the types of pollutants that exceed the State's minimum water quality standards, ranging from high mercury levels, to turbidity (suspended solids), to E. coli (bacteria).

***What are the Risks?*** The various pollutants listed on the 303d List of Impaired Waters each pose a unique threat to aquatic life, human life, and/or wildlife. The major risk areas of concern can be summarized into the following categories:

- **Protection of Aquatic Life**
  - Main pollutants include trace metals, un-ionized ammonia, chloride, low dissolved oxygen, pH levels, turbidity, temperature, and various biological indicators.
- **Protection of Aquatic Consumption & Drinking Water**
  - Main pollutants include mercury, polychlorinated biphenyls, nitrates, dioxins and chlorinated pesticides
- **Wildlife-Based Water Quality**
  - Main pollutants include DDT, Mercury and PCBs (human health standards are more stringent than for wildlife)
- **Protection of Aquatic Recreation**
  - Main pollutants include E. coli bacteria and lake eutrophication

***Where are Lac qui Parle County's Impaired Waters Located?*** The MPCA submitted a Priority Concerns Input Form that was profiled in Chapter One. The key component of the Input Form was a listing of the Impaired Waters found in Lac qui Parle County. Table 2B provides a list of the information submitted (a copy of the correspondence and the list of Impaired Waters can be found in Appendix B). Map 2G shows the locations of the impairments in the Lac qui Parle Yellow Bank Watershed that were addressed in the Lac qui Parle Yellow Bank TMDL. The MPCA also maintains an TMDL interactive map online at [www.pca.state.mn.us](http://www.pca.state.mn.us).

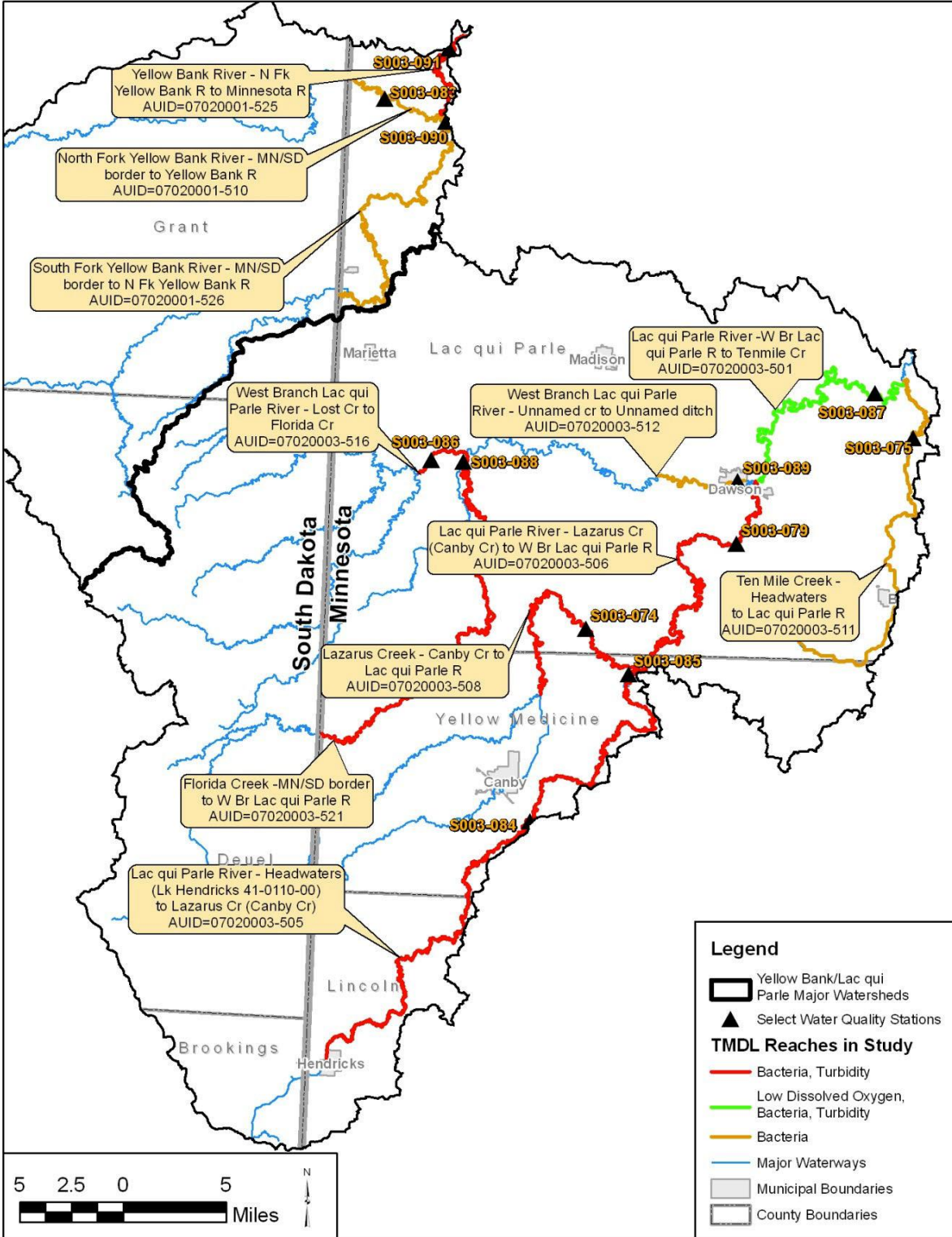
**Table 2B: MPCA’s 303d List of Impaired Waters for Lac qui Parle County (2012)**

<b>Impaired Water</b>	<b>Impaired ID#</b>	<b>HUC #</b>	<b>Impaired Uses*</b>	<b>Impairment Cause</b>	<b>Status</b>
Florida Creek: MN/SD border to West Branch Lac qui Parle River	07020003-521	07020003	- Aq Life - Aq Rec	Fish Bioassess** Fecal Coliform Turbidity	TMDL Required TMDL Approved TMDL Approved
Lac qui Parle River, West Branch : Lost Cr to Florida Creek	07020003-516	07020003	- Aq Cons - Aq Rec - Aq Life	Mercury in Fish Fecal Coliform Turbidity	TMDL Approved TMDL Approved TMDL Approved
Lac qui Parle River, West Branch: Florida Creek to Unnamed Creek	07020003-515	07020003	- Aq Cons	Mercury in Fish	TMDL Approved
Lac qui Parle River, West Branch: MN/SD border to Lost Creek	07020001-519	07020001	- Aq Cons	Mercury in Fish	TMDL Approved
Lac qui Parle River, West Branch: Unnamed creek to unnamed ditch	07020003-512	07020003	- Aq Cons - Aq Rec	Mercury in Fish Fecal Coliform	TMDL Approved TMDL Approved
Lac qui Parle River: Lazarus Creek (Canby Cr.) to W. Branch LqP River	07020003-506	07020003	- Aq Rec - Aq Life	Fecal Coliform Turbidity	TMDL Approved TMDL Approved
Lac qui Parle River: West Branch Lac qui Parle River to Tenmile Creek	07020003-501	07020003	- Aq Life - Aq Rec	Dissolved Ox., Turbidity Fecal Coliform	TMDL Approved TMDL Approved
Lazarus Creek (Canby Creek): Canby Creek to Lac qui Parle River	07020001-508	07020001	- Aq Life - Aq Rec	Turbidity Fecal Coliform	TMDL Approved TMDL Approved
Minnesota River: Lac qui Parle dam to Chippewa River	07020004-688	07020004	- Aq Cons	Mercury in Fish	TMDL Approved
Minnesota River: Lac qui Parle Lake below Emily Creek	07020001-517	07020001	- Aq Life	Ammonia (Un-ionized)	TMDL Required
Minnesota River: Lac qui Parle Lake to Lac qui Parle River	07020001-502	07020001	- Aq Cons	Mercury in Fish	TMDL Approved
Minnesota River: Lac qui Parle R to Lac qui Parle Dam	07020001-550	07020001	- Aq Cons	Mercury in Fish	TMDL Approved
Minnesota River: Marsh Lake to Lac qui Parle Lake	07020001-516	07020001	- Aq Cons	Mercury in Fish	TMDL Approved
Minnesota River: Whetstone R to Yellow Bank River	07020001-503	07020001	- Aq Cons	Mercury in Fish	TMDL Approved
Minnesota River: Yellow Bank River to Marsh Lake	07020001-511	07020001	- Aq Cons	Mercury in Fish	TMDL Approved
North Fork Yellow Bank River from MN/SD Border to Yellow Bank River	07020001-510	07020001	- Aq Rec	Fecal Coliform	TMDL Approved
Tenmile Creek: Headwaters to Lac qui Parle River	07020003-511	07020003	- Aq Life - Aq Rec	Fish Bioassess** Fecal Coliform	TMDL Required TMDL Approved
Unnamed creek: Unnamed Creek to Emily Creek	07020001-548	07020001	- Aq Life	Fish Bioassess**	TMDL Required
Yellow Bank River, South Fork: MN/SD border to N. Fork Yellow Bank R.	07020001-526	07020001	- Aq Rec	Fecal Coliform	TMDL Approved
Yellow Bank River: North Fork Yellow Bank River to MN River	07020001-525	07020001	- Aq Rec - Aq Life	Fecal Coliform Turbidity	TMDL Approved TMDL Approved
Lac qui Parle Lake (NW Bay)	37-0046-02	07020001	- Aq Cons	Mercury in Fish	TMDL Approved
Lac qui Parle Lake (SE Bay)	37-0046-01	07020001	- Aq Cons	Mercury in Fish	TMDL Approved
Marsh Lake	06-0001-00	07020001	- Aq Cons	Mercury in Fish	TMDL Approved

\* Aquatic Recreation (Aq. Rec), Aquatic Life (Aq. Life), and Aquatic Consumption (Aq. Cons) ~ \*\*Fish Bioassessments

## Map 2G: Impaired Waters in the Lac qui Parle Yellow Bank Watersheds

~ Only shows the Impaired Waters that were included in the Lac qui Parle Yellow Bank TMDL ~



***What actions are needed to properly address Impaired Waters?*** By definition, being listed as an impaired water for a pollutant means the water body cannot sustain itself naturally. As a result, collaborative measures need to be taken in order to give the water body a chance to become healthy again. Addressing Impaired Waters in County Water Plans is voluntary, however, Lac qui Parle County has been fully engaged in TMDL assessments and their anticipated implementation activities. Due to the varying types of pollutants, however, nearly all of the Lac qui Parle County's Water Plan stakeholders play some role in properly addressing impaired waters.

Once a water body is identified on the list of Impaired Waters, a TMDL Study is conducted. TMDL stands for Total Maximum Daily Load, which is the maximum amount of any pollutant, contaminant, or impairment that can enter a body of water before the quality of the water is deemed unfit for its designated use. Therefore, a TMDL is a target or threshold which defines the upper limit for each pollutant in each water body.

The Lac qui Parle Yellow Bank Bacteria, Turbidity, and Low Dissolved Oxygen TMDL Assessment Report was completed in May 2013. The Report addresses 19 impairments on eight reaches of the Lac qui Parle River and three reaches of the Yellow Bank River. All these impairments are located within the Lac qui Parle – Yellow Bank Watershed District (LQPYBWD). Eleven of the impairments are for bacteria, seven impairments are for turbidity and one impairment is for low dissolved oxygen.

### **Bacteria Assessment**

Based upon the Assessment Report, the following conclusions can be drawn regarding bacteria:

- The data from the last 9 years shows that there are violations of the *E. coli* standard for one or more months for each of the reaches listed. Nine of the eleven listed reaches show exceedances of the standard in at least three months
- In the listed reaches of both the Lac qui Parle River and Yellow Bank River systems, the exceedances of the standard appear to be more frequent and severe in the upper reaches. The percent reductions needed to reach the standard are consequently much higher for those upper reaches. It is possible that addressing the exceedances in the upper reaches of the system may have a significant beneficial effect on addressing exceedances in the lower reaches of the same system.
- Seasonal geometric means for each of the listed reaches show that a substantial majority of the exceedances of the standard (nine of thirteen) occur during the summer. The upper most reach of the Lac qui Parle River (Headwaters to Lazarus Creek) and the listed reach of Lazarus Creek appear to be especially prone to exceedances.

### **Turbidity Assessment**

Based upon the Assessment Report, the following conclusions can be drawn regarding turbidity:

- The data verify that all reaches meet the threshold for listing as impaired based on the most recent 10 year period of data.
- The impaired reaches of Lazarus Creek and the West Branch Lac qui Parle River are relatively mildly impaired and will require modest reductions (<26%) in turbidity to meet the 25 NTU standard.
- The other five listed reaches will require significant reductions in turbidity of between 50% and 75%.

### **Low Dissolved Oxygen**

Based upon the TMDL Assessment Report, the following preliminary conclusions were drawn from the available data presented for Dissolved Oxygen (DO):

- The degree of impairment within the listed reach appears relatively minor, with no readings below 4 mg/L even though the measurements documenting the violations were for the most part taken before 9:00 a.m. and can therefore be considered daily minimums.
- The two violations of the DO standard in the mid- and high flow regimes occurred near the upper end of the impaired reach and were both very minor in severity.
- The critical condition during which significant violations are most likely to occur is the late summer low flow period.
- DO violations in the West Branch of the Lac qui Parle River (one of the headwaters of the listed reach) are moderately frequent and severe, with three readings below 3 mg/L.
- The majority of the sub-5 mg/L DO readings on the West Branch of the Lac qui Parle River take place during low flow conditions, but four have occurred in the mid-range flow regime and two in the high flow regime as well.
- The low DO waters of the West Branch of the Lac qui Parle River could significantly affect DO downstream in the listed reach, especially at the upper end of the listed reach.

### *Suggested BMP Implementation Steps*

According to the TMDL Assessment report, since the impairments of bacteria, turbidity and low DO have several sources and some common delivery pathways, most of the implementation strategies have multiple water quality benefits in terms of load reductions. As the LQPYBWD coordinates with its stakeholders on executing the TMDL Implementation Plan, the following BMPs will be used to achieve the bacteria, turbidity, low DO TMDL goals. The estimated total cost of implementing these and other potential BMPs ranges from \$8 million to \$10 million.

Dr. David Mulla of the University of Minnesota developed matrices to provide general planning-level guidance on the application of BMPs. The BMPs were developed through a focus group process that included experts from the University of Minnesota, Minnesota Pollution Control Agency, Minnesota Department of Agriculture, and the Minnesota Board of Water and Soil Resources. Four broad categories of management practices discussed include nutrient management, vegetative practices, tillage practices, and structural practices. Selection of appropriate management practices for the pollutant(s) of concern depends on site-specific conditions, stakeholder attitudes and knowledge, and on economic factors. This information is intended to be used as a starting point in the development of a custom set of BMPs to reduce sources of pollution generation and transport through improved management of uplands and riparian land within the TMDL project area. Reducing sediment generation and transport will also lead to decreases in turbidity, bacteria concentrations, and improve DO in downstream reaches.

A brief summary of each of the broad categories of management practices as it applies to the TMDL watershed follows:

**Nutrient Management Practices** - Nutrients have an effect upon algal and periphyton growth and subsequent death, decay, and development of SOD; and well as periphyton–developed diurnal swings in dissolved oxygen. Therefore, fertilization management is an important BMP component of the Dissolved Oxygen Implementation Plan.

**Vegetative Management Practices** - Vegetative practices include those focusing on the establishment and protection of crop and noncrop vegetation to minimize sediment mobilization from agricultural lands and decrease sediment transport to receiving waters. The recommended cropping practices are designed in part to slow the speed of runoff over bare soil to minimize its ability to entrain sediment. Grassed waterways and grass filter strips provide settling of entrained sediment which gets incorporated into both the soil and vegetation. Other practices, such as alternative crop rotations and field windbreaks are designed to minimize exposure of bare soils to



wind and water which can transport soil off-site. Pasture management often emphasizes rotational grazing techniques, where pastures are divided into paddocks, and the livestock moved from one paddock to another before forage is over-grazed. As livestock are moved frequently, forage is able to survive.

Maintaining the vegetation, as opposed to bare soil, allows for greater water infiltration, reducing runoff and associated sediment transport. The Natural Resources Conservation Service offices and the Lac qui Parle Soil and Water Conservation Districts facilitate the Environmental Quality Incentives Program (EQIP), state, and other cost-share programs to put Best Management Practices into place. There are a number of programs available to compensate land owners for moving environmentally sensitive cropland out of production for varying periods of time. These include the Conservation Reserve Program (CRP), Re-Invest in Minnesota (RIM) Reserve Program, and the Conservation Reserve Enhancement Program (CREP) or similar programs. Anticipated benefits in reducing soil erosion and improving water quality are key considerations in deciding what lands can be enrolled in each program. These easements are either Conservation Reserve Enhancement Program (CREP), Reinvest in Minnesota (RIM), Wetland Preservation Areas (WPA) and Wildlife Management Areas (WMA).

#### **List of Primary BMP Vegetative Practices**

- ✓ Grassed waterways
- ✓ Grass filter strip for feedlot runoff
- ✓ Buffers
- ✓ Wetland restoration
- ✓ Alternative crop in rotation
- ✓ Field windbreak
- ✓ Pasture management, intensive rotation grazing (IRG)
- ✓ Conservation Reserve Program (CRP) or Conservation Reserve Enhancement Program
- ✓ (CREP) or similar programs

**Primary Tillage Practices** - Certain kinds of tillage practices can significantly reduce the generation and transport of soil from fields. Conservation tillage techniques emphasize the practice of leaving at least some vegetation cover or crop residue on fields as a means of reducing the exposure of the underlying soil to wind and water which leads to erosion. If it is managed properly, tillage management can reduce soil erosion on active fields by up to two-thirds (Randall et. al. 2008). The Natural Resources Conservation Service office and Lac qui Parle Soil and Water Conservation District facilitate Environmental Quality Incentives Program (EQIP) or other cost-share programs to put Best Management Practices into place.

### **List of Primary BMP Tillage Practices**

- ✓ Chisel Plow
- ✓ One pass tillage
- ✓ No-till
- ✓ Strip-till
- ✓ Ridge till

**Structural Practices** - Structural practices emphasize elements that generally require a higher level of site-specific planning and engineering design. Most structural practices focus on watershed improvements to decrease sediment loading to the receiving water. For example, restoration of wetlands can create a natural method of slowing overland runoff and storing runoff water, which can both reduce channel instability and flooding downstream. In addition, the quiescent conditions of a wetland mean that they can be effective at settling out sediment particles in the runoff that reaches them, although accumulation of too much sediment too rapidly can compromise other important functions of the wetland. Livestock exclusion involves fencing or creating other structural barriers to limit or eliminate access to stream by livestock, and may involve directing livestock to an area that is better designed to provide limited access with minimal impact. Sediment load reduction structures such as basins, diversions and terraces trap sediment from migrating downstream into channels and ditches. The Natural Resources Conservation Service office and the Lac qui Parle Soil and Water Conservation District facilitate Environmental Quality Incentives Program (EQIP) or other cost-share programs to put Best Management Practices into place.

### **List of Primary BMP Structural Practices**

- ✓ Wetland creation
- ✓ Livestock exclusion
- ✓ Liquid manure waste facilities
- ✓ Water and sediment control basins
- ✓ Diversions
- ✓ Terraces

**Feedlot Runoff Reduction** - This strategy is presently under implementation through the MPCA's Open Lot Agreement (OLA) established in October 2000. The OLA has a Full Compliance goal to meet effluent limits in Minn. R. 7053.0305 by October 1, 2010. This program encourages producers to seek information and assistance for practical solutions to treat feedlot runoff that discharges into waters of the state from feedlots that do not require NPDES permits. There are a variety of options for improving open lot runoff problems that reduce diffuse source loading of bacteria and turbidity, including:

- ✓ Move Fences/Change Lot Area
- ✓ Eliminate Open Tile Intakes and/or Feedlot Runoff to the Intake
- ✓ Install Clean Water Diversions and Rain Gutters
- ✓ Install Grass Buffers
- ✓ Maintain Buffer Areas
- ✓ Construct a Solids Settling Area(s)
- ✓ Prevent Manure Accumulations
- ✓ Manage Feed Storage
- ✓ Manage Watering Devices
- ✓ Total Runoff Control and Storage
- ✓ Roofs
- ✓ Runoff Containment with Irrigation onto Cropland/Grassland
- ✓ Vegetated Infiltration Area
- ✓ Tile-Drained Vegetated Infiltration Area with Secondary Vegetated Filter Strip
- ✓ Sunny Day Release on to Vegetated Infiltration Area or Filter Strip

These practices can achieve a 50% to 90% reduction of suspended solids and phosphorus within a stream reach.

**Manure Management Planning** - Continued cooperation between the County and the MPCA through the County Feedlot Program ensures that feedlot owners get assistance to remain compliant with their permits. The Natural Resources Conservation Service office and the Lac qui Parle Soil and Water Conservation District facilitate Environmental Quality Incentives Program (EQIP) or other cost-share programs to put Best Management Practices into place. The development and update of manure management plans continue to reduce bacteria in runoff.

**Stream and Channel Restoration** - Other practices which may be considered for the project area involve making improvements to the structure of the receiving water to improve stability and decrease in-stream sources of sediment. In-stream structures need to be carefully designed to direct flow where appropriate under a wide range of discharge conditions and make sure that solution of one channel stability problem doesn't create another elsewhere. Also important is, where possible, making sure that the main stream channel can overflow into its floodplain at high flows to allow the stream to temporarily store water outside the streambank, reducing flow velocity and excessive scouring of the channel. Intact natural vegetation in the floodplain also acts to slow flow velocities and encourages deposition and permanent capture of sediment.

**Upstream/South Dakota Sources** - South Dakota applies less stringent standards to water classified to support indirect contact recreation. If South Dakota does not meet Minnesota standards for streamflows discharged across the border, exceedances of Minnesota's bacteria standards in Minnesota are likely even if Minnesota sources are complying with the allocations

set out in this TMDL. Individual states have the right and authority to protect its people and resources, USEPA facilitation of an agreement between Minnesota and South Dakota to protect water quality over state boundaries should be pursued.

**Waste Water Treatment Facilities** - Counties, Regional Development Commissions and MPCA staff will work with Waste Water Treatment Facilities to ensure continued compliance.

**Subsurface Sewage Treatment Systems (SSTS)** - Low interest loan dollars are available to aid landowners in upgrading SSTS through the Lac qui Parle Soil and Water Conservation District and Clean Water Partnership, and State Revolving Fund (SRF) through the Minnesota Department of Agriculture and the Minnesota Pollution Control Agency.

## C. Feedlots and Livestock Management Assessment

***Why are Feedlots and Livestock Management a Priority Concern?*** The Minnesota Pollution Control Agency (MPCA) regulates pollution created by animal feedlots. The MPCA's feedlot rules were first adopted in 1971 and were amended in 1974, 1978 and again in 2000. The trend in agriculture has been toward fewer but larger livestock and poultry facilities. There has also been a trend of increasing awareness about the potential environmental effects of feedlots. In accordance with MPCA feedlot regulations, the owner(s) of an animal feedlot or manure storage area with 50 or more animal units, or 10 or more animal units if in shoreland (less than 300 feet from a stream or river, less than 1,000 feet from a lake) need to register with the MPCA.

### ***Definition of an Animal Unit***

A standardized measure to compare differences in the production of animal manure for an animal feedlot or manure storage area. A mature cow of about 1000 pounds (455 kg.) is the standard unit.

Lac qui Parle County is a delegated county for the Feedlot Program which is ruled by the MPCA. Large Concentrated Animal Feeding Operations (CAFOs) are permitted through MPCA. All other feedlots that are required to be permitted hold a County permit. All feedlots in the County are also registered whether they need a permit or not when the amount of animal units dictates. As part of the feedlot program Manure Management Plans are a requirement for obtaining the initial permit for a feedlot with 100 animal units or more. MMP's are also required if the manure is applied to fields by non-certified animal waste technicians. MMP's are required by federal regulations for Concentrated Animal Feeding Operations (CAFOs). MMP's show how manure generated at a feedlot facility is going to be used during upcoming cropping year (s) in a way that maximizes the benefits of manure application to cropland and meets all rules and regulations and protects surface and groundwater quality. These regulations include proper setbacks from all rivers, streams, natural waterways, private and public wells, drainage ditches and drain tile intakes. This also includes the incorporation of liquid manure and regulations concerning application before known large rain events and the strict regulations for winter application when allowed by special permit. Lac qui Parle has approximately 200 registered feedlots (this number varies slightly from year-to-year). There are 53 permitted sites in the county that require a MMP to be implemented in their feedlot plan.

***What Risks do Feedlots and Livestock Management Issues Pose?*** Feedlot and livestock environmental issues are mostly concerned with manure management. Specifically, phosphorus and nitrogen runoff from manure can lead to water quality problems if not handled properly. In addition, livestock grazing can substantially increase erosion and sedimentation rates when best management practices are not followed.

***Where are Lac qui Parle County’s Problem Feedlots Located?*** Like most agricultural counties, Lac qui Parle County’s feedlot located are vastly spread out across the rural landscape. According to the County’s 2011 Feedlot report, Lac qui Parle County has approximately 209 feedlots. The breakdown by category is shown in Table 2C:

**Table 2C:**

**Lac qui Parle County 2011 Feedlots**

Feedlots registered in shoreland with 10 – 299 AU:	21
Feedlots registered outside shoreland with 50 – 299 AU:	135
Non-NPDES sites $\geq$ 300 AU:	31
Feedlots registered with NPDES permits:	22
	<b>Total: 209</b>

Lac qui Parle County completes approximately 15 feedlot inspections per year, as part of the County’s feedlot work plan. In addition, landowners are required to have manure management plans if their feedlot AUs are 300 AU or greater. Although pastures are not considered feedlots (and therefore are not registered), there are more pastures in the northern and western part of the county.

***Level 3 Feedlot Inventory***

The Lac qui Parle SWCD obtained a grant through the Clean water Fund to hire a staff person to complete a level 3 feedlot inventory on all feedlots in the County. The Grant is administered through the Lac qui Parle SWCD, although the staff is housed in the County’s Environmental Office. Results of this inventory will be to use it as a tool for targeting outreach efforts and financial assistance that will improve and protect both impaired and unimpaired surface waters of the County. Conducting this inventory will give an insight into any current or potential problems with regards to protecting the waters both within the County and surrounding areas. The inventory focuses on manure management plans and the operation of open lots as well as pastures. Review of manure management plans will insure that plans are current and that they are being followed. Where open lots are part of the operation a MinnFARM will be done to insure that manure run off is not an issue and best management practices are followed. Once the inventory is completed, the County intends to produce an updated Feedlot Inventory Map. The inventory is scheduled to be completed in 2014.

### ***What actions are needed to address Feedlots and Livestock Management issues?***

The Lac qui Parle SWCD identified feedlot management as a priority issue in the County's Priority Concerns Scoping Document (refer to Appendix B). The SWCD writes, "Feedlots, pastures, and Subsurface Septic Treatment Systems (SSTS) are potential sources of pollution. Assistance is a critical component to address problems associated with livestock and non-conforming septic systems. Incentives and assistance to obtain voluntary compliance is better than enforcement." The following needed actions were identified:

- Accelerate SWCD staff assistance in engaging and assisting livestock producers.
- Promotion and marketing of state and federal conservation program opportunities to land owners/users
- Educate land owner/users and all sectors of the public on livestock and SSTS issues such as health effects and other water quality concerns.

The Lac qui Parle SWCD also identified the following resources that are available to help accomplish the above actions:

- The Natural Resource Conservation Service, the Soil and Water Conservation District, the Southwest Prairie Technical Service Area, the Minnesota Pollution Control Agency, and the Minnesota Department of Health.
- The Federal Farm Bill, State Cost Share, Clean Water Funds, and the Minnesota Department of Agriculture Loan Program.

The Lac qui Parle SWCD also identified the following priority areas for feedlot BMP implementation:

- Riparian areas, for both remediation and protection purposes.
- Lac qui Parle Yellow Bank TMDL identified reaches.

**Minnesota Department of Agriculture (MDA)** - In addition to the MPCA and the County, the Minnesota Department of Agriculture (MDA) is also a key stakeholder in feedlot/livestock management issues. The MDA submitted a Priority Concerns Input Form during the Water Plan's scoping process (contained in Appendix B). The main comments concerning feedlots and livestock issues are as follows:

"Livestock manure used as fertilizer has benefited farmers for decades and if applied properly can meet crop nutrient requirements, build up soil organic material and decrease dependence on commercial fertilizers, increase soil fertility, and in some cases, reduce soil erosion. Manure as fertilizer is a constant reminder that we can reuse and recycle a product

that was once thought of as a waste product with insignificant value. However, if manure is not properly applied it can lead to negative environmental impacts.

Manure, feed/silage leachate and milkhouse waste can be high in nutrient values, specifically pertaining to nitrogen and phosphorous. If improperly applied, manure does have the potential to contribute to nutrient loading and bacteria/viral levels of water sources. It is important for counties in the state to encourage the development of manure/nutrient management plans for the livestock producers within their borders. These plans address agronomic application rates for crops planted, buffered or protection areas around sensitive features, and reduce the potential of impacting surface or ground water.

Pasturing livestock is a common practice among livestock producers. Several studies and research through the University of Minnesota show that livestock grazing, if done properly, can enhance the quality of grazing lands. As your county is aware, pasture areas are often those areas that are not conducive to farming and generally contain sensitive landscape and surface water features. Nutrients left by livestock serve as a fertilizer source to pasture plant species, which then utilize and filter the nutrients rather than the nutrients being in excess and exiting the area in the form of runoff.

Types of vegetation, length of time in a pasture, stocking density and water availability are all issues livestock producers must be continued to be educated, in order to produce and utilize a productive, environmentally sound pasture or grazing system. Pastures or grazing systems not managed properly can restrict or eliminate vegetative growth and cover, which in turn can result in potentially negative water quality issues” ([www.mda.state.mn.us](http://www.mda.state.mn.us)).



## D. Subsurface Sewage Treatment Systems Assessment

***Why are Subsurface Sewage Treatment Systems a Priority Concern?*** Subsurface Sewage Treatment Systems (SSTS), commonly known as septic systems, pose a threat to public health and the environment if not properly installed and maintained. They are regulated by Minnesota Statutes 115.55 and 115.56. These regulations detail:

1. Minimum technical standards for individual and mid-size SSTS (Chapter 7080 and 7081);
2. A framework for local administration of SSTS programs (Chapter 7082) and;
3. Statewide licensing and certification of SSTS professionals, SSTS product review and registration, and establishment of the SSTS Advisory Committee (Chapter 7083).

***What Risks do SSTS's Pose?*** According to the MPCA, “Expose to sewage through ingestion or bodily contact can result in disease, severe illness, and in some instances death from bacteria, viruses and parasites contained in waste. Therefore, it is important for sewage to be properly treated” (***Facts About Subsurface Sewage Treatment Systems, MPCA-June 2008***). In addition, high phosphorus levels normally found in sewage can also lead to excessive aquatic plant growth, causing a number of corresponding water quality problems.

***Where are Lac qui Parle County's SSTS Located?*** Although SSTS's are sometimes located within incorporated areas, SSTS's are commonly located throughout the rural areas of the County. They are the primary means of treating sewage on farmsteads, rural homesteads, and for lakeshore properties. Lac qui Parle County has been permitting the design and installation of SSTS since 1996. Permits issued since that time reflect systems for replacement, upgrades and new locations. Excluding new building sites where a home did not exist before, 22% of households in the county have new compliant systems. Each year number of systems updated or replaced averages 25 systems. It is estimated that 32% of exiting systems either do not meet current standards or are failing.

The City of Louisburg is an unsewered community in north central Lac qui Parle County. They received a Clean Water Fund Competitive Grant for nearly \$300,000 in December 2012, which will result in the development of a community system to treat 22 imminent health threat systems.

***What would happen if SSTS issues are not addressed?*** SSTS concerns need to be properly addressed in the Water Plan to minimize the potential for them to have negative effects on public health and/or the environment. In addition, proper SSTS management will also help to protect overall water quality and will help address some of the problems listed in the County's impaired waters.

Lac qui Parle County enforces MN Rule Chapter 7080-7083 through the Lac qui Parle County SSTS Ordinance. Two of the major components of the ordinance require a septic system disclosure form and a transfer agreement form upon property being transferred between the seller and buyer of property.

## **E. Erosion and Sediment Control Assessment**

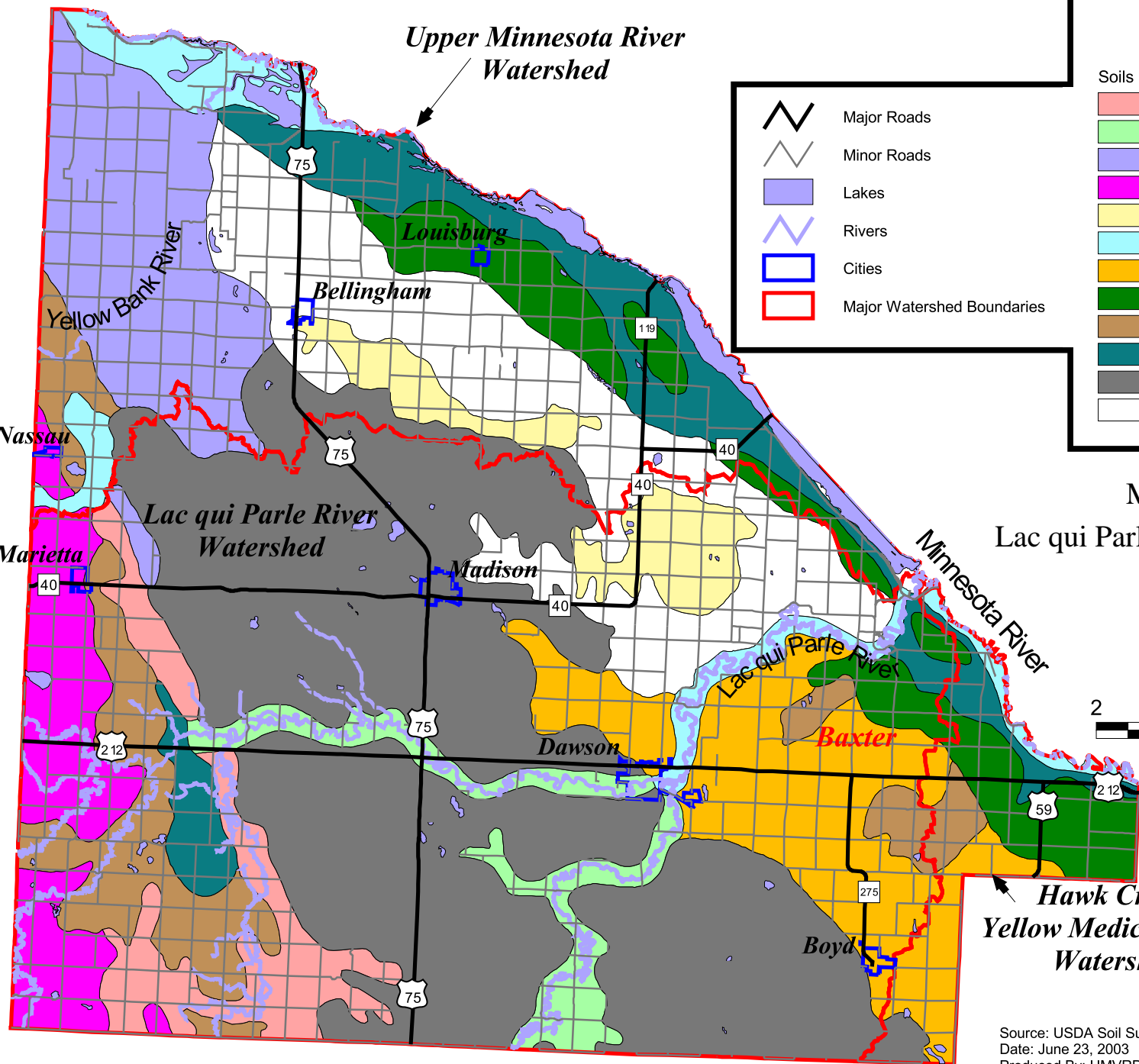
As an agricultural county, soils are one of Lac qui Parle County's most valuable resources. Soils develop from the breakdown of rock minerals, intermixed with plant and animal remains. The formation of a soil is an extremely long process, taking place over thousands of years. Lac qui Parle County's soils were formed from deposits originally left by glaciers more than 10,000 years ago. Map 2H displays the Lac qui Parle County's major soil associations. Chapter Three contains a map of Lac qui Parle County's erosion prone soils. More detailed information about Lac qui Parle County's soils can be found in the County's Soil Survey (<http://websoilsurvey.nrcs.usda.gov/>) or by contacting the Lac qui Parle County Soil and Water Conservation District.

*For administration of the State Cost-Share Program by the Lac qui Parle County Soil and Water Conservation District the following definitions apply:*

**High Priority Erosion Problems** – “High priority erosion problems” means areas where erosion from wind or water is occurring equal to, or in excess of, 2 x T tons per acre per year or is occurring on any area that exhibits active gully erosion or is identified as high priority in the comprehensive local water plan or the conservation district's comprehensive plan.

**High Priority Water Quality Problems** – “High priority water quality problems” means areas where sediment, nutrients, chemicals, or other pollutants discharge to Department of Natural Resources designated protected waters or to any high priority waters as identified in a comprehensive local water plan or the conservation district's comprehensive plan, or discharge to a sinkhole or groundwater. The pollutant delivery rate to the water source is in amounts that will impair the quality or usefulness of the water resource.

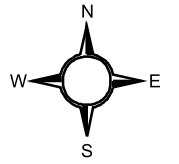
**Water Erosion** - Water erosion results from soil being moved from its original location by the force of water to the convex lower slopes and flats. Average tolerable soil loss for the County is three to five tons per acre per year. Erosion types are classified as sheet and rill, ephemeral and gully. Soil erosion affects cropland, urban areas, roadsides, lakeshores, stream banks and drainage systems. Water erosion impacts the water quality of the County's water bodies, as well as develops detrimental conditions in the uplands and steeper slopes of the soil associations with erosion prone characteristics. Water erosion in Lac qui Parle County generally occurs the most between the months of April and June, when fields have been tilled and planted, but a crop canopy has not



- Major Roads
- Minor Roads
- Lakes
- Rivers
- Cities
- Major Watershed Boundaries

Legend	
Soils	
	Burr-Calco
	Calco-Du Page
	Esmond-Heimdahl-Parnell
	Forman-Mehurin-Parnell
	Fulda-Dovray-Sinai
	Lamoure-Rauville-La Prairie
	Parle-Barnes-Buse
	Rothsay-Perella-Zell
	Sverdrup-Arvilla-Egeland
	Vallers-Svea-Buse
	Ves-Harps-Glencoe
	Waubay-Poinsett-Colvin

Map 2H:  
Lac qui Parle County's Soils



Hawk Creek/  
Yellow Medicine River  
Watershed

2-30

Source: USDA Soil Survey 1987, MNDOT BaseMap '00  
Date: June 23, 2003  
Produced By: UMRDC GIS Service Bureau

developed to protect the surface. The USDA developed the Universal Soil Loss Equation (now replaced by RUSLE) to effectively predict the average rate of soil loss by sheet and rill erosion in tons per acre per year. One of the six factors used in the equation, erosion factor K, indicates the susceptibility of a soil to sheet and rill erosion. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion. Map 2I identifies the water erosion prone Lac qui Parle County soil associations that have K factors equal to or greater than 0.28.

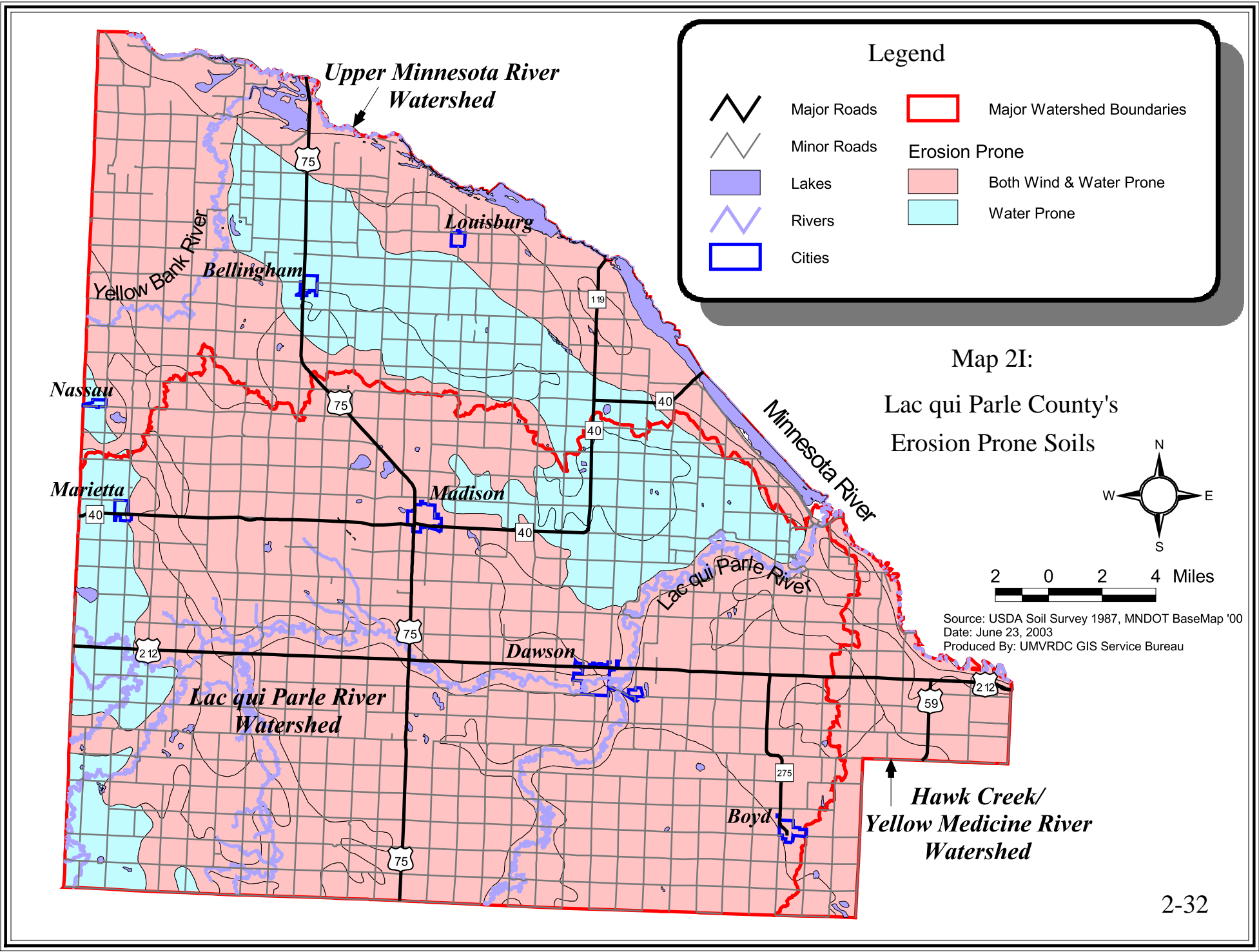
**Wind Erosion** - The potential for wind erosion occurs when wind velocities increase above 12 miles per hour. Wind speeds above this mark overcome the force of gravity and dislodge soil particles. Soil is most vulnerable when unprotected by vegetative cover. Soils with fine granulated structure are most susceptible to erosion, including sandy loam, loamy sand and sand. November through June is the worst time for wind erosion, when field surfaces are normally dry and strong northwest winds are prevalent.

The USDA has classified soils into Wind Erodibility Groups, according to their susceptibility to wind erosion in cultivated areas. Wind Erodibility Groups range from 1-8. The lower the group number, the higher the vulnerability to wind erosion. Groups 4L or less are classified as highly susceptible to wind erosion.

### ***Why is Soil Erosion and Sediment Control a Priority Concern?***

The Priority Concerns Scoping Document (Chapter One) identified that cultivated agricultural land is the single largest land use in the County. The Priority Concerns Input Form submitted by the Minnesota Board of Water and Soil Resources (BWSR) summarizes the significance of having erosion and sediment control as a priority issue addressed in the Lac qui Parle County Water Plan (see Appendix B):

“According to the “2003 – 2012 Lac qui Parle County Comprehensive Local Water Plan”, the single largest land use in the County is cultivated agricultural land--approximately 82%. Farming practices change over the decades. What once was a diversified agricultural landscape is now primarily cash grain operations. Cash grain operations tend to have soils that are more susceptible to water and/or wind erosion, which can and do impact the quality and quantity of surface and ground water resources. The rivers, shallow lake/wetlands and streams of the County (and Minnesota) depend on best management practices to be implemented on these lands so water quality degradation from sediment of eroding lands does not occur. To provide for the long-term productive capacity of the County’s soil resource base (and the quality of surface water), these agricultural soils need to be protected.”

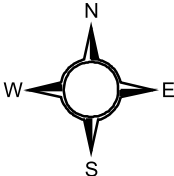


**Legend**

- |  |             |  |                            |
|--|-------------|--|----------------------------|
|  | Major Roads |  | Major Watershed Boundaries |
|  | Minor Roads |  | Erosion Prone              |
|  | Lakes       |  | Both Wind & Water Prone    |
|  | Rivers      |  | Water Prone                |
|  | Cities      |  |                            |

Map 2I:

**Lac qui Parle County's  
Erosion Prone Soils**



Source: USDA Soil Survey 1987, MNDOT BaseMap '00  
 Date: June 23, 2003  
 Produced By: UMRDC GIS Service Bureau

### ***What Actions are Needed to Properly Address Soil and Sediment Control problems?***

The loss of prime farmland through soil erosion impacts the farming community's ability to produce the high quality crops over the long-term. In addition, soil erosion and sedimentation in water is one of the main pollutants identified in Lac qui Parle County's List of Impaired Waters. The Lac qui Parle Yellow Bank TMDL Assessment Report (2013) provides a summary of the Best Management Practices (BMPs) that can be used to properly address soil and sediment control problems on all land within the County. These BMPs were summarized in this Chapter under Section B: TMDL Assessment.

According to the Priority Concerns Input Form submitted by the Lac qui Parle SWCD, the single largest land use in the County is cultivated agricultural land. What once was a diversified agricultural landscape is now primarily cash grain operation, and soils are susceptible to water and/or wind erosion which impacts the quality and quantity of surface and ground water resources. Surface waters depend on best management practices to prevent degradation due to sediment and nutrients from attached commercial fertilizer and/or manure. The SWCD recommends the following actions:

- Promotion and marketing of state and federal conservation program opportunities to land owners/users
- Accelerate SWCD administrative & technical assistance to landowners planning and implementing agricultural best management practices including ecological, structural, and land use change
- Pursue partnerships to pool financial and technical resources
- Educate land owners/users and other segments of the public on value/effectiveness BMPs
- Use LiDAR to identify, prioritize and target implementation activity

What resources may be available to accomplish the actions?

- State Cost Share Program, Re-Invest in Minnesota Reserve (RIM) Program, etc. through LqP SWCD
- Clean Water Fund grant opportunities through LqP SWCD
- MN Dept of Ag Revolving Loan Program through the LqP SWCD
- USDA Farm Bill conservation provisions administered by NRCS (Natural Resources Conservation Service) and FSA (Farm Service Agency)
- SW Prairie Technical Service Area
- Other funding opportunities as they become available

What areas of the county are considered high priority?

- Riparian areas, for both remediation and protection purposes
- Western portion of the county where there is a significant change in elevation

## **Section Two: Surface Water Management ~ Surface Water Quantity**

This section of the Water Plan provides an assessment of Lac qui Parle County's surface water management issues (and/or surface water quantity issues). Included are subsections on Agricultural Drainage, Stormwater Management, Wetlands/Water Retention, and Flooding. It is important to remember that all four of these subsections are interrelated. Consequentially, many points made as part of one resource assessment also pertains to the resource assessments for the other three categories.

### **F. Agricultural Drainage Assessment**

#### ***Why is Agricultural Drainage a Priority Concern?***

Lac qui Parle County has an extensive agricultural drainage system, shown on Map 2J. These ditches were installed to provide drainage for agricultural lands, at a time when Federal and State policies were to increase agricultural production. Having adequate drainage for agricultural production is an essential component of our economy, however most of the drainage systems installed in the past were designed primarily to remove water as rapidly as possible, without regard to effects on surface water quality and quantity.

Best management practices (BMPs), such as filter strips and alternative drainage methods, need to be targeted on drainage systems to prevent exacerbating current water quality and quantity problems. Implementation of such practices would not only improve the quality of the County's surface water, but it would also reduce the need for expensive ditch cleanout and repair.

The Minnesota Department of Natural Resources (DNR) has observed more "flashy" stream flows throughout the State, meaning that both high and low flows are exaggerated. Because many drainage ditch systems were designed to remove large quantities of water in a short duration, flooding problems are occurring more frequently, especially following major storm events and during the spring snowmelt. To minimize flooding impacts, upland storage needs to be increased to reduce the overall volume of water transported by the drainage system.

Due to recent high crop prices, an increasing amount of farmland is being tilled. This presents itself the opportunity to install new conservation drainage systems and to make improvements to the existing system. The newer systems can be designed to reduce nutrient losses and also positively affect the timing of flows into surface waters.

***What are the Risks Associated with Agricultural Drainage?*** Although proper agricultural drainage is a necessary component in a healthy farming community, some negative environmental risks do exist if best management practices are not implemented properly. These sometimes include the following water-related problems:

- Loss of wetlands and water storage
- Increased flooding (due to loss of wetlands and water storage)
- Increased loss of nitrates through tile drains; increased phosphorus levels
- Increased soil erosion and turbidity
- Increased pesticides and farm chemicals in public waters

***What actions are needed to properly address Agricultural Drainage issues in Lac qui Parle County?***

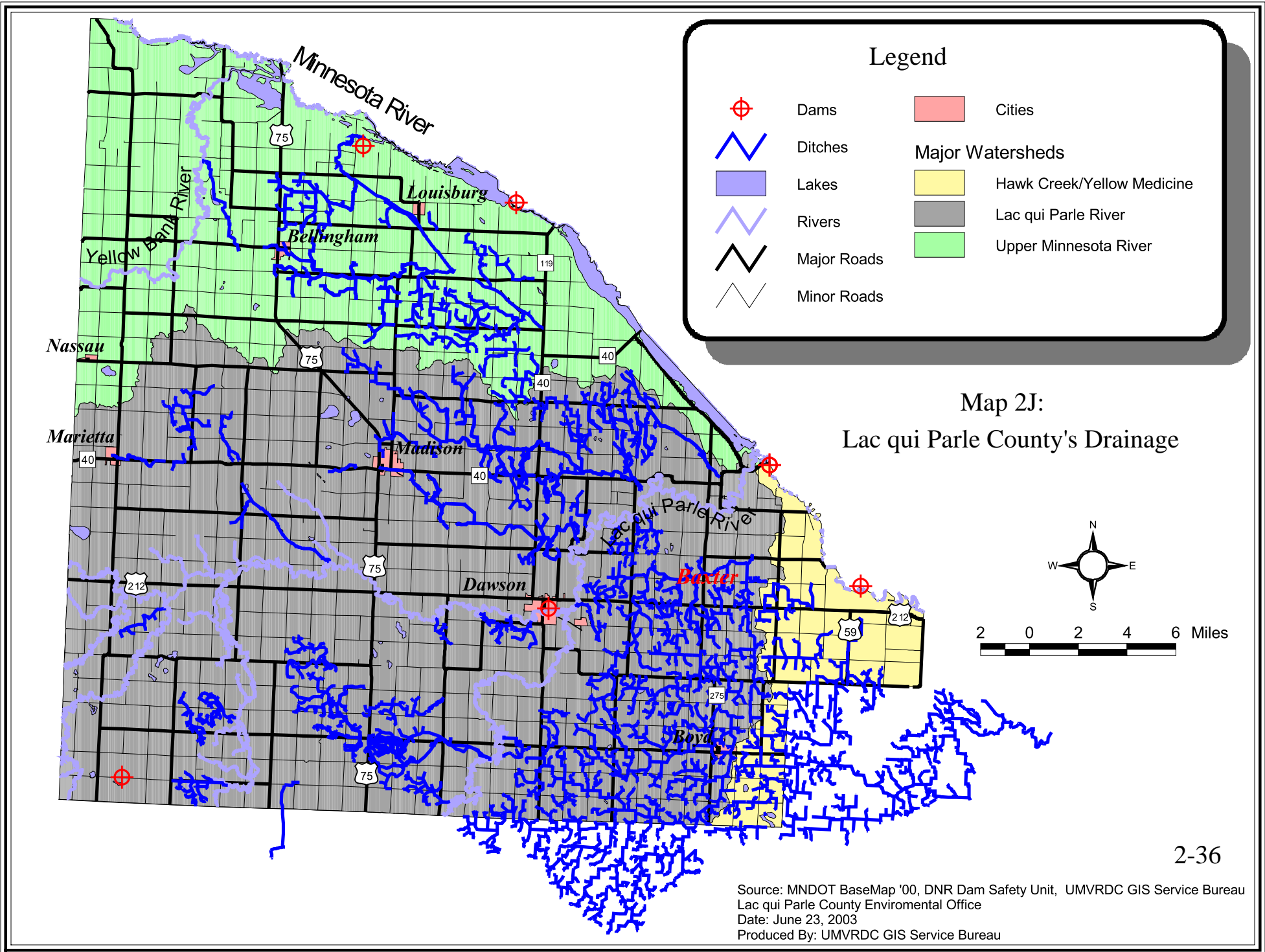
The county has many miles of public ditches, many dating back to the early 1900s, that require repair and maintenance. In many cases the systems were not designed for the current drainage volume. Private drainage of agricultural lands adds hundreds of miles of underground tile that tie to the county's public system. The waters of these public (county) and private drainage systems make their way to streams and lakes, impacting the quality of these water resources.

Drainage systems that require repair can make use of new drainage water management technologies that can aid in flood water control and water quality improvement as well as address the drainage needs for agriculture. Properly maintained drainage systems support the productive capability and erosion protection of soils.











***What actions are needed?***

- Continue and accelerate the promotion and marketing of conservation buffers.
- Market and implement Drainage Water Management/Conservation Drainage BMPs to land users.
- Use LiDAR to target implementation activity such as identifying systems that are overloaded, areas needing filter/buffer strips, potential wetland restorations/water storage areas, etc
- Provide information and assistance to private drainage system operators to include technologies used on public drainage systems.

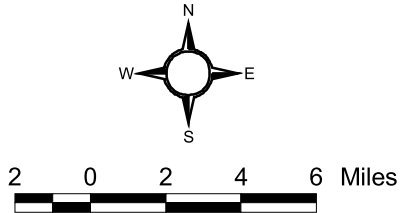




**Legend**

-  Dams
-  Ditches
-  Lakes
-  Rivers
-  Major Roads
-  Minor Roads
-  Cities
- Major Watersheds**
-  Hawk Creek/Yellow Medicine
-  Lac qui Parle River
-  Upper Minnesota River

**Map 2J:  
Lac qui Parle County's Drainage**



Source: MNDOT BaseMap '00, DNR Dam Safety Unit, UMRDC GIS Service Bureau  
 Lac qui Parle County Environmental Office  
 Date: June 23, 2003  
 Produced By: UMRDC GIS Service Bureau

In recent years the amount of pattern tiling has dramatically increased within the County. While pattern tiling has definite water quality and quantity benefits over conventional open tile intakes, the increasing installation has raised numerous questions on what overall impacts it will have on the environment. It is clear that more information is needed on the subject. As a result, the Water Plan Task Force may want to consider creating an Action Step to better understand the effects of pattern tiling on surface water management.

A number of drainage authorities in Minnesota have undertaken a systematic redetermination of benefits and damages for all of the Chapter 103E drainage systems under their jurisdiction, including surface ditches and subsurface tile systems. These drainage authorities include: Freeborn, Martin, Steele, Sibley, Kandiyohi and Faribault Counties. According to a BWSR ([www.bwsr.state.mn.us/drainage](http://www.bwsr.state.mn.us/drainage)), in a publication titled “Redetermination of Benefits and Damages for Drainage Systems:”

- Benefited lands and benefits of many public drainage systems have not been updated for decades, some for over a century.
- Drainage system benefits are determined at one point in time, with no provision in Chapter 103E to index for inflation over time. The cost of a repair cannot exceed the total value of benefits of the drainage system on record.
- The drainage system repair fund limit is 20% of the total assessed benefits of the system, or \$100,000, whichever is greater.
- Chapter 103E projects that require right-of-way (establishment, improvement, or repair by resloping of ditch side slopes) must have viewers appointed to determine associated benefits and damages. Partial system projects can create benefit inequities.
- As new private drainage is outlet into a public drainage system, the total benefits of the system and the relative benefits to land parcels and other infrastructure change. These benefits and associated assessments for repairs can only be updated via a redetermination of benefits and damages.

***What resources may be available to accomplish the actions?***

- State and Federal conservation programs (RIM, CRP, WRP, etc.) via local NRCS and SWCD office
- MN Department of Agriculture / Conservation Drainage.
- SWCD/BWSR/NRCS technical & engineering staff, SW Prairie Technical Service Area

## Minnesota Board of Water and Soil Resources (BWSR)

The Minnesota Board of Water and Soil Resources explains why drainage is an important priority water planning concern:

- Water quality and quantity management are increasingly important as the Impaired Waters List for Minnesota continues to grow. Total Maximum Daily Load (TMDL) studies and plans are developed and implemented, and the Minnesota Clean Water, Land and Legacy Amendment is implemented.
- Because drainage is critical for agriculture, roads and urban areas, drainage management is likewise critical. Drainage management can be a sensitive issue.
- Drainage infrastructure provides substantial opportunity for multipurpose water management practices and projects.

BWSR has increasingly become an important stakeholder in assisting with agricultural drainage issues. One of the categories in the last BWSR Clean Water Fund competitive grant RFP (FY2013) was:

- *Clean Water Conservation Drainage Management Grants ~ the purpose of these grants is to facilitate the installation of conservation practices on drainage systems through planning and project implementation to improve water quality and local hydrologic conditions. However for FY2014 and on - the installation of conservation practices on drainage systems are still eligible, in the future however they simply will be part of a larger category of Clean Water Funds called BWSR Projects and Practices and not a separate grant program.*

Projects developing a multipurpose drainage management plan for a public drainage system must involve participation of the applicable MN Statutes Chapter 103E drainage authority. The proposed projects were to contain the following components:

- Outcomes and evaluation: proposed projects must be conducted on a reach scale, field scale or another suitable scale such that project outcomes can be evaluated; projects must include a project evaluation plan,
- Outreach: project must include an outreach component. Examples include: (1) hosting public meeting(s)/workshop(s) to discuss project objectives, benefits and results; (2) developing project fact sheets that are distributed to landowners/operators; and (3) hosting field day(s) to show and discuss project objectives and outcomes on-site, and

- Practice implementation: proposed conservation drainage management grant projects must have an on-the-ground implementation component.

**Eligible Activities** - Proposed activities were to be conducted on existing drainage systems (e.g. retrofits) or new pattern tile systems. Eligible activities included:

- Multipurpose Drainage Management Planning for public drainage systems:
  - Planning to develop subwatershed (drainage system) scale implementation plans for multipurpose drainage management on Chapter 103E drainage systems to protect and improve water quality, together with adequate agricultural drainage, equitable flood protection, peak flow and erosion reduction, and wildlife habitat improvement. The subwatershed plan(s) should consider practices such as grassed waterways, water and sediment control basins, culvert sizing (surface drainage coefficient of 1 inch per day or less), side inlets, controlled subsurface drainage, nutrient management, denitrifying bioreactors, constructed or restored wetlands, and other applicable hydrology management and water quality practices on a subwatershed basis that reduce peak flows, nutrient transport and erosion potential.
  - Targeting of BMPs to critical areas of the landscape and encouraging use of other federal, state or local BMP implementation funds.
  - Marketing of multipurpose drainage management to landowners within the public drainage system subwatershed(s).
- NRCS Conservation Activity Plan (CAP) 130 Drainage Water Management – including controlled subsurface drainage, denitrifying bioreactor, and nutrient management components.
- NRCS Practice 587 Structure for Water Control – to enable controlled subsurface drainage, including stop log structures and / or Agri Drain Water Gates structures, or equal.
- NRCS Practice 747 Denitrifying Bioreactor – for existing or new tile drainage systems.
- NRCS Practice 590 Nutrient Management
- Open tile inlet replacement – replacement of existing open tile inlets with water quality improvement inlets (e.g. perforated riser or dense pattern tile) in accordance with NRCS Practice 606 Subsurface Drain, as applicable.
- Side inlet controls – for existing drainage ditches and / or streams to reduce erosion, provide temporary detention, and sediment settling (NRCS Practice 410 Grade Stabilization Structure, Side inlet).
- Buffers – limited to locations adjacent to side inlets or tile inlets,

- Other innovative conservation drainage practices....

***Ineligible Activities*** included the following:

- Tile, except for dense pattern tile to replace existing open tile inlets,
- Ditching
- Culverts or bridges through roads, and
- Ambient water quality monitoring

### **Minnesota Department of Agriculture (MDA)**

New drainage and drainage improvements and repairs represent an opportunity to design and install systems in ways that help reduce nutrient losses into surface water and positively affect the timing and flow of drainage water into surface waters. These efforts combined with wetland restoration and water retention initiatives can have positive impacts upon water quality in agricultural landscapes.

The Minnesota Department of Natural Resources writes that cumulative impacts of accelerated runoff due to loss of available water storage on the land surface have fundamentally changed the flow regimes in many watersheds.

- Increased flood potential due to decreased lag time of water entering surface drainage systems has resulted in greater and more frequent high flow events, especially in larger systems.
- Increased erosion in natural drainage systems due to accelerated runoff and more frequent flow events.
- Potential impacts to public infrastructure due to increased flood potential and necessary remediation and repair.
- Negative impacts to watershed ecology through habitat minimization.

The public's expectations concerning drainage water management continues to evolve - Multipurpose drainage management involves much more than just the specific drainage system. Rather conservation practices for on field, on farm and on drainage system must all work together using structural and non-structural means. Many conservation practices support multiple goals.

Guiding principles for multipurpose drainage management include

- Reduce runoff and nitrogen loss by increasing soil profile water storage and cover crops.
- Avoid runoff concentration.
- Protect concentrated flow areas from erosion.
- Reduce peak flows to reduce erosion and flooding, and to improve water quality and habitat. Store water appropriately.
- Manage nutrients and denitrify tile drainage.
- Target investments for both incremental practices and watershed approaches.
- Improve agricultural sustainability.

**Public Drainage Ditch Buffer Study 2006 --- prepared by the Minnesota Board of Water and Soil Resources at the direction of the Minnesota Legislature.**

Key findings regarding buffers along public drainage ditches in Minnesota:

- GIS miles of public drainage ditch = 21,415 miles
- Approximately 60 percent of the estimated total miles of public drainage ditches in Minnesota may currently be buffered by either natural buffers (45 percent), voluntary conservation program (8.3 percent), or Section 103E.021 required grass buffer strips (7.3 percent).
- The combined voluntary and natural buffers protect an estimated 53.8 percent of the public drainage ditches; however there are wide differences by county and region of the state.
- Natural buffers protect greater than 90 percent of ditches in many northern forested counties but are less prevalent in western and southern portions of the state where row crop agriculture is predominant.
- Summary of current public drainage ditch voluntary and natural buffers based on GIS evaluation:
  - Big Stone County – 35.2 percent
  - Chippewa County – 31.4 percent
  - Lac qui Parle County – 42.8 percent
  - Swift County (no data available, professional judgement) – 37 percent

## **G. Stormwater Management Assessment** [partially recreated from [www.pca.state.mn.us](http://www.pca.state.mn.us)]

### ***Why is Stormwater Management a Priority Concern and What are the Risks?***

According to the Minnesota Pollution Control Agency, the surest way to improve water quality in Minnesota is to better manage stormwater. Unmanaged stormwater can have devastating consequences on the quality of lakes, streams and rivers we enjoy. Stormwater often contains oil, chemicals, excess phosphorus, toxic metals, litter, and disease-causing organisms. In addition, stormwater frequently overwhelms streams and rivers, scours streambanks and river bottoms and hurts or eliminates fish and other aquatic organisms.

To better manage stormwater across the state, the MPCA administers the requirements of the federal Clean Water Act in addition to its own State Disposal System requirements. At the MPCA, the Stormwater Program includes three general stormwater permits: the Municipal Separate Storm Sewer Permit, the Construction Stormwater Permit and the Industrial Stormwater Permit. Each program administers a general permit (and in some cases, individual permits) that incorporates federal and state requirements for Minnesota stormwater management.

Stormwater management has evolved substantially over the past 20 years. Historically, the goal was to move water off the landscape quickly and reduce flooding concerns. Now we are focusing on keeping the raindrop where it falls and mimicking natural hydrology in order to minimize the amount of pollution reaching our lakes, rivers and streams, and to recharge our ground waters. In order to successfully do so, standards are needed to create consistency in design and performance. In response to this need, and advanced by a diverse group of partners, the Minnesota Legislature allocated funds to “develop performance standards, design standards or other tools to enable and promote the implementation of low impact development and other stormwater management techniques.” (Minnesota Statutes 2009, section 115.03, subdivision 5c).

Minimal Impact Design Standards (MIDS) represents the next generation of stormwater management and contains three main elements that address current challenges:

- A higher clean water performance goal for new development and redevelopment that will provide enhanced protection for Minnesota’s water resources.
- New modeling methods and credit calculations that will standardize the use of a range of “innovative” structural and nonstructural stormwater techniques.
- A credits system and ordinance package that will allow for increased flexibility and a streamlined approach to regulatory programs for developers and communities.

The development of Minimal Impact Design Standards is based on low impact development (LID) — an approach to storm water management that mimics a site’s natural hydrology as the landscape is developed. Using the low impact development approach, storm water is managed on site and the rate and volume of predevelopment storm water reaching receiving waters is unchanged. The calculation of predevelopment hydrology is based on native soil and vegetation (Minnesota Statutes 2009, section 115.03, subdivision 5c).

***What actions are needed to properly address Stormwater Management issues in Lac qui Parle County and who are the Key Stakeholders?***

The MPCA has put together a number of Best Management Practices (BMPs) guidelines for everyone from homeowners to industrial operations. Promoting them becomes an essential component of what Lac qui Parle County can do to assist with minimizing stormwater pollution. The most effective solution to stormwater pollution is encouraging people to change the way they see and treat stormwater. The County should work with landowners in these areas to install BMPs to reduce runoff rates. The County should also consider developing a stormwater management ordinance, to set standards for the quality and quantity of runoff. Through land use controls, stormwater management plans should become increasingly important as a method to assist with minimizing pollution and managing temporary surface water.

Since the major stormwater management concerns are in the developed areas of the County, the various municipalities are the major stakeholders involved with properly addressing stormwater concerns. The Lac qui Parle County Environmental Office also play a large role in reviewing stormwater management plans for all types of rural development. At the State level, the Minnesota Pollution Control Agency is the largest stakeholder dealing with stormwater issues, largely due to its oversight responsibility with the Clean Water Act. For more information on MPCA’s stormwater rules, initiatives, and programs, please visit the following website:

[www.pca.state.mn.us](http://www.pca.state.mn.us)



## **H. Wetlands and Water Storage/Retention Assessment**

### **Why are wetlands and water storage/retention a priority concern?**

Wetlands in Lac qui Parle County serve many important functions, including: flood attenuation, wildlife habitat, improved water quality, recreational opportunities and aesthetics. Although many of the County's Type 3 or larger wetlands remain, most of the County's Type 1 and 2 wetlands have been drained for agricultural production. Much of the wetland draining in the County occurred in the 1960s and early 1970s, when the Federal government's farm policies compensated agricultural producers up to 90 cents on the dollar to install artificial drainage systems. As result of these Federal government payments and policies, an extensive artificial drainage system was installed in Lac qui Parle County. Recent developments in USDA's "Swampbuster" guidelines have led to a recent rise in agricultural wetland mitigation.

There are numerous water quality and quantity concerns directly related to wetlands and/or water retention issues. Their main water quantity value stems from the increasingly important water management philosophy of allowing water to be absorbed into the ground where it falls. Not only does this avoid overloading ditch systems and streams, thereby reducing erosion and flooding issues, they also provide an extremely value source of groundwater recharge. From a water quality perspective, wetlands provide a natural basin for stormwater management, acting as highly effective filters and providing erosion control. The vegetation found in wetlands help to remove phosphorous. This helps to minimize the unwanted growth of aquatic weeds and algae, which end up using the oxygen that plants and animals need to survive.

Retaining water in the upland will reduce the quantity and improve the quality of the water entering Lac qui Parle County waterbodies. Water storage and retention practices will also help to reduce the quantity of water during peak flows, which can prevent damage to a waterbodies banks. In addition, residents and landowners located in floodplain zones would benefit from reduced peak flood elevations which can help to prevent damage to their property from overland flooding.

### **Wetlands Conservation Act**

In 1991, the Minnesota Legislature passed Chapter 354, the Wetlands Conservation Act (WCA), which created a statewide "no-net loss" policy for wetlands (refer to Minnesota Rules 8420). The law requires anyone proposing to drain or fill a wetland to first try to avoid disturbing the wetland; second, try to minimize any impact on the wetland; and, finally, replace any lost wetland acres, functions and values. Certain wetland activities are exempt from the act, allowing projects with minimal impact or projects located on land where certain pre-established land uses are present to

proceed without regulation. A WCA exemption means the wetland area is exempt from the replacement provisions of WCA. It does not make it "free from regulation".

The WCA recognizes a number of wetland benefits deemed important, including:

- Water quality, including filtering pollutants out of surface water and groundwater, using nutrients that would otherwise pollute public waters, trapping sediments, protecting shoreline, and recharging groundwater supplies;
- Floodwater and stormwater retention, including reducing the potential for flooding in the watershed;
- Public recreation and education, including hunting and fishing areas, wildlife viewing areas, and nature areas;
- Commercial benefits, including wild rice and cranberry growing areas and aquaculture areas;
- Fish and wildlife benefits; and
- Low-flow augmentation during times of drought.

The Lac qui Parle Yellow Bank Watershed District administers WCA locally. The Minnesota Board of Water and Soil Resources (BWSR) directs local governmental units statewide, provides technical assistance for WCA and oversight of the banking program.

***What actions are needed to properly address Wetlands/Water Retention issues in Lac qui Parle County?***

Most pre-settlement wetlands were drained beginning in the early 1900s (the start of public ditching) for the purpose of land improvement. We now know that wetlands and flood plains: help to control flooding; purify waters by recycling nutrients, filter pollutants, and reduce siltation; control erosion; sustain biodiversity and provide habitat for plants and animals; recharge groundwater, augmenting water flow; and store carbon.

Restoring lost wetlands balances ongoing land use demands from agricultural and development pressures. Retaining water on the landscape by wetland protection and restoration, other water storage opportunities, and restoring existing flood plain connectivity helps address priority concerns of erosion control and storm water quantity and quality.

***What actions are needed?***

- Continue and accelerate the promotion and marketing of wetland protection/restoration programs (RIM, CRP, WRP, etc.) via local NRCS and SWCD office
- Continue administering the MN Wetland Conservation Act.
- Continue educational efforts on the function and value of wetlands

***What resources may be available to accomplish the actions?***

- Long-term set-aside programs such as RIM, CCRP, WRP, Ag Wetland Banking, etc., via local NRCS and SWCD office.
- Clean Water Fund grant opportunities.

***What areas of the county are high priority?***

- Focus stream bank restorations in headwater areas.
- Watersheds impaired for turbidity

The Minnesota Department of Agriculture (MDA) also summarizes the issues in (please refer to the MDA's Priority Concerns Input Form letter submitted for Lac qui Parle County in Appendix B and corresponding MDA website): Properly locating wetlands and water storage or retention projects can be a strategic component of overall efforts to manage nutrients, sediments and water quantity issues.

A Technical and Scientific Advisory Committee for the Red River Water Management Board has developed a number of scientific papers on a variety of issues related to flood damage reduction. Specifically, counties should consider:

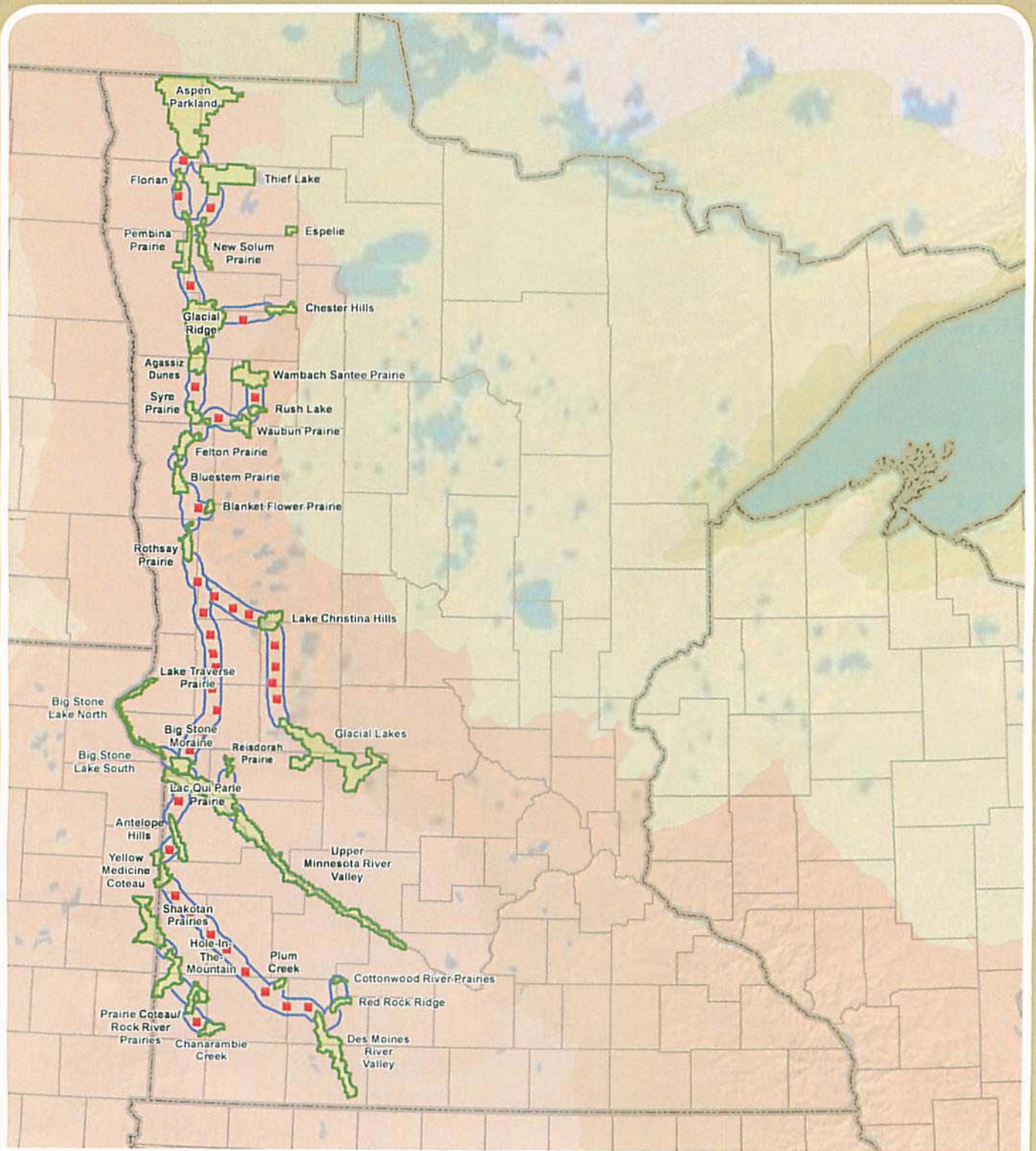
- Conducting/updating culvert inventories in conjunction with identifying where water retention projects can be constructed utilizing LIDAR and GIS technologies.
- Identifying projects where tile water from public drainage systems can potentially be used to augment long-term water levels in wetland restorations for water retention purposes.
- Working with local farmers on agricultural wetland mitigation banking initiatives and include agricultural sectors on overall wetland planning efforts.

- Identify areas where constructed wetlands can be located for treating tile drainage water” (<http://www.mda.state.mn.us/protecting/waterprotection/waterplanning/agdrainage.aspx>).

Today, due in part to regulations such as the WCA, the loss of wetlands has been greatly reduced. The State’s Protected Waters Inventory, the Federal Swampbuster Act, and Section 404 of the Clean Water Act also largely contribute to protecting wetland resources. In addition, conservation programs, such as the Wetland Reserve Program (WRP) and Reinvest in Minnesota Program (RIM), provide landowners an opportunity to restore previously drained wetlands along with preserving existing wetlands. These programs, and others like them, should continue to be promoted to landowners within Lac qui Parle County. Wetland restorations should also be targeted in conjunction with drainage ditch system improvements to assist with flood mitigation, water retention, and stormwater management.

In addition, the Minnesota Prairie Conservation Plan (2011) calls for three approaches to conservation in the Prairie Region of the State, which includes Lac qui Parle County. First, core areas with a high concentration of native prairie, other grasslands, wetlands, and shallow lakes were identified (refer to Map 2K). Within these core areas, partners will work to ensure a minimum of 40% grassland and 20% wetland with the remainder in cropland or other uses. Second, habitat corridors connecting core areas were designed that include grassland/wetland complexes nine square miles in size at about six mile intervals along and within the corridors. Within the corridor complexes a goal of 40% grassland and 20% wetland was set and for the remainder of the corridors, 10% of each legal land section is to be maintained in permanent perennial cover. Third, in the remainder of the Prairie Region a goal to maintain 10% of each Land Type Association in perennial native vegetation was established. The existing wildlife management area plan, pheasant plan, duck plan and other resource plans provided guidance in setting goals for protection, restoration and enhancement in each conservation approach. These earlier plans set a habitat goal for the Prairie Region of protecting all 204,000 acres of native prairie while protecting and restoring a total of 2.0 million acres of grassland and savanna along with a 1.3 million acres of wetlands and shallow lakes.

# Map 2K: Prairie Core Areas



- Prairie Core Areas
- State
- County
- Potential Corridor Complexes
- Prairie Corridors



## I. Flooding

**Why is Flooding a Priority Concern?** A flood is defined as an overflowing of water onto an area of land that is normally dry. For floodplain management purposes, the Federal Emergency Management Agency uses the following definition of “100-year flood.” The term “100-year flood” is misleading - it is not a flood that will occur once every 100 years; rather, it is the flood elevation that has a one percent chance of being equaled or exceeded each year. Thus, a 100-year flood could occur more than once in a relatively short period of time. One-hundred year floodplains have been identified, mapped and used for further analysis using the county’s Geographic Information System (GIS) and the map data provided by FEMA is dated March 16, 2006.

Floods generally occur from natural causes, usually weather-related, such as a sudden snowmelt, often in conjunction with a wet or rainy spring or with sudden and very heavy rainfalls. Lac qui Parle County has recently experienced some major flooding.

### **History of Flooding in Lac qui Parle County**

During recent major flood events, floodwaters presented problems in South Dakota that necessitated cleaning out culverts and ditches with backhoes. The excess water ran into Lac qui Parle County at a very fast rate, causing flooding issues throughout the County. In the spring of 2009, a great amount of water overflowed roads, causing a major washout and road closures throughout the County.

***Dawson Flood History*** - The City of Dawson is located in west-central Minnesota, in Lac qui Parle County, approximately 150 miles west of Minneapolis, Minnesota. Dawson is in the Lac qui Parle Watershed, a tributary of the Minnesota River and is located on the west branch of the Lac qui Parle River, approximately one mile upstream of its confluence with the main stem. The total drainage area of the West Branch of the Lac qui Parle River is 485 square miles, including the drainage area of Judicial Ditch 4, which flows through Dawson. Most of Dawson lies to the north of the west branch of the Lac qui Parle River, with several populated areas lying south of the river. Low-lying areas are subject to flooding from the west branch of the Lac qui Parle River and from Judicial Ditch 4. A large segment of Dawson is now protected against flooding on the west branch of the Lac qui Parle River by a levee constructed across the southeastern portion of the community. This levee prevents flows from the west branch of the Lac qui Parle River from backing up into Judicial Ditch 4. Interior runoff is diverted to a point in the west branch of the Lac qui Parle River downstream of Dawson.

On August 5, 1997, the city of Dawson requested that the US Army Corps of Engineers conduct studies to determine the feasibility of developing a small flood control project at Dawson. An initial assessment, completed in November 1998, indicated that further studies were warranted.

The Feasibility Study began on May 18, 1999, with the signing of the Feasibility Cost Share Agreement between the city of Dawson and the US Army Corps of Engineers. The Feasibility Report was then later approved in August 2002. Plans and specifications for the levee project began in October 2002 and completed in September 2003. A construction contract was awarded in late 2003. Feasibility study costs were shared 50 percent federal and 50 percent non-federal. Project design and construction costs were 65 percent federal and 35 percent non-federal. Operation and maintenance costs were 100 percent non-federal. The following summarizes the estimated cost to design and construct the flood control features at Dawson.

<b>Estimated federal cost</b>	<b>\$868,000</b>
<b>Estimated non-federal cost</b>	<b>\$467,000</b>
<b>Total estimated cost</b>	<b>\$1,335,000</b>
<b>Annual O&amp;M costs</b>	<b>\$17,000</b>

The State of Minnesota, through the Department of Natural Resources, indicated support of the project, and proposed to provide funding aid to the city of Dawson. Dawson completed the final levee project in November 2009. The levee is built at a 200-year flood level and is approximately fifteen feet high and a quarter mile in length. The final total project cost (including a pump station) amounted to \$3.9 million dollars. Funding from this project was provided by the State of Minnesota,

### **Issues that arose from the Historic 1997 and 2001 Flood Events**

#### ***Entire County:***

- Roads damaged from hauling of sand, etc.
- Flooded county and township roads, bridges and culverts.
- Flooded county ditches – especially Ten Mile Creek/ Judicial Ditch 8 overflow.
- High ground water all over.
- Overland flooding – ditches carrying too much water, the USGS quad maps don't address this issue.
- Flooding all over county – streams, creeks and wetlands as well as the major rivers and lakes.
- Many roads closed.
- Lives at risk, especially in 1997.
- In 1997 only, septic tanks backed up into homes (many rural septic systems have been updated since).

- Rural flooding is also an issue of some concern. Rural flooding can impact structures as well as agricultural lands. Flooding of township road cause enormous amounts of damage, but generally goes unnoticed by the public.

***Townships:***

- Baxter – bridges in all townships.
- Nassau basements in 1997 and 2001.

***All Townships Bordering South Dakota:***

- Flood the western part of Lac qui Parle County.
- South Dakota opens all culverts every year.
- Lac qui Parle County receives a great amount of South Dakota’s water.
- South Dakota cleans out ditches with backhoes.

***Marietta:***

- Few homes affected (1997 worse).

***Boyd:***

- One house by creek in 1997.

***Dawson:***

- More than 60 homes in the northern area affected.
- Storm sewer backs up into basements.
- Flood levy.
- In the 1997 and 2001 flood events, Dawson experienced floods, residential property damage and the forced evacuation of people from their homes.

**Routine Spring Flooding**

Spring flooding is a constant concern throughout Lac qui Parle County, caused by above normal (or rapid) snow melt and has taken place since early 2000. Especially notable in the springs of 2009 and 2010, numerous issues are seen on a county-wide level. The most common damage incurred by



spring flooding is road damage including washouts and blocked and closed roads, which in turn causes accessibility issues for rural residents. The areas most frequently inundated include south and southwestern Lac qui Parle County, notably Providence, Hamlin, and Lakeshore Townships. The severity of the flooding is due to heavy rainfall and snow density. In the past, the Lac qui Parle Yellow Bank Watershed District has put in great effort to find ways to eradicate flood concerns.

**Source: *Lac qui Parle County All-Hazard Mitigation Plan***

## Section Three: Groundwater Quality & Quantity

### *Why is Groundwater a Priority Concern?*

Groundwater quality issues are at the forefront of environmental protection efforts, primarily due to groundwater being the main source of people's drinking water. The numerous multiple uses of groundwater, however, also contributes to groundwater quantity becoming an increasingly important resource concern. The farming community, for example, is dependent upon having adequate access to groundwater in order to produce high yield crops. Business and industries are also dependent upon having adequate groundwater supplies. Poor groundwater quality and quantity supplies directly affect people's health and ability to generate income.

There is a surprising amount of information available on both groundwater quality and quantity for Lac qui Parle County. There are numerous state agencies who are involved with groundwater issues, including the Minnesota Department of Natural Resources, the Minnesota Pollution Control Agency, the Minnesota Department of Health, and the Minnesota Department of Agriculture. Their major roles regarding groundwater are explained and their groundwater data is summarized. The following groundwater information is separated into assessments for groundwater quality and groundwater quantity. Much of the information presented, however, applies to both assessments.

#### *Did you know...?*

- More than 70% of Minnesotans rely on groundwater for drinking water.
- As of 1990, an estimated 483,000 Minnesota residences used private wells to obtain water for their homes.
- As of 1990, there were 2,388 active community public water supply wells in Minnesota.
- In 1995, an estimated 700 million gallons of groundwater per day were withdrawn from Minnesota's aquifers (550 million gallons per day were permitted).
- As of 1989, contaminated groundwater cost 17 Minnesota cities and 18 Minnesota companies a total of \$67,072,000.
- As of 1994, there were an estimated 700,000 to 1.2 million unsealed, abandoned wells in Minnesota that could potentially serve as contamination pathways to harm Minnesota groundwater.
- As of May 1998, 100,000 unused wells have been sealed to protect Minnesota groundwater.

**Source:**

<http://www.pca.state.mn.us/index.php/water/water-types-and-programs/groundwater/groundwater-basics/about-groundwater.html>

## **J. Groundwater Quality Assessment**

### **Minnesota Pollution Control Agency**

In 1989, the Minnesota Pollution Control Agency (MPCA) received a grant from the Legislative Commission on Minnesota Resources (LCMR) to redesign Minnesota's ambient groundwater monitoring program. The resulting program was called the Groundwater Monitoring and

Assessment Program (GWMAP). GWMAP's primary objective was to meet statewide and local groundwater quality information needs. For over a decade the program endeavored to answer five basic questions about Minnesota groundwater quality:

1. What are background concentrations of chemicals in Minnesota's groundwater?
2. Where is the groundwater impacted by human activities?
3. What is the nature and severity of the impact?
4. Why is the groundwater impacted?
5. What can be done to minimize groundwater impacts?

Three components were created to facilitate answering these questions. The first component was a statewide baseline assessment of water quality in Minnesota's principal aquifers, conducted from 1990-1996. The second component involved conducting groundwater trend studies. The staff of GWMAP conducted a series of discussions and determined that changes in land use could be linked to trends in water quality. Consequently, GWMAP designed and conducted a variety of land use studies between 1996 and 2001. Groundwater studies were conducted throughout the State to evaluate impacts from different land use management strategies. The third and final component of GWMAP was the development of regional cooperatives. Between 1992 and 2001, GWMAP staff provided groundwater data and information to a variety of people and groups, as well as technical support to local groups conducting groundwater monitoring. The GWMAP program was discontinued in the summer of 2001. Although the program was discontinued, the results are still available by visiting the following website:

<http://www.pca.state.mn.us/index.php/water/water-types-and-programs/groundwater/groundwater-monitoring-and-assessment/index.html>

### ***Lac qui Parle County's GWMAP Results***

In 1993 and 1994, the MPCA's Ground Water Monitoring and Assessment Program (GWMAP) sampled 132 primarily domestic wells in MPCA Region 4, which includes Lac qui Parle County. ***In summary, concentrations of most chemicals were greater in the surficial aquifers of Region 4 than in similar aquifers statewide.*** Nitrate was the primary chemical of concern in these aquifers. The major factors which increase the likelihood of having high nitrate concentrations are: agriculture, poor well construction (particularly large diameter wells), fractured bedrock near the land surface, groundwater recharge, and screening wells located near the top of aquifers.

For more information on GWMAP results for Lac qui Parle County, visit the following link which takes you to the Baseline Results of Water Quality of Minnesota's Principal Aquifers for Region 4:

<http://www.pca.state.mn.us/index.php/view-document.html?gid=6294>

## **Minnesota Department of Agriculture**

In 1989 the Minnesota Comprehensive Ground Water Protection Act (Minnesota Statutes 103H) expanded ground water protection responsibilities of the MDA, including specific direction regarding detection and trend monitoring following detection of agricultural chemicals. The Ground Water Protection Act mandated development of Best Management Practices (BMPs) for chemicals commonly found in ground water. Monitoring of the State's groundwater was to serve as the primary support to management decisions within that Plan. As a result, the MDA currently provides technical information and financial assistance to implement specific water-quality BMPs.

***MDA Nitrate Water Testing Program*** - In 1993, the Minnesota Department of Agriculture developed a “walk-in” style of water testing clinics with the goal of increasing public awareness of nitrates in rural drinking and livestock water supplies. Results from the testing not only educate the participants, but also provide information on the occurrence of nitrate ‘hot spots’ across the State. This information is essential to help justify the significance of nitrate monitoring networks and programs. The clinic concept revolves around a number of simple principles: local participation is critical; testing is free to the public with immediate results; the overall program needs to be inexpensive; a non-regulatory atmosphere is important and well owners may remain anonymous; and the staff's most important goal is to provide the required technical assistance across a diverse audience of well owners. Since the beginning of the program, the Nitrate Water Testing Program has provided testing services and educational outreach to over 50,000 well owners. The concept has proven adaptable for county fairs, field day events, public school programs and ‘stand alone’ events. Past sponsors have been the Soil and Water Conservation Districts, U of M Extension Service, county health or environmental health services, county water planning, public schools, lake associations and farm organizations.

### ***Lac qui Parle County's 2011 Results (2012 summary results not yet available)***

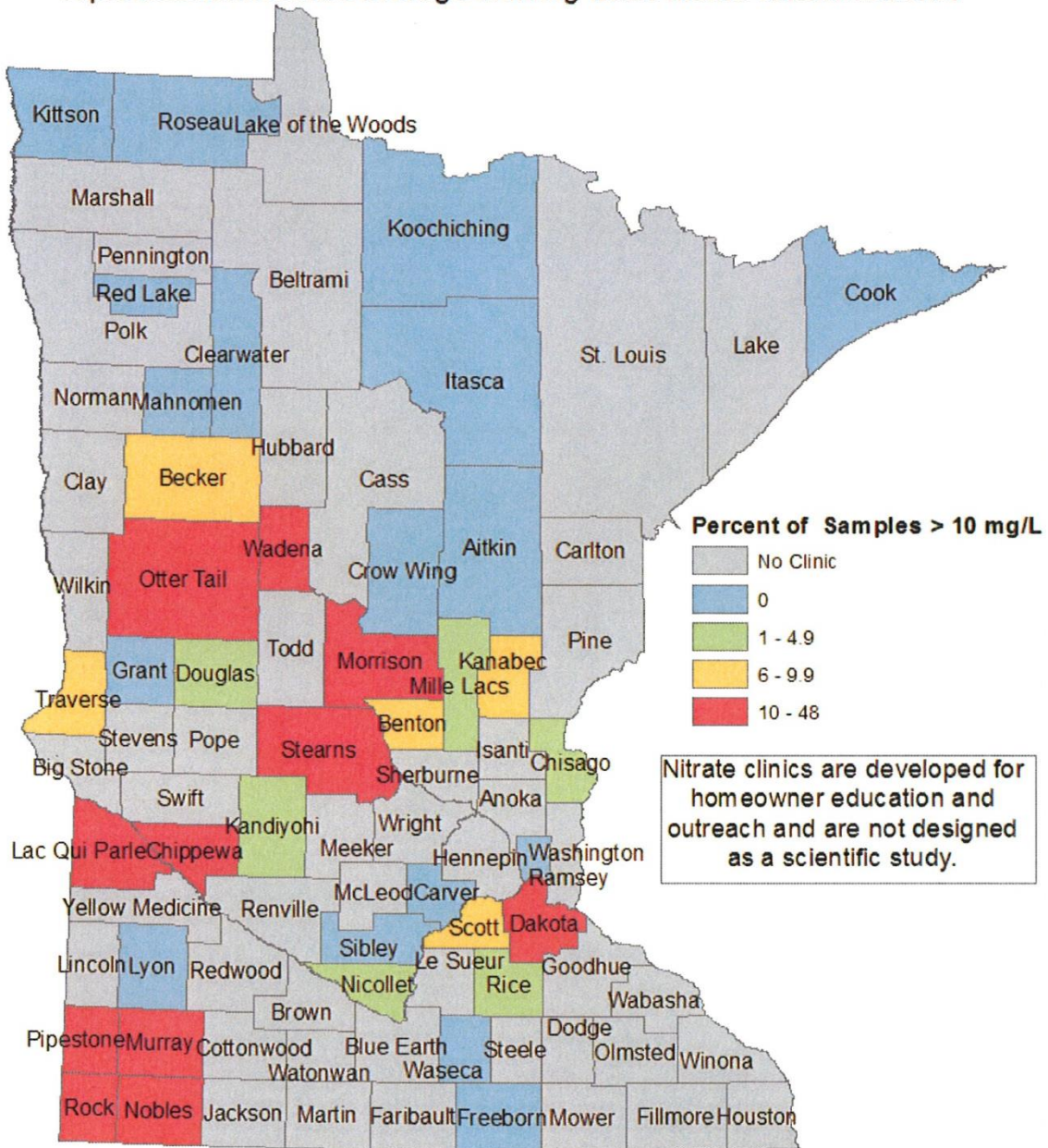
In 2011, over 2000 samples were analyzed from 41 counties throughout Minnesota, including 53 sites in Lac qui Parle County (see Map 2L). The testing clinics in Lac qui Parle County were sponsored by the County's Water Plan and the Lac qui Parle County SWCD. Approximately 11.3 of the sites in the County had nitrate concentrations over 10mg/L (10 milligrams per Liter). Anything over 10mg/L is considered toxic for infants and young children. Table 2D shows the results of the 2011 Nitrate Testing Clinics for Lac qui Parle County and some of the nearby counties (note: not all counties had testing clinics). Notice that statewide only 6.6% of tested wells had concentrations of nitrates over 10mg/L. Lac qui Parle County had nearly twice the statewide average at 11.3%. For more information on MDA's Nitrate Testing Clinics, visit the following MDA website link:

<http://www.mda.state.mn.us/protecting/waterprotection/nitrate.aspx>

**Map 2L:  
Statewide Map of Nitrate Clinics**

**2011 NITRATE CLINIC SUMMARY  
PERCENTAGE OF NITRATE-N SAMPLES > 10 MG/L**

Be aware that nitrate clinic data have a high bias and do not represent Minnesota's average drinking water nitrate concentrations.



Prepared by the Minnesota Department of Agriculture 2012



**Source: MDA's Nitrate Testing Clinic Program: 2011 Results Summary**

**Table 2D:  
2011 MDA Nitrate Clinics Testing Results**

<b>County</b>	<b>Number of Samples</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Median</b>	<b>Percentage of Nitrate Samples Over 10 mg/L</b>
Chippewa	10	0	11.7	1.1	10.0
Grant	41	0	6.7	0.1	0.0
Kandiyohi	42	0	18.0	0.0	4.8
Lac qui Parle	53	0	13.7	0.0	11.3
Lyon	7	0	1.7	0.0	0.0
<b>Overall</b>	<b>2093</b>	<b>0.00</b>	<b>72</b>	<b>0.7</b>	<b>6.6</b>

***MDA Pesticide Monitoring/Management Regions***

In 2004 to facilitate water quality monitoring, pesticide management and BMP promotion, MDA, with assistance of the University of Minnesota, divided the state into 10 pesticide monitoring/management regions (PMRs). Lac qui Parle County is in PMR 6, along with Stevens, Big Stone, Swift, Chippewa, and Yellow Medicine counties.

The most sensitive ground water conditions in PMR 6 are alluvial river valley deposits of sand and gravel. A large outwash plain in the vicinity of Appleton is also of concern. The river valley deposits tend to be narrow and relatively thin with sandy surface soils and are highly valued where they exist. These areas display rapid infiltration of water from the soil surface to underlying ground water and contain little capacity to limit the downward movement of dissolved or suspended chemicals. Agricultural chemicals have been detected in these areas in reconnaissance sampling previously completed. PMR 6 currently contains 9 monitoring wells. Irrigated fields of corn and soybeans are prevalent in the areas of interest in PMR 6. Soils in the area typically have higher pH and low organic matter. Animal agriculture is increasing in the area although it is somewhat limited by the availability of adequate supplies of water. For more information on MDA’s pesticide monitoring, visit the following MDA website:

<http://www.mda.state.mn.us/chemicals/pesticides/maace.aspx>

## ***MDA's Source Water Protection Web Mapping Application***

The MDA has an online source water protection mapping application that was developed in cooperation between the Minnesota Department of Health (MDH) and intended for use as a visual aid to better understand where source water protection areas are located throughout Minnesota. The web map provides basic information to the general public of where their drinking water supply comes from, and probability to which it may be impacted by potential contamination sources. The web application identifies completed Wellhead Protection Areas (WHPA), Drinking Water Supply Management Areas (DWSMA), and Drinking Water Supply Management Area (DWSMA) vulnerability. Each of these categories is briefly described below. The interactive website can be viewed at the following address:

<http://gis.mda.state.mn.us/source/>

### **Wellhead Protection Areas**

The fundamental goal of wellhead protection (WHP) is to prevent contaminants from entering public wells. To accomplish this goal, public well owners must first determine where the water supplying their well(s) is coming from this area is called the Wellhead Protection Area (WHPA). It can also be thought of as the recharge area to the public well and is ultimately the area to be managed by the WHP Plan. The process used to determine the WHPA boundaries is called delineation. An accurate WHPA delineation is critical to the overall success of WHP plans.

The WHP rule provides the framework and a minimum set of criteria to be considered for delineating WHPAs. These criteria are the technical factors which affect the size, shape, orientation, and location of the WHPA boundaries. There are five delineation criteria: 1) Time-of-Travel (TOT), 2) Aquifer Transmissivity, 3) Flow Boundaries, 4) Daily Volume of Water Pumped, and 5) Groundwater Flow. The Minnesota Department of Health (MDH) assigns staff in their Source Water Protection Unit to assist with preparing and implementing wellhead protection plans.

### **Drinking Water Supply Management Areas**

The Drinking Water Supply Management Area (DWSMA) is the geographic area, including the Wellhead Protection Area (WHPA), which is to be protected and managed by the WHP Plan. Water suppliers use geographic landmarks, such as roads and property lines, to map the boundaries of the area so that it is identifiable to the general public.

### **Drinking Water Supply Management Area DWSMA Vulnerability**

DWSMA Vulnerability identifies wells that should receive priority for source water protection efforts. Vulnerability assessments must address three components: 1) Geologic Sensitivity, 2) Well Construction, Maintenance, and Use, and 3) Water Chemistry and Isotopic Composition (age dating). The Minnesota Department of Health (MDH) uses a vulnerability rating method in which points are assigned for conditions that represent a perceived risk to a well. Supply wells classified as *non-vulnerable* are required to manage contaminant risks that may enter the aquifer through other wells. Wells classified as *moderately vulnerable* must manage point source contaminant risks through other wells along with identifying underground hazardous chemical storage tanks. Wells classified *vulnerable* must manage all point source contamination risks and address land use activities that threaten the aquifer.

### ***Lac qui Parle County's Online Source Water Protection Areas***

The MDA's online source water protection mapping application reveals one Wellhead Protection Area (WHPA) and one corresponding Drinking Water Supply Management Area (DWSMA) in Lac qui Parle County for the City of Bellingham. According to the website, the WHPA was delineated in 1997, which primarily encompasses a circle around the community. The DWSMA was also identified in 1997, but extends beyond the WHPA in more of a square on the online map (following some the City's major adjacent roadways). The DWSMA is measured to be approximately 322 acres in size. The WHPA estimates it takes approximately ten years for surface water to reach the aquifer. Overall, this is considered a relatively short duration, which increases the need for the City to ensure that groundwater protection mitigation measures are thoroughly implemented in the community's WHPA. Marietta and Nassau are both hooked up to Grant Roberts Rural Water system located in So. Dakota. Therefore, the Minnesota Department of Health will not be developing a wellhead protection plan for these two communities.

### **Minnesota Department of Health's Source Water Assessments**

A Source Water Assessment (SWA) is a document - produced by the Minnesota Department of Health (MDH), provided to the public water system, and made available to the public - which summarizes a variety of information regarding the water sources used by a public water system. There are 21 areas in Lac qui Parle County with SWAs (listed in Table 2E). Many of the sites are listed as having "potential" known contaminates of concern. This simply means that nearly potential pollutions sources exist. The SWA's normally include the following information:

1. A description of the drinking water source(s) used by the water system (i.e. your well or wells) and the area that contributes water to the source(s). This will include a map showing the location of the water source(s).



2. A determination of the "susceptibility" of your drinking water source to contamination. Susceptibility describes how likely it is that a water source may become contaminated. For wells, susceptibility is based on well construction, the type of aquifer that supplies the well(s) and previous water sampling results.
  
3. Drinking water contaminants of concern to anyone using the water source. For wells, this will be based on any detection of regulated contaminants during previous water sampling.

**Table 2E: Lac qui Parle County's Source Water Assessments**

<b>Public Water Supply Name</b>	<b>Assessment ID</b>	<b>Known Contaminants of Concern?</b>	<b>Nearest City</b>
Lac Qui Parle Lutheran Church	5370018	None	Dawson
Bruce's 66	5370208	Potential	Marietta
City of Dawson	1370003	None	Dawson
Earthrise Farm	5370215	<b>Coliform - Fixed</b>	Madison
St. Joseph Catholic Church/School	5370209	Potential	Rosen
City of Madison	1370004	None	Madison
Lac qui Parle State Park	5370203	Potential	Montevideo
City of Marietta	1370005	None/Purchased Water	Marietta
St. Joseph Catholic Church	5370043	Potential	Rosen
Our Savior's Lutheran of Baxter	5370050	Potential	Montevideo
Borgund Lutheran Church	5370019	Potential	Madison
Associated Milk Producers, Inc.	5370201	None	Dawson
Garfield Lutheran Church	5370040	<b>Coliform - Fixed</b>	Marietta
City of Bellingham	1370001	None	Bellingham
Minnesota Valley Lutheran Church	5370202	Potential	Louisburg
Crossroads Lutheran Congregation	5370211	Potential	Dawson
J & D Construction, Inc.	5370214	None	Montevideo
City of Nassau	1370006	Unknown	Nassau
City of Boyd	1370002	Unknown	Boyd
Trinity Lutheran Church	5370005	None	Bellingham
Lac Qui Parle Valley School	5370051	None	Madison

*Source:* <http://www.health.state.mn.us/divs/eh/water/swp/swa/swainfo/pdwgetpws.cfm>

Table 2E reveals that two sites, Earthrise Farm and Garfield Lutheran Church, had known concentrations of coliform. Earthrise Farm's contamination was the result of well work. The well was disinfected and the problem was thereby corrected. The Church has also addressed their concern by replacing their well.

### **Minnesota Department of Health**

The Minnesota Department of Health's (MDH) programs and monitoring activities have been mentioned throughout the Water Plan, but especially in the groundwater assessment section. This is because drinking water quality, and all of the subtopics that can be categorized under that, is the MDH's main responsibility. Specifically, MDH is involved with the following water quality initiatives:

1. Maintaining Drinking Water Quality Data
2. Drinking Water Protection: Public Water Supplies
3. Drinking Water: Private Wells (Well Management Program)
4. Clean Water Funding Activities
5. County Well Index (online database)
6. Licensed/Registered Well Contractor Directory
7. Well Sealing/Unused Wells
8. Well Disinfection for Private Wells

In addition, the MDH produces an Annual Drinking Water Report, which is a summary of drinking water protection activities in Minnesota. According to the 2011 report (the most recent one online), there were two Public Water Suppliers who were identified for contaminants in Lac qui Parle County. They were the Garfield Lutheran Church in Marietta, and Earthrise Farm in Madison. Coliform was found in both water supplies, however, both have properly addressed the problem (refer to the paragraph at the top of this page). MDH's website is full of a variety of water quality information and Best Management Practices. For more information, visit the following website:

<http://www.health.state.mn.us/index.html>

#### *Did you know...?*

**Unused wells** that are not properly sealed can be a source of groundwater contamination, potentially affecting nearby drinking water wells. Groundwater is the main source of drinking water for three out of every four Minnesotans.

The Minnesota Department of Health (MDH) received \$500,000 from the Clean Water Fund for the 2012-2013 fiscal years (FY). This means \$250,000 for each year to use for sealing unused wells. This funding requires a 50 percent match from non-state sources. Well owners are paid up to half the cost of sealing unused wells.

The first \$250,000 was passed through to the Minnesota Board of Water and Soil Resources (BWSR) as part of their 2012 Clean Water Fund Competitive Grants. BWSR awarded nine grants to local governmental units to provide funding to well owners to seal unused private wells.

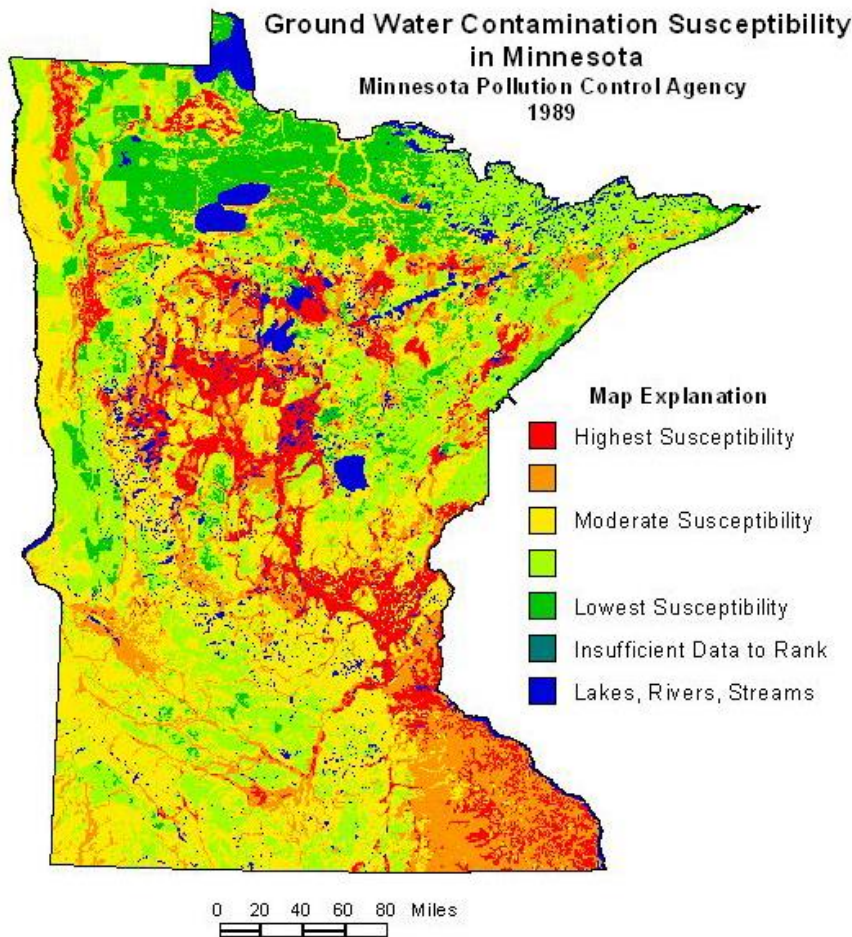
The second \$250,000 was awarded by MDH to seal 29 unused public water-supply wells for 19 different public water suppliers.

**Minnesota Pollution Control Agency**

In 1989, the Minnesota Pollution Control Agency published a statewide evaluation of ground water contamination susceptibility. The assessment, called “Groundwater Contamination Susceptibility in Minnesota, used four parameters (aquifer materials, recharge potential, soil materials, and vadose zone materials) to delineate areas of relative susceptibility to ground water contamination. The assessment method used Geographic Information System (GIS) technology.

Map 2E displays the results of the assessment. Notice that Lac qui Parle County is located in an area of the State which is considered to have Moderate to High Susceptibility to groundwater contamination. For more information, visit the MPCA link listed below Map 2M.

**Map 2M:  
Groundwater Contamination Susceptibility**



Source: [www.dnr.state.mn.us/waters/groundwater\\_section/mapping/gwcontam\\_susceptibility.html](http://www.dnr.state.mn.us/waters/groundwater_section/mapping/gwcontam_susceptibility.html)

## **Minnesota's Groundwater Condition: A Statewide View (2007)**

Ground water quality data collected in 2004 and 2005 by the MPCA and the Minnesota Department of Agriculture (MDA), served as the basis for evaluating the condition of Minnesota's ground water. The results were presented in the publication, "*Minnesota's Groundwater Condition: A Statewide View*" (2007). The following conclusions about ground water quality in Minnesota's vulnerable aquifers were made:

1. Ground water quality is generally good and in compliance with drinking water standards. However, human-caused impacts to ground water quality are apparent in many areas of the state.
2. In urban areas, especially the Twin Cities metropolitan area, Rochester and St. Cloud, elevated concentrations of chloride and nitrate and detectable concentrations of VOCs are common.
3. In rural and agricultural areas, nitrate concentrations are frequently elevated or exceed standards; and pesticides are commonly detected, though at concentrations that are nearly always less than applicable drinking water standards.
4. Areas of impacted ground water correlate well with land uses that are known to cause the observed quality impacts. The prevalence of elevated nitrate concentrations in ground water in regions dominated by agricultural land uses and in unsewered residential areas is particularly noteworthy.

According to the report, there are two key considerations for MPCA's future groundwater quality monitoring efforts that are worth highlighting:

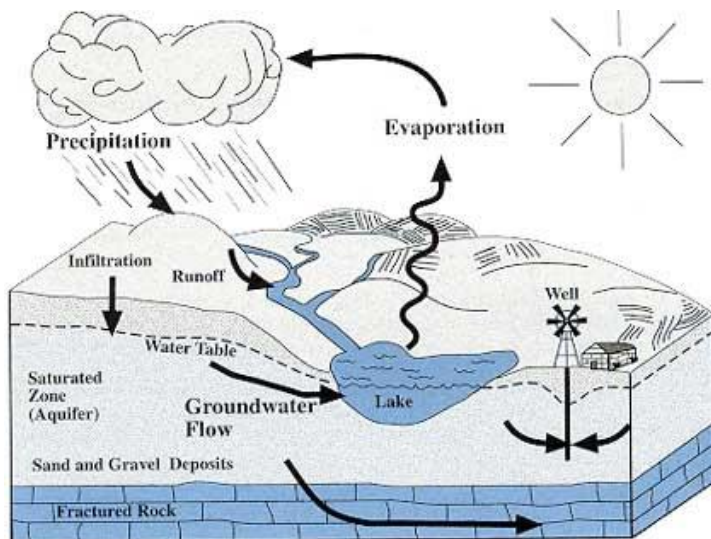
- There is a growing need to better incorporate ground water and surface water interaction into water resource management activities. Several Minnesota cities have struggled to maintain a reliable source of good quality water and found that their ground water quality problems resulted in part from the interaction with impacted surface water. The potential for ground water to improve (or potentially degrade) surface water quality is a factor that should be routinely evaluated as the MPCA undertakes investigation of Minnesota's impaired waters.
- Many new challenges will be faced by Minnesota's water resource managers as the 21st century unfolds. Chief among these is a changing and less predictable climate, rapid growth of impervious soil cover that reduces the land area where aquifers can be recharged, and an ever increasing demand for potable water. These challenges require that Minnesota water resource managers monitor ground water condition with an eye to the future, and make the critical step of linking land use activities with their impact on ground water, so that practices and guidelines can be developed that will protect this valuable resource.

## K. Groundwater Quantity Assessment

Groundwater is an important part of the Hydrologic Cycle, commonly referred to as the water cycle (see Figure 2A). Groundwater is the part of precipitation that seeps down through the soil until it reaches rock material that is saturated with water. Water in the ground is stored in the spaces between rock particles. Groundwater slowly moves underground, generally at a downward angle (because of gravity). Some groundwater also seeps into streams, lakes, and other surface waters.

The world's total water supply is approximately 333 million cubic miles of water. Of this, over 96 percent is saline (or saltwater). The remaining 4 percent is freshwater. Over 68 percent of freshwater, however, is locked up in ice and glaciers. Another 30 percent of freshwater is in the ground. Fresh surface-water sources, such as rivers and lakes, only constitute about 22,300 cubic miles (93,100 cubic kilometers), which is about 1/150th of one percent of total water. Yet, rivers and lakes are the sources of most of the water people use everyday.

**Figure 2A:**  
**The Hydrologic Cycle**



*For the most part, groundwater comes directly from precipitation or surface water that infiltrates into the subsurface (below the land surface). In turn, groundwater flows into many streams and lakes. Groundwater can be seen exiting from the subsurface as springs. But most commonly, we obtain groundwater from wells.*

*Source: [www.pca.state.mn.us](http://www.pca.state.mn.us)*

### *Did you know...?*

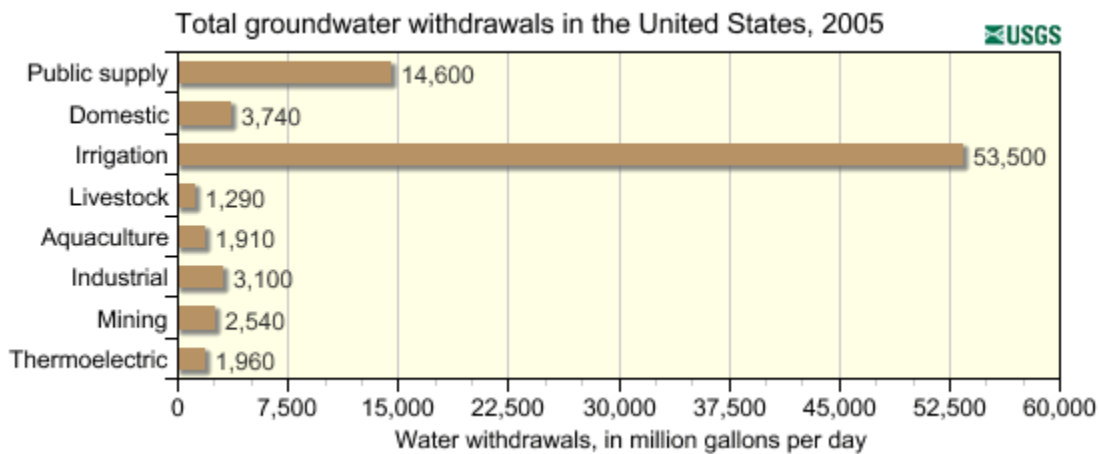
An article published in the Minneapolis Star Tribune on February 24, 2013, (*State Draining Water Supplies as Nature Can't Keep up with Demand*) highlights that groundwater quantity has increasingly become a problem. Wells are increasingly experiencing conflicts and in some cases are running dry. The compound problem is that demand is increasing in all sectors (i.e., residential, industrial, agricultural, etc.), while land use practices inhibit the replenishment of groundwater supplies. When surface water is drained and sent downstream, as is the case with drainage, it loses its ability to be recharged into groundwater supplies. Likewise, residential and commercial water uses are normally sent down the drain, which eventually ends up downstream.

## United States Geological Survey (USGS)

The State Geological Survey (USGS) is a science organization that strives to provide impartial information on the health of our ecosystems and environment, the natural hazards that threaten us, the natural resources we rely on, the impacts of climate and land-use change, and the core science systems that help us provide timely, relevant, and useable information. In 2005, the USGS produced a reported called, “*Estimated Use of Water in the United States in 2005.*”

According to the report, about 23 percent of the freshwater used in the United States in 2005 came from groundwater sources. The other 77 percent came from surface water. Groundwater is an important natural resource, especially in those parts of the country that don't have ample surface-water sources, such as the arid West. Figure 2B shows a bar chart of groundwater use by category for 2005. Most of the fresh groundwater withdrawals, 68 percent, were for irrigation, while another 19 percent was used for public-supply purposes, mainly to supply drinking water to much of the Nation's population. Groundwater also is crucial for those people who supply their own water (domestic use), as over 98 percent of self-supplied domestic water withdrawals came from groundwater.

**Figure 2B:**  
**Groundwater Withdrawals by Category in 2005**



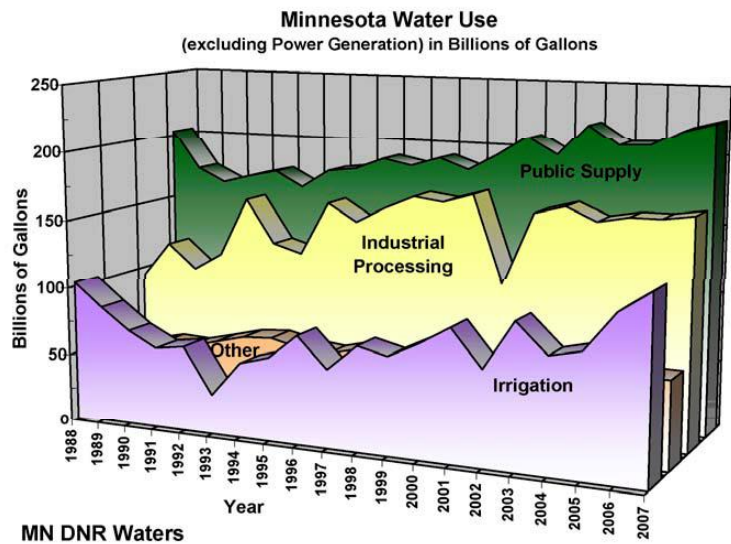
The USGS actively monitors streamflow data, drought conditions, and flooding status. Much of this information is updated regularly online, through the agency's WaterWatch Program. For more information on USGS and its role in water science, visit the following website:

<http://www.usgs.gov/>

## Minnesota's Groundwater Use

The Minnesota Environmental Quality Board (EQB) produced a report of statewide water availability in 2008, titled, “*Managing for Water Sustainability.*” According to the report, Minnesota water use has increased by 24% over the last 20 years as tracked by the Department of Natural Resources through the water permit program, while population has increased 22%. Figure 2C shows water use by major category in Minnesota from 1985-2007.

**Figure 2C:**



- **Public water supply.** Water distributed by community suppliers for domestic, commercial, industrial and public users. This category relies on both surface water and ground water sources. The increase in volume shown over the past 20 years correlates to a growth in population over the same period. Typically, residential water users consume 75 gallons per person per day. Public water supply accounted for approximately 16% of the total water used in 2007. It is estimated that water use from private household wells adds another 27.5 billion gallons to the public water supply annual use, representing slightly less than 2% of the total state water use.
- **Industrial processing.** Water used especially in mining activities, paper mill operations, and food processing, ethanol production, etc. Three-fourths or more of withdrawals are from surface water sources. Industrial processing used 12% of the total state water use for 2007. Based on ethanol facility water withdrawal reports provided to the DNR (1998-2006), Minnesota's ethanol industry achieved a 30% reduction in water demand; improving from an average of almost six gallons to about four gallons of water demand per gallon of ethanol produced. Progress has been made in reducing water use while also increasing the amount of ethanol produced from a bushel of corn.
- **Irrigation.** Water withdrawn from both surface water and ground water sources for major crop and noncrop uses. Nearly all irrigation is considered to be consumptive use. Of 7,000 active water appropriation permits, 73% are for irrigation. Irrigation represented 9% of the total permitted water use in the state, most of which (89%) came from ground water sources.
- **Other.** Large volumes of water withdrawn for activities, including air conditioning, construction dewatering, water level maintenance and pollution confinement. Collectively, these represented about 4% of Minnesota's 2007 total water use.

## **The Minnesota Department of Natural Resources (DNR)**

The Minnesota Department of Natural Resources (DNR) monitors the use of the State's water and allocates resources to assure there is sufficient quality and quantity to supply the needs for future generations. Under the DNR's observation well network program, groundwater levels are routinely measured in 750 wells statewide. The primary objectives of the observation well network are to:

- Place wells in areas of future or present high groundwater use while considering variations in geologic and other environmental conditions;
- Identify long-term trends in groundwater levels;
- Detect significant changes in groundwater levels;
- Provide data for evaluation of local groundwater complaints;
- Provide data to resolve allocation problems; and
- Identify target areas that need further hydrogeologic investigation, water conservation measures, or remedial action.

### ***Lac qui Parle County's DNR Observation Wells***

There are a total of 12 DNR observation wells located throughout Lac qui Parle County, however only 10 are actively monitored. Table 2F provides an overview of the information regarding these wells contained in the DNR's online records. The Table reports on well depth, number of observations recorded, average depth to water, and the last recorded depth to water (including the date observed at the time of drafting this Chapter).

## **Minnesota Department of Health**

The Minnesota Department of Health maintains the County Well Index database which has water-level data, such as location, depth, and static water level, from more than 300,000 wells statewide. Most of the data has been collected since 1974, when the program began. Figure 2D shows the approximate well locations in Garfield Township in Lac qui Parle County. By clicking on each well online, one can view the Well and Boring Record. Information can also be searched by aquifer type. To access this data online, visit the following website:

<http://www.health.state.mn.us/divs/eh/cwi/>

**Figure 2D:  
Online County Well Index**





**Table 2F:  
Lac qui Parle County's  
DNR Observation Wells**

Number	Well Depth	Nearest Town	1 <sup>st</sup> Monitored - Currently Monitored?	Number of Observations	Average Depth to Water	Last Recorded Depth to Water (date)
37000	85 ft	Canby	1980 - No	277	14 ft	7 ft (6/11/08)
37001	210 ft	Canby	1980 - Yes	289	24 ft	21 ft (11/12/09)
37002	210 ft	Canby	1980 - Yes	290	21 ft	18 ft (11/12/09)
37003	189 ft	Canby	1980 - No	218	15 ft	13 ft (3/26/02)
37004	203	Canby	1980 - Yes	314	10 ft	9 ft (3/22/13)
37005	189 ft	Canby	1980 - Yes	316	68 ft	54 ft (3/22/13)
37006	70 ft	Canby	1980 - Yes	291	12 ft	12 ft (11/12/09)
37007	143 ft	Dawson	1980 - Yes	303	39 ft	37 ft (3/22/13)
37008	146 ft	Madison	1980 - Yes	40,529	36 ft	30 ft (3/22/13)
37009	189 ft	Appleton	1980 - Yes	317	22 ft	19 ft (3/22/13)
37010	196 ft	Appleton	1980 - Yes	297	43 ft	42 ft (3/22/13)
37011	70 ft	Appleton	1969 - Yes	290	33 ft	32 ft (10/19/12)

To access additional DNR's groundwater quantity information, visit the following website:

[http://www.dnr.state.mn.us/waters/groundwater\\_section/obwell/waterleveldata.html](http://www.dnr.state.mn.us/waters/groundwater_section/obwell/waterleveldata.html)

***Did you know...?***

An article published in the White Bear Press on July 18, 2012, titled, "***DNR Considers Aquifer Action,***" indicates the Minnesota Department of Natural Resources been holding staff-level discussions about whether to create one or more groundwater management areas in problem areas throughout Minnesota. According to the article, Minnesota Statute 103G.287 gives the DNR commissioner special authority to designate groundwater management areas, which could lead to changes in how groundwater is used. Furthermore, in 2010, the State Legislature mandated that public water suppliers serving more than 1,000 customers encourage its customers to reduce demand by adopting a water conservation rate structure. If groundwater management areas are formed, it will be a first for Minnesota.

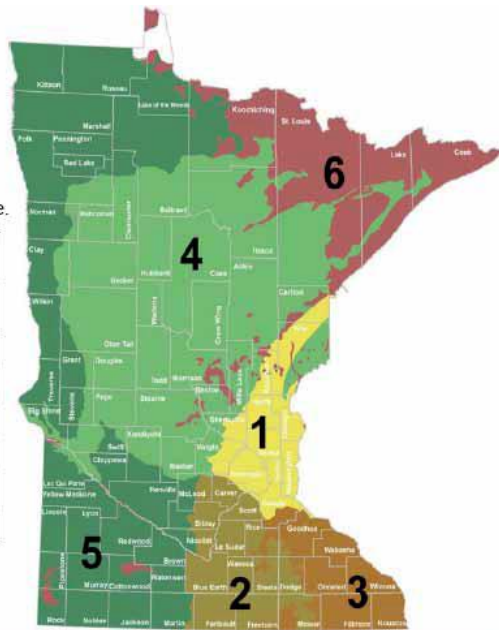
**Minnesota’s Groundwater Condition: A Statewide View**

The Minnesota Pollution Control Agency (MPCA) and Minnesota Department of Health (MDH) profiled Minnesota’s groundwater quantity in their 2007 report, “*Minnesota’s Groundwater Condition: A Statewide View*.” According to the report, groundwater, particularly ground water of adequate quality for drinking and other desired uses, has always been scarce in northwest and southwest Minnesota because of the natural geologic and hydrologic conditions in these areas. Map 2N shows the availability of groundwater statewide. Notice that Lac qui Parle County is rated as having mostly moderate to limited availability of groundwater.

**Map 2N:  
Availability of Groundwater in Minnesota (2005)**

TABLE 1. Ground-water availability in the state.

Area	General Availability of Ground Water by Source		
	Surficial Sands	Buried Sands	Bedrock
1	Moderate	Moderate	Good
2	Limited	Moderate	Good
3	Limited	Limited	Good
4	Good	Moderate	Limited
5	Moderate	Limited	Limited
6	Limited	Limited	Limited



**County Atlas – Regional Assessment Program**

The County Atlas - Regional Assessment Program exists to develop County Geologic Atlases and Regional Hydrogeologic Assessments. It is a joint program between the Minnesota Department of Natural Resources (DNR) and the Minnesota Geological Survey (MGS). The program creates maps and reports depicting the characteristics and pollution sensitivity of Minnesota’s groundwater resources. The main DNR online link for additional information is:

[http://www.dnr.state.mn.us/waters/groundwater\\_section/mapping/index.html](http://www.dnr.state.mn.us/waters/groundwater_section/mapping/index.html)

## ***County Geologic Atlas***

A County Geologic Atlas is a systematic study of a county's geologic and groundwater resources. Geologic studies include both near-surface deposits and bedrock. Groundwater studies include flow systems, aquifer capacity, groundwater chemistry, and sensitivity to pollution. In some areas sand and gravel deposits, sinkholes, or other features are studied. The information is organized, analyzed, and displayed using GIS technology.

Atlas information is used in planning and environmental protection efforts at all levels of government. Source water protection and well sealing programs are examples of local programs that need geologic and groundwater information. Other typical uses include providing information for permit applications and plans and emergency response to contaminant releases. The information is also used by businesses and the general public.

## ***Regional Hydrogeologic Assessment***

A Regional Hydrogeologic Assessment is similar to an atlas in that both geology and groundwater are studied. However, a regional assessment covers a larger area--typically four to nine counties--in less detail. A regional assessment emphasizes near-surface geology, groundwater properties, and sensitivity to pollution.

## ***Lac qui Parle County's Map***

Lac qui Parle County was included in the Upper Minnesota River Basin Regional Hydrogeologic Assessment, along with Swift, Chippewa, and Yellow Medicine Counties. In addition, parts of Big Stone, Lincoln, Lyon, Redwood, and Renville Counties are also included. The Assessment can be divided into the following four mapped subsections, referred to as "Plates:"

### ***Geology***

1. Plate 1 – Surficial Geology (information contained in report or GIS layer)
2. Plate 2 – Quaternary Stratigraphy (information contained in report or GIS layer)

### ***Hydrogeology***

3. Plate 3 – Surficial Hydrogeology (map can be viewed online)
4. Plate 4 – Geologic Sensitivity to Pollution of Groundwater (map can be viewed online)

To view Lac qui Parle County's County Atlas – Regional Assessment online, visit the following website:

[http://www.dnr.state.mn.us/waters/programs/gw\\_section/mapping/platesum/umrbrha.html](http://www.dnr.state.mn.us/waters/programs/gw_section/mapping/platesum/umrbrha.html)

## Groundwater Recharge Areas

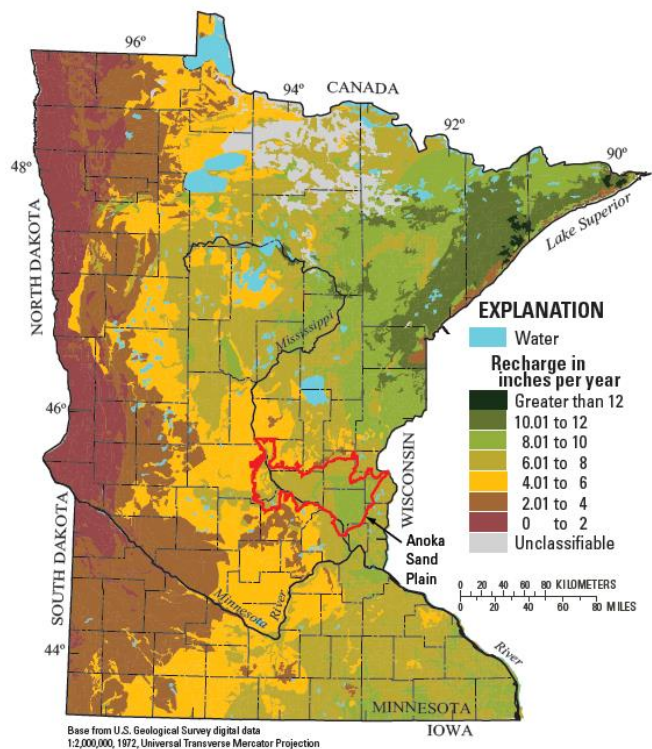
Groundwater recharge refers to how water enters back into groundwater supplies (refer to Figure 2B – The Hydrologic Cycle). Most potential water recharging the groundwater system moves rapidly into surface waters, however, some eventually reaches the aquifers. The USGS has produced a fact-sheet titled, “*Groundwater Recharge in Minnesota.*” Groundwater recharge is only between 0-2 inches per year in most of Lac qui Parle County (refer to Map 2O), compared to greater than 6 inches per year in the central and eastern parts of the State. This follows general trends in precipitation. In the western and northern parts of the State, where precipitation is the least (between 20-25 inches on average per year), recharge rates are also the least. In contrast, in the central and eastern parts of the State, where precipitation is greater than 30 inches on average per year, groundwater recharge rates increase to over 6 inches per year.

Recharge rates into unconfined aquifers are typically about 20-25 percent of precipitation. According to the United State Geological Survey (USGS), water at very shallow depths might be just a few hours old; at moderate depth, it may be 100 years old; and at great depth or after having flowed long distances from places of entry, water may be several thousands of years old.

The Minnesota Department of Agriculture submitted a Priority Concerns Input Form (found in Appendix B), that provided a number of key implementation suggestions for Lac qui Parle County’s Water Plan. Of special significance, the MDA submitted a map showing Lac qui Parle County’s Water Table Sensitivity, commonly referred to as “groundwater recharge.”

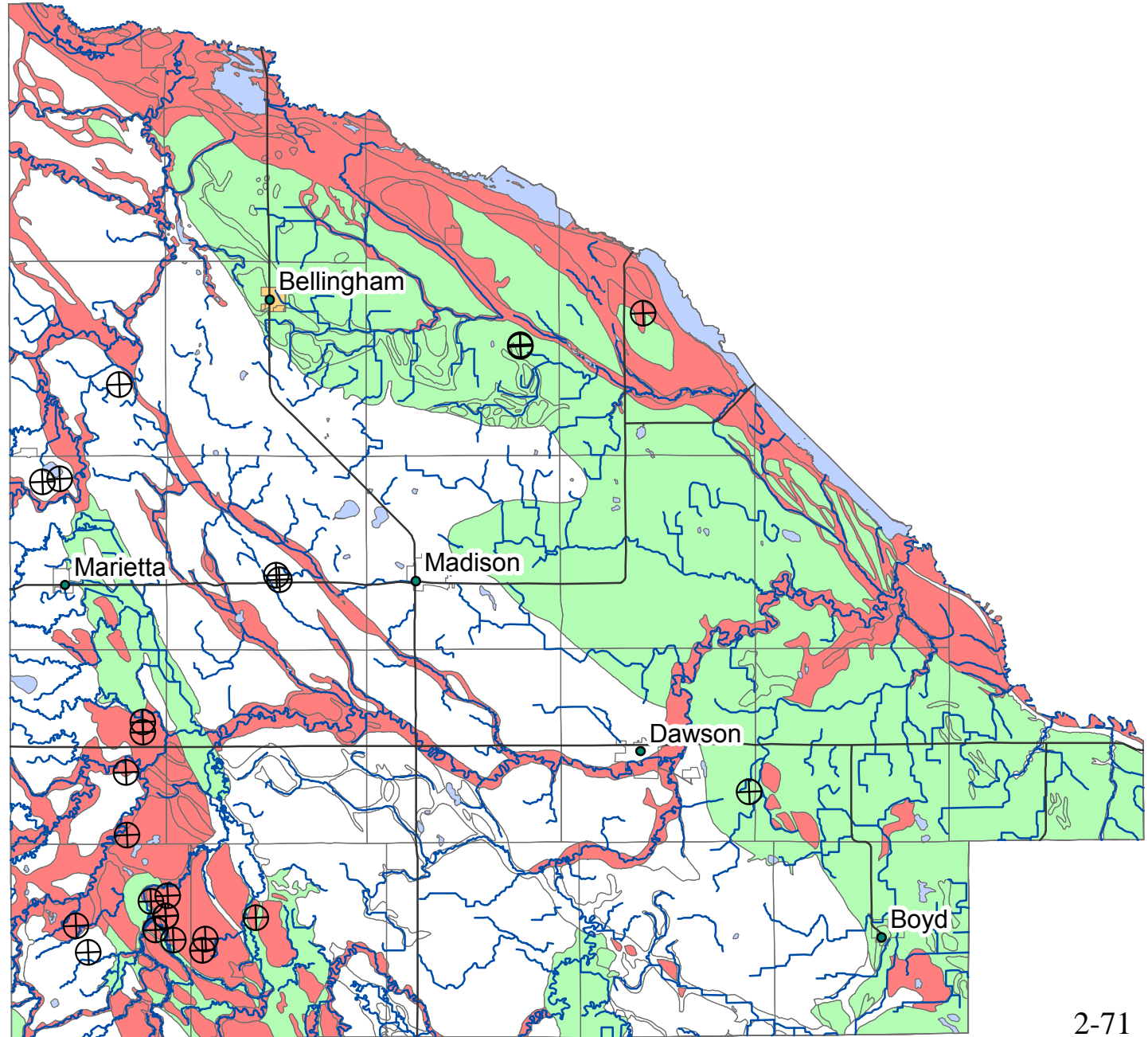
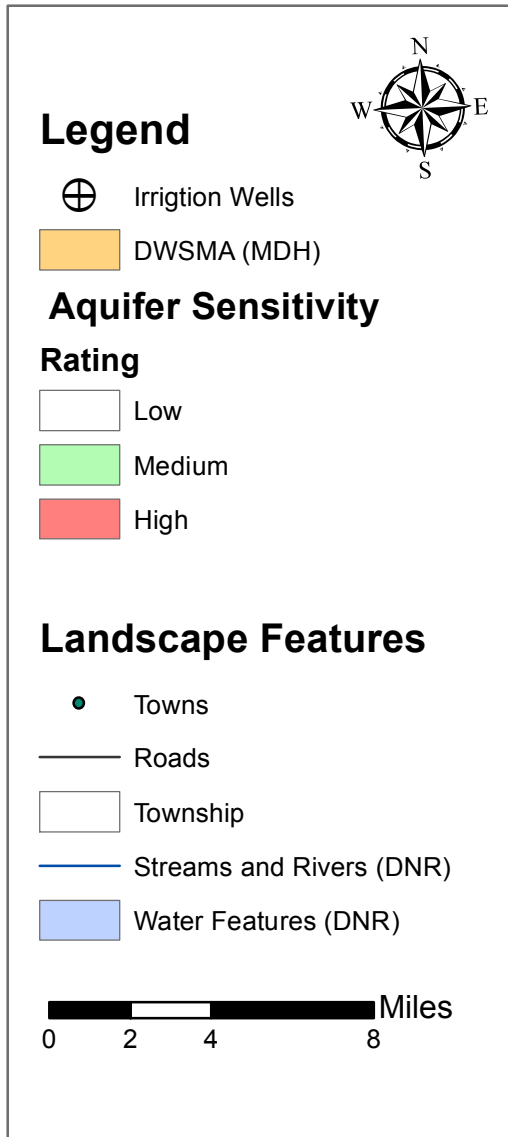
Map 2P, shown on the next page, classifies the County into three aquifer sensitivity ratings: low, medium, and high. These reflect the likelihood that infiltration precipitation or surface water would reach the water table, potentially polluting the groundwater with surface contaminants.

**Map 2O:**  
**Average Annual Groundwater Recharge Rates**



# Map 2P: LAC QUI PARLE COUNTY SURFICIAL AQUIFER SENSITIVITY

Surficial Aquifer vulnerability based on Sediment Association of Mn Geomorphology, (DNR 1997)



## **Irrigation**

According to the Minnesota Department of Agriculture ([www.mda.state.mn.us](http://www.mda.state.mn.us)), Irrigation water management primarily aims to control the volume and frequency of irrigation water applied to crops, so as to meet crop needs while conserving water resources. Competition for water resources for agricultural and other uses is increasing—even in states like Minnesota that have abundant water. This makes it all the more essential to use irrigation water as efficiently as possible.

While Minnesota has less irrigated cropland than dryer states to its west, irrigation is not uncommon in areas of the state with sandy soils or lower total rainfall. Generally, average annual precipitation decreases from east to west across Minnesota, making irrigation more common in the western part of the state.

Irrigation water management involves an array of methods to reduce water use. In Minnesota, where sprinkler irrigation is common, a key method of reducing water use is to retrofit or replace center-pivot or other sprinkler systems with low-pressure sprinkler equipment. Reducing irrigation water use entails more than a change in equipment, however. Irrigating crops only when and where needed requires measuring or estimating how much water crops need at different stages of growth and how long it takes the soil to absorb the right amount of water. Farmers and crop consultants must also be able to detect changes in water intake rates and decide when and how to compensate by adjusting the irrigation volume or schedule.

Another objective of irrigation management is to prevent irrigation-induced soil and water quality problems such as salinity, soil erosion or leaching of nutrients or pesticides into groundwater. Crop managers must understand the potential for these problems to occur and address them as needed.

Irrigation management also presents opportunities for energy savings associated with low-pressure sprinkler equipment and modern energy-efficient pumps. In short, it takes energy to supply irrigation water and, generally, the less water used, the more energy saved.

Similar & related practices:

- Irrigation water management can be significantly enhanced by practices that increase the soil's moisture-holding capacity or decrease evaporation, such as conservation tillage, cover crops, conservation crop rotations, field windbreaks and other wind erosion control practices.
- A related practice is chemigation or applying agricultural fertilizers or pesticides to cropland via irrigation water, which requires a permit in Minnesota.

## **Lincoln Pipestone Rural Water**

The Lincoln Pipestone Rural Water System has been constantly growing and changing since its beginning in 1979. Growth was and continues to be a big part of the change affecting the System, but other issues such as changes in agriculture practices and new environmental regulations have impacted us also. The LPRW Board has taken the position that despite changing conditions it is the System's responsibility to support agricultural producers as they adapt to new production methods, while also extending service to new customers whenever possible. This all needs to be done without affecting service to existing customers.

LPRW was legally established under Minnesota Statute 116A in 1979, but planning and organizing started in 1976 when a group of Lincoln County farmers began pursuing the dream of clean and plentiful water. Since its beginning LPRW has grown to provide service in Lac qui Parle, Lincoln, Lyon, Murray, Nobles, Pipestone, Redwood, Rock and Yellow Medicine Counties; and expansion into Jackson County.

LPRW gets its water supply from well fields from three sources near Verdi, Holland and Burr. While these water sources have proven to be reliable long-term water supplies, they are also at or near their production capacity. As a result, the LPRW has approached the City of Madison in 2013 with the interest of purchasing excess water. The City's high utility rates might prevent a deal from being negotiated.

The LPRW Board has adopted a policy of providing water service whenever it is feasible to do so, and as a result growth and expansion of the System is an on-going process. New water sources are being developed to meet existing needs as well as allowing for future expansion, however long-term potential has not been examined in detail. Given the need to look further into the future, the LPRW Board has decided to begin a long-range planning process aimed at better understanding the future needs and resource requirements of the System. The input of our members, county officials, and our many partners at the federal, state and local levels will be critical to the value of a long-range plan and any projects implemented as a result.

## *Minnesota's Groundwater: Is Our Use Sustainable?*

The Freshwater Society, a public non-profit organization formed in 1968, published a special report in April 2013, titled, “*Minnesota's Groundwater: Is Our Use Sustainable?*” The following highlights of the report are worth noting:

- Minnesota cannot afford to continue increasing its groundwater consumption as we have over the last several decades.
- Pumping of Minnesota's groundwater increased, on average, about 2.8 billion gallons each year from 1988 through 2011, a statistical analysis of reporting pumping estimates (refer to Figure 2E). Over that 23-year period, total reported groundwater use increased an estimated 31 percent, while the State's population increased 24 percent. Pumping for agricultural irrigation increased about 1.5 billion gallons per year over that period, equaling a 73 percent increase.
- The DNR plans in 2013 to use a 3-year-old law to begin creating “groundwater management areas” in two heavily irrigated regions of the state, agency officials say. The agency hopes to win community support for intensive monitoring of the impact of existing pumping and, perhaps, support for future limitations on pumping.
- The connections between ground and surface water need to be studied. Specifically, groundwater recharge rates and the flow between aquifer systems need to be better understood.
- Agricultural irrigation is Minnesota's second largest use of groundwater (behind municipal use), and it is by far the fastest growing segment of groundwater use.
- High commodity prices, high land prices, and incremental weather patterns, are likely to encourage more farmland to be irrigated.

**Figure 2E:**

### **MINNESOTA GROUNDWATER PUMPING TRENDS: 1988-2011**

- Total groundwater pumping varied widely from year to year, but averaged about 235 billion gallons per year.
- Pumping by city water systems averaged 123 billion gallons per year, and averaged 53 percent of total reported groundwater pumping.
- Agricultural irrigation pumped an average of 63 billion gallons per year, averaging 26 percent percent of total reported pumping.
- Industrial pumping averaged about 22 billion gallons per year, averaging 9.5 percent of the total reported pumping.
- The next-biggest component of the total – a division the DNR calls “Special Categories” and that includes pollution containment, fish farms, snow making, livestock watering and sewage treatment – accounted for an average of 7.3 billion gallons pumped each year, about 3 percent of all groundwater use on average.
- Golf course sprinkling used an average of 4.7 billion gallons per year, 2 percent of total groundwater use on average.
- All other uses combined averaged about 14.7 billion gallons per year, 6 percent of the total on average.



*Summary of Groundwater  
Implications and Assessments*

The following items summarize the implications and assessments for groundwater quality and quantity issues. Many of the listed items prescribe actions that are needed to properly address the issues identified.

- Current groundwater monitoring efforts by stakeholders should be continued and expanded within the County. More importantly, any important conclusions regarding the results of these monitoring efforts should be shared with Lac qui Parle County in a timely fashion.
- The County should continue to partner with the Minnesota Department of Agriculture in hosting Nitrate Testing Clinics.
- Groundwater Best Management Practices should be promoted by providing cost-share incentives.
- Sealing abandoned wells should continue to be a priority.
- Conduct training sessions and workshops for farmers who have agricultural production activities within wellhead protection areas and drinking water supply management areas.
- Increased use of groundwater by multiple users has placed an increase stress on aquifer systems. An increasing amount of groundwater conflicts are being reported statewide.
- There is a high need for continued research and assistance to understand the impacts of drainage or other land use practices on groundwater recharge rates, and the means to quantify these impacts.
- Minnesota's groundwater use patterns are not sustainable (i.e., groundwater is being used more than it is being recharged). As a result, the Minnesota DNR has considered creating groundwater management areas in parts of the State where groundwater is stressed by over-use or pollution.

*Advice from an Expert...*

*Tools and strategies for effectively targeting conservation practices and resources* – a presentation by Dr. David Mulla (University of Minnesota):

- Clean Water Fund initiatives – trying to spend the money wisely rather than spreading it out evenly. Target your BMPs to areas most needed.
- Clean Water Fund Initiatives:
  - Passage of the Clean Water Legacy Amendment provides badly needed funding for protection, restoration and enhancement of impaired waters and damaged wildlife habitat.
  - Funding from the Clean Water Legacy Amendment is being spent on the most critical landscapes and sources of degradation rather than spread evenly across the state.
  - There is a pressing need to identify critical sources of water quality degradation and their locations in order to select and implement BMPs.
- Tools – Digital Elevation Model data / and Terrain Analysis
- Critical areas / SPI (Stream Power Index) signatures – identify parcels with high erosion potential
- EBI is the Environmental Benefits Index. Every parcel in the state is ranked, even urban areas. Everybody who wants to apply for RIM funding must use the EBI website. BWSR uses those scores to help determine funding. Use to identify critical source areas.
- BWSR Ecological Ranking Tool website
- Conclusions:
  - Conservation practice implementation is neither economically nor environmentally efficient when done uniformly across the landscape;
  - Disproportionate amounts of sediment and phosphorous are generated from small areas of the watershed
  - The effectiveness of BMPs depends on placing them in vulnerable portions of the landscape;
  - Precision conservation strategies involving LIDAR based DEM terrain analysis may prove very helpful to guide conservation efforts.

## **Chapter Three: Lac qui Parle County Water Plan Goals, Objectives & Action Steps (2014-2018)**

---

This Chapter establishes the Lac qui Parle County's Water Plan Goals, Objectives, and Action Steps. Although the Water Plan will cover a span of 10 years (2014-2023), this Chapter of the Plan will guide the County in water resource management efforts over the first five years (2014-2018). Each Action Step has been assigned specific implementation information, including the priority watershed (if one was identified), stakeholders involved, and an estimated cost to implement the activity.

### **A. Definition of Goals, Objectives, and Action Steps**

The Goals, Objectives, and Action Steps that are identified in this Chapter were developed with input from the public, various State and local governmental units/agencies, and the Lac qui Parle County Water Plan Taskforce. The following provides a definition of these terms:

**Goal:** A goal is an idealistic statement intended to be attained at some undetermined future date. Goals are purposely general in nature.

**Objective:** An objective is an action-oriented statement that supports the completion of a goal. There may be more than one objective per goal.

**Action Step:** An Action Step is a specific activity that will be taken in order to achieve a goal and objective.

### **B. Action Step Information**

Each Action Step identified in this Chapter has been assigned specific information on priority watershed(s), stakeholders involved, and the activity's estimated cost. In addition, if a specific time-frame was identified (i.e., when the Action Step should be completed by), this was communicated by placing a year in parenthesis in the Action Item. For example, if (2015) appears in the Action Step, this means the activity ideally would take place (or at least begin) in 2015. If a year is not indicated, the Action Step is intended to be implemented on an ongoing or annual basis. The following Action Step descriptions also apply:

**Priority Watershed(s):** Details the areas within the County where the implementation of the initiative shall take place.

**Stakeholder(s):** This entails who potentially will be involved in the implementation of the identified initiative. An \*Asterisk indicates lead responsibility. A listing of the most common coordinating agencies and their respective acronyms is provided:

All (refers to all water plan stakeholders)

Cities (Cities)

County (County)

County Board (CB)

Ditch Authority (DA)

Environmental Office (EO)

Public Works (PW)

Resource Commission (RC)

Soil and Water Conservation District (SWCD)

Water Plan (WP)

Minnesota Board of Water and Soil Resources (BWSR)

Minnesota Department of Agriculture (MDA)

Minnesota Department of Health (MDH)

Minnesota Department of Natural Resources (DNR)

Minnesota Geological Survey (MGS)

Minnesota Department of Transportation (MnDOT)

Minnesota Pollution Control Agency (MPCA)

Natural Resources Conservation Service (NRCS)

University of Minnesota Extension (UME)

United States Army Corps of Engineers (USACE)

United States Department of Agriculture (USDA) – Farm Service Agency (FSA)

United States Fish and Wildlife Service (USFWS)

Watersheds (WS) and Watershed Management-Like Organizations (WMLOs)

Lac qui Parle Yellow Bank Watershed District (LqPYBWD)

Yellow Medicine River Watershed (YMRW)

Upper Minnesota River Watershed District (UMRWD)

Watershed Districts (WD)

**Estimated Cost:** This category divides the estimated costs of completing the Action Step into two columns: Overall and County. The Overall column provides an estimate of the total cost among all stakeholders (i.e., grants, cost-share, County match, etc.) to implement the Action Step. The County column represents the estimated cost incurred either directly or indirectly by Lac qui Parle County to implement the Action Step, including by the Lac qui Parle County SWCD. If an Action Item's cost could not be estimated, a TBD appears in the column, which stands for To-Be-Determined. The costs are estimated over the five-year implementation time-span, which covers the period of 2014-2018. The tables also show the average annual amount which is simply the overall estimated costs divided by five.

**C: Goals, Objectives & Action Steps (2014-2018)**

<b>GOAL 1: PROTECT AND IMPROVE SURFACE WATER QUALITY BY REDUCING PRIORITY POLLUTANTS</b>				
Priority Watershed	Action Step	Stakeholders *Local Lead	5-Year Estimated Costs	
			Overall	Local
<b>Objective A: TMDL Implementation - proactively work to get waters off MPCAs 303d List of Impaired Waters.</b>				
Lac qui Parle River Watershed	<b>1.A.1. Target BMP Programs</b> that address bacteria and turbidity along Lazarus Creek to the West Branch Lac qui Parle River (Assessment Unit # 07020003-508) and the Lac qui Parle River, from Lazarus Creek to the West Branch Lac qui Parle River (Assessment Unit # 07020003-506), within Lac qui Parle County.	*SWCD, *NRCS, EO, LQPYBWD, WP, MPCA, BWSR	\$475,000	\$52,000
	<b>1.A.1.a) Cropland BMPs:</b> <ul style="list-style-type: none"> <li>i. Work with 5 producers to adopt no till or strip till through programs such as EQIP.</li> <li>ii. Work with 10 producers to adjust tillage to increase residue by 10-15%.</li> <li>iii. Work with producers to keep existing CRP filters/buffers.</li> <li>iv. Target areas where buffers are needed but don't exist. Use one-to-one contacts and establish 5 new sites.</li> <li>v. Establish a demonstration site for cover crops in the floodplain.</li> <li>vi. Work with 1 producer to apply for the EQIP cover crop initiative.</li> <li>vii. Cost-share installing twenty (20) alternative tile intakes.</li> </ul>		\$120,000	\$12,000
	<b>1.A.1.b) Surface Water Management:</b> <ul style="list-style-type: none"> <li>i. Promote the use of drainage management BMPs, such as restoring wetlands, saturated buffers, biofilters, etc. Assist 3 producers with installing 1 practice each.</li> <li>ii. Install five (5) water and sediment control basins.</li> </ul>		\$100,000	\$10,000

1.A.1. continued...

1.A.1. continued...

	<p><b>1.A.1.c) Streambank BMPs:</b></p> <ul style="list-style-type: none"> <li>i. Stabilize 1 streambank erosion site by using bioengineering practices, stream barbs, j-hooks, and/or native vegetation.</li> <li>ii. Work with landowners to preserve/enhance native vegetation.</li> </ul>	\$50,000	\$5,000
	<p><b>1.A.1.d) Livestock BMPs:</b></p> <ul style="list-style-type: none"> <li>i. Cost-share developing three (3) pasture management plans.</li> <li>ii. Cost-share developing five (5) nutrient management plans for producers with fewer than 300 animal units.</li> <li>iii. Cost-share establishing two (2) managed water access projects.</li> </ul>	\$100,000	\$10,000
	<p><b>1.A.1.e) Non Ag BMPs:</b> Secure incentive funding to bring failing SSTS into compliance.</p>	\$100,000	\$10,000
	<p><b>1.A.1.f) Education/Outreach:</b></p> <ul style="list-style-type: none"> <li>i. 1 article in each SWCD quarterly newsletter promoting BMPs</li> <li>ii. 4 radio programs per year promoting BMPS</li> <li>iii. 1 workshop/field day/demonstrations site promoting BMPs.</li> <li>iv. Use one to one contacts in target areas to promote program availability &amp; BMP adoption.</li> </ul>	\$5,000	\$5,000

*A Note About the Cost Estimates...*

The 5-Year estimated costs for actions steps with multiple subcategories (such as Action Step 1.A.1.) appear in the first row to the right of the main action step. The numbers are highlighted in yellow (if printed in color) and the font is bolded and non-italicized. The cost estimates for each of the subcategories listed under the main action step appear un-bolded and italicized. These subcategories were simply added to equal the main action step's overall estimated costs. Notice as the tables continue that cost estimate totals are summarized under each Objective.

<b>\$475,000</b>	<b>\$52,000</b>
\$120,000	\$12,000
\$100,000	\$10,000
\$50,000	\$5,000
\$100,000	\$10,000
\$100,000	\$10,000
\$5,000	\$5,000

**GOAL 1: PROTECT AND IMPROVE SURFACE WATER  
QUALITY BY REDUCING PRIORITY POLLUTANTS**

Priority Watershed	Action Step	Stakeholders *Local Lead	5-Year Estimated Costs	
			Overall	Local
<b>Objective A: TMDL Implementation - proactively work to get waters off MPCAs 303d List of Impaired Waters.</b>				
Lac qui Parle River Watershed	<b>1.A.2. Target BMP Programs</b> that address bacteria, turbidity, and low dissolved oxygen along the Lac qui Parle River, from the West Branch Lac qui Parle River to Ten Mile Creek (Assessment Unit # 07020003-501).	*SWCD, *NRCS, EO, LQPYBWD, WP, MPCA, BWSR	<b>\$505,000</b>	<b>\$55,000</b>
	<b>1.A.2.a) Streambank BMPs:</b> i. 1 grade stabilization structure in a ravine. ii. Work with 1 producer to preserve/enhance native vegetation along stream corridor.		\$50,000	\$5,000
	<b>1.A.2.b) Cropland BMPs:</b> i. Work with 5 producers to adopt no till or strip till through programs such as EQIP. ii. Work with 10 producers to adjust tillage to increase residue by 10-15%. iii. Work with producers to keep existing CRP filters/buffers. iv. Target areas where buffers are needed but don't exist. Use one-to-one contacts and increase coverage on twenty (20) sites. v. Work with 1 producer to participate in the EQIP cover crop initiative. vi. Cost-share and install twenty (20) alternative tile intakes.		\$150,000	\$15,000
	<b>1.A.2.c) Surface Water Management:</b> i. Promote the use of drainage water management BMPs such as restore/create wetlands, saturated buffers, biofilters, etc. – 2 producers install 1 BMP practice each. ii. Install five (5) water and sediment control basins.		\$100,000	\$10,000

1.A.2. continued...

1.A.2. continued...

	<p><b>1.A.2.d) <i>Livestock BMPs:</i></b></p> <ul style="list-style-type: none"> <li>i. Cost-share developing five (5) nutrient management plans for producers with fewer than 300 animal units.</li> <li>ii. Cost-share establishing two (2) managed water access projects.</li> </ul>	<p>\$100,000</p>	<p>\$10,000</p>
	<p><b>1.A.2.e) <i>Non Ag BMPs:</i></b></p> <ul style="list-style-type: none"> <li>i. Secure incentive funding to bring failing SSTS into compliance.</li> <li>ii. Support development of stormwater management ordinances.</li> </ul>	<p>\$100,000</p>	<p>\$10,000</p>
	<p><b>1.A.2.f) <i>Education/Outreach:</i></b></p> <ul style="list-style-type: none"> <li>i. Publish an article in each SWCD quarterly newsletter promoting BMPs.</li> <li>ii. 4 radio programs per year promoting BMPS.</li> <li>iii. Host 1 workshop/field day/demonstrations site promoting the establishment of cover crop in the floodplain.</li> <li>iv. Use one to one contacts in target areas to promote program availability &amp; BMP adoption.</li> </ul>	<p>\$5,000</p>	<p>\$5,000</p>



**GOAL 1: PROTECT AND IMPROVE SURFACE WATER  
QUALITY BY REDUCING PRIORITY POLLUTANTS**

Priority Watershed	Action Step	Stakeholders *Local Lead	5-Year Estimated Costs	
			Overall	Local
<b>Objective A: TMDL Implementation - proactively work to get waters off MPCAs 303d List of Impaired Waters.</b>				
<b>Yellow Bank River Watershed</b>	<b>1.A.3. Target BMP Programs</b> that address bacteria along North Fork Yellow Bank River, from the MN/SD Border to the Yellow Bank River (Assessment Unit # 07020001-510) and the South Fork Yellow Bank River, from the MN/SD Border to North Fork Yellow Bank River (Assessment Unit # 07020001-526).	*SWCD, *NRCS, EO, LQPYBWD, WP, MPCA, BWSR	<b>\$355,000</b>	<b>\$40,000</b>
	<b>1.A.3.a) Livestock BMPs:</b> i. Provide incentives to promote nutrient management plan adherence. ii. Work with 2 producers to develop rotational grazing plans. iii. Assist 4 producers on proper use of pasture and/or pasture renovation/maintenance. iv. Cost-share establishment of two (2) managed water access projects.		\$100,000	\$10,000
	<b>1.A.3.b) Cropland BMPs:</b> i. Work with 3 producers per year to install buffers/filter strips.		\$150,000	\$15,000
	<b>1.A.3.c) Non Ag BMPs:</b> i. Secure incentive funding to bring failing SSTS into compliance.		\$100,000	\$10,000
	<b>1.A.3.d) Education/Outreach:</b> i. 1 article in each SWCD quarterly newsletter promoting BMPs; include South Dakota data. ii. 4 radio programs per year promoting BMPS. iii. Host 1 workshop/field day/demonstrations site on pasture management, septic maintenance, or other BMP addressing bacteria; include SD data. iv. Use one to one contacts in target areas.		\$5,000	\$5,000

**GOAL 1: PROTECT AND IMPROVE SURFACE WATER  
QUALITY BY REDUCING PRIORITY POLLUTANTS**

Priority Watershed	Action Step	Stakeholders *Local Lead	5-Year Estimated Costs	
			Overall	Local
<b>Objective A: TMDL Implementation - proactively work to get waters off MPCAs 303d List of Impaired Waters.</b>				
Lac qui Parle River & Yellow Bank River Watersheds	<b>1.A.4. Target BMP Programs</b> that address bacteria and turbidity along Florida Creek, MN/SD Border to West Branch Lac qui Parle River (Assessment Unit # 07020003-521), the West Branch Lac qui Parle River, from Lost Creek to Florida Creek (Assessment Unit # 07020003-516), and the North Fork Yellow Bank River to the Minnesota River (Assessment Unit # 07020001-525).	*SWCD, *NRCS, EO, LQPYBWD, WP, MPCA, BWSR	\$475,000	\$52,000
	<b>1.A.4.a) Cropland BMPs:</b> <ul style="list-style-type: none"> <li>i. 5 producers increase residue by adopting no till or strip till through program such as EQIP.</li> <li>ii. 10 producers adjust tillage to increase residue by 10-15%.</li> <li>iii. Work with producers to maintain existing CRP filters/buffers.</li> <li>iv. Target areas where buffers are needed but don't exist. Use one-to-one contacts and establish cover on 5 sites.</li> <li>v. Work with 1 producer on the EQIP cover crop initiative.</li> <li>vi. Fund and install 10 alternative tile intakes.</li> </ul>		\$120,000	\$12,000
	<b>1.A.4.b) Surface Water Management:</b> <ul style="list-style-type: none"> <li>i. Promote the use of drainage management BMPs such as restore/create wetlands, saturated buffers, biofilters, etc. – 1 producer install 1 practice from BMP list</li> <li>ii. Install 4 water and sediment control basins.</li> </ul>		\$100,000	\$10,000

1.A.4. continued...

1.A.4. continued...

	<p><b>1.A.4.c) Streambank BMPs:</b></p> <ul style="list-style-type: none"> <li>i. Stabilize 2 streambank erosion sites using bioengineering practices, stream barbs, j-hooks, and/or native vegetation.</li> <li>ii. Work with landowners to preserve/enhance native vegetation.</li> </ul>	\$50,000	\$5,000
	<p><b>1.A.4.d) Livestock BMPs:</b></p> <ul style="list-style-type: none"> <li>i. Assist 2 producers on proper use of pasture and/or pasture renovation/maintenance.</li> <li>ii. Cost-share establishing two (2) managed water access projects.</li> </ul>	\$100,000	\$10,000
	<p><b>1.A.4.e) Non Ag BMPs:</b></p> <ul style="list-style-type: none"> <li>i. Secure incentive funding to bring failing SSTS into compliance.</li> </ul>	\$100,000	\$10,000
	<p><b>1.A.4.f) Education/Outreach:</b></p> <ul style="list-style-type: none"> <li>i. 1 article in each SWCD quarterly newsletter promoting BMPs.</li> <li>ii. 4 radio programs per year promoting BMPS.</li> <li>iii. 1 workshop/field day/demonstrations site on BMPs addressing impairments.</li> <li>iv. Use one to one contacts in target areas.</li> </ul>	\$5,000	\$5,000

**GOAL 1: PROTECT AND IMPROVE SURFACE WATER  
QUALITY BY REDUCING PRIORITY POLLUTANTS**

Priority Watershed	Action Step	Stakeholders *Local Lead	5-Year Estimated Costs	
			Overall	Local
<i>Objective A: TMDL Implementation - proactively work to get waters off MPCAs 303d List of Impaired Waters.</i>				
Lac qui Parle River Watershed: Ten Mile Creek	<b>1.A.5. Target BMP Programs</b> that address bacteria along Ten Mile Creek, Headwaters to Lac qui Parle River (Assessment Unit # 07020003-511).	*SWCD, *NRCS, EO, LQPYBWD, WP, MPCA, BWSR	<b>\$280,000</b>	<b>\$50,000</b>
	<b>1.A.5.a) Cropland BMPs:</b> i. Cost share and install 30 alternative tile intakes.		\$15,000	\$15,000
	<b>1.A.5.b) Surface Water Management:</b> i. Promote the use of drainage management BMPs such as restore/create wetlands, saturated buffers, biofilters, etc. – 2 producers install 1 practice from BMP list.		\$100,000	\$10,000
	<b>1.A.5.c) Livestock BMPs:</b> i. Cost-share developing 4 nutrient management plans for producers with fewer than 300 animal units.		\$60,000	\$10,000
	<b>1.A.5.d) Non Ag BMPs:</b> i. Secure incentive funding to bring failing SSTS into compliance.		\$100,000	\$10,000
	<b>1.A.5.e) Education/Outreach:</b> i. 1 article in each SWCD quarterly newsletter promoting BMPs. ii. 4 radio programs per year promoting BMPS. iii. 1 workshop/field day/demonstrations site on BMPs addressing impairments. iv. Use one to one contacts in target areas.		\$5,000	\$5,000

**GOAL 1: PROTECT AND IMPROVE SURFACE WATER  
QUALITY BY REDUCING PRIORITY POLLUTANTS**

Priority Watershed	Action Step	Stakeholders <i>*Local Lead</i>	5-Year Estimated Costs	
			Overall	Local
<i>Objective A: TMDL Implementation - proactively work to get waters off MPCAs 303d List of Impaired Waters.</i>				
Lac qui Parle River Watershed	<b>1.A.6. Target BMP Programs</b> that address bacteria along West Branch Lac qui Parle River, Unnamed Creek to Unnamed Ditch (Assessment Unit # 07020003-512).	*SWCD, *NRCS, EO, LQPYBWD, WP, MPCA, BWSR	\$345,000	\$45,000
	<b>1.A.6.a) Surface Water Management:</b> i. Promote the use of drainage management BMPs such as restore/create wetlands, saturated buffers, biofilters, etc.) – 1 producer install 1 practice from BMP list ii. Install 2 water and sediment control basins. iii. Install 1 terrace.		\$100,000	\$10,000
	<b>1.A.6.b) Cropland BMPs:</b> i. Fund and install 2 alternative tile intakes. ii. Target areas where buffers are needed but don't exist. Use one-to-one contacts and establish cover on 2 sites.		\$15,000	\$5,000
	<b>1.A.6.c) Streambank BMPs:</b> i. Stabilize 1 streambank erosion site by using bioengineering practices, stream barbs, j-hooks, and/or native vegetation. ii. Install one grade stabilization structure in a ravine.		\$50,000	\$5,000

1.A.6. continued...

1.A.6. continued...

	<p><b>1.A.1.d) Livestock BMPs:</b></p> <ul style="list-style-type: none"> <li>i. Cost-share developing 4 nutrient management plans for producers with fewer than 300 animal units.</li> <li>ii. Secure incentive funds to encourage producers to follow existing nutrient management plans.</li> <li>iii. Seek funds to assist remediation of nonconforming feedlots.</li> </ul>	\$75,000	\$10,000
	<p><b>1.A.1.e) Non Ag BMPs:</b> Secure incentive funding to bring failing SSTS into compliance.</p>	\$100,000	\$10,000
	<p><b>1.A.1.f) Education/Outreach:</b></p> <ul style="list-style-type: none"> <li>i. 1 article in each SWCD quarterly newsletter promoting BMPs.</li> <li>ii. 4 radio programs per year promoting BMPS.</li> <li>iii. 1 workshop/field day/demonstrations site promoting BMPs.</li> <li>iv. Use one to one contacts in target areas to promote program availability &amp; BMP adoption.</li> </ul>	\$5,000	\$5,000

*Summary of Goal 1 Objective A Estimated Costs:*

<i>Action Step</i>	<i>5-Year Overall Estimated Costs</i>	<i>5-Year Local Estimated Costs</i>
1.A.1.	\$475,000	\$52,000
1.A.2.	\$505,000	\$55,000
1.A.3.	\$355,000	\$40,000
1.A.4.	\$475,000	\$52,000
1.A.5.	\$280,000	\$50,000
1.A.6.	\$345,000	\$45,000
<b>Overall Estimated Costs</b>	<b>\$2,435,000</b>	<b>\$294,000</b>
<b>Average Annual Cost</b>	<b>\$487,000</b>	<b>\$58,800</b>

*Average Annual Costs were determined by dividing Overall Estimated Costs by 5.*



**GOAL 1: PROTECT AND IMPROVE SURFACE WATER  
QUALITY BY REDUCING PRIORITY POLLUTANTS**

Priority Watershed	Action Step	Stakeholders <i>*Local Lead</i>	5-Year Estimated Costs	
			Overall	Local
<b>Objective B: Reduce or minimize the negative impacts of animal manure and fertilizers on surface water quality.</b>				
Countywide	<p><b>1.B.1. County Feedlot Program.</b> Continue to locally administer the County Feedlot Program to assist feedlot operators in obtaining and maintaining compliance with State regulations.</p> <p>1.B.1.a) Assist feedlot operators in achieving and maintaining compliance with state regulations.</p> <p>1.B.1.b) Maintain/update Level 3 information on regular basis.</p> <p>1.B.1.c) Ensure expansions are in compliance with state &amp; local regulations.</p> <p>1.B.1.d) Inspect 15 feedlots per year.</p> <p>1.B.1.e) Provide technical &amp; engineering assistance to producers through SWCD &amp; TSA.</p>	*EO, MPCA, SWCD, TSA	\$200,000	\$40,000
Countywide	<p><b>1.B.2. Level 3 Feedlot Inventory.</b> Use Level 3 Feedlot Inventory to prioritize and target BMPs.</p> <p>1.B.2.a) Assist 5 producers to control feedlot runoff.</p>	*SWCD, EO, NRCS, WP, LQPYBWD	\$25,000	\$4,000
Countywide	<p><b>1.B.3. Waste Management.</b> Work with producers to properly address waste management issues.</p> <p>1.B.3.a) Obtain scale pads to better calibrate solid manure application requirements.</p> <p>1.B.3.b) Assist producers with developing and following manure/nutrient management plans.</p> <p>i. Ensure producers are following plans.</p> <p>ii. Seek cost-share/incentive funds for producers with fewer than 300 animal units to develop nutrient management plans.</p> <p><b>1.B.3. Continued...</b></p>	*EO, *SWCD, WP, MPCA, BWSR	\$50,000	\$5,000

Countywide	<p><b>1.B.3. Continued...</b></p> <p>1.B.3.c) Require development of and adherence to nutrient management plans within drinking water supply areas or wellhead protection areas.</p> <p>1.B.3.d) Secure incentive or cost share funds to close 3 unused ag waste impoundments (such as lagoons or ponds).</p>	<i>Refer to previous page</i>	<i>Refer to previous page</i>	<i>Refer to previous page</i>
Countywide	<p><b>1.B.4. Pasture Management.</b></p> <p>1.B.4.a) Improve 100 acres of pasture management by implementing BMPs, such as stream crossing, fencing, remote water systems, managed grazing, etc.</p> <p>1.B.4.b) Managed Water Access. Cost-share fencing for 2 producers.</p>	*SWCD, EO, NRCS, BWSR	\$15,000	\$2,000
Countywide	<p><b>1.B.5. Education/Outreach.</b></p> <p>1.B.5.a) Continuing education (news release, radio, newsletters, direct mailing, etc) on current regulations, permit issues, BMP programs, &amp; nutrient management plans (why needed, how to develop, how to use) – Implement 6 activities annually.</p> <p>1.B.5.b) Host a workshop/field day for feedlot operators. Plan one activity every other year.</p> <p>i. Workshop on importance of correct manure application.</p> <p>ii. Field day on importance of correct manure management.</p>	*EO, SWCD, NRCS, MPCA, MDA	\$7,500	\$2,500
<b>Objective B 5-Year Overall Estimated Costs</b>			<b>\$297,500</b>	<b>\$53,500</b>
<b>Objective B Average Annual Costs</b>			<b>\$59,500</b>	<b>\$10,700</b>



**GOAL 1: PROTECT AND IMPROVE SURFACE WATER  
QUALITY BY REDUCING PRIORITY POLLUTANTS**

Priority Watershed	Action Step	Stakeholders *Local Lead	5-Year Estimated Costs	
			Overall	Local
<b>Objective C: SSTS – Work with landowners on proper installation and maintenance.</b>				
Countywide	<b>1.C.1. County SSTS Program.</b> Continue to locally administer the County’s SSTS Program. 1.C.1.a) Inspect new systems for compliance 1.C.1.b) Work with landowners to comply with SSTS regulations 1.C.1.c) Continue operation & maintenance information program for new systems, mailing brochure 2 <sup>nd</sup> year after installation	*EO, MPCA	\$50,000	\$10,000
Countywide	<b>1.C.2. Upgrade/Replace Failing SSTS.</b> 1.C.2.a) Seek funding to provide incentive for replacement of imminent threat SSTS for 35 homeowners annually 1.C.2.b) Secure MPCA and MDA funding to provide low interest loans to upgrade noncompliant systems.	*EO, WS, SWCD, MPCA, MDA, BWSR	\$400,000	\$40,000
LqP River & Yellow Bank River Watersheds	<b>1.C.3 Impaired Subwatersheds.</b> Seek funds to inspect all SSTS in Lac qui Parle County’s impaired subwatersheds.	*EO	\$100,000	\$25,000
Lac qui Parle River Watershed	<b>1.C.4 Group System.</b> Assist with a group system for an unincorporated community.	*EO, MPCA	\$350,000	\$15,000

Objective C *continued...*

Objective C *continued...*

Countywide	<b>1.C.5. Education/Outreach</b>						
	1.C.5.a) Host workshop for SSTS installers and septage haulers - biennial						
	1.C.5.b) Develop awareness campaign of proper disposal of pharmaceuticals						
	1.C.5.c) 1 article per year in SWCD newsletter promoting BMPs.	*EO, WP, WS, SWCD, MPCA	\$5,000	\$5,000			
	1.C.5.d) 1 radio program/1 news release annually “if it flushes you have no worries?”						
1.C.5.e) Develop outreach program – “how to care for”, “what not to flush”, “proper care”.							
<b>Objective C 5-Year Overall Estimated Costs</b>					<b>\$905,000</b>	<b>\$95,000</b>	
<b>Objective C Average Annual Costs</b>					<b>\$181,000</b>	<b>\$19,000</b>	

**GOAL 1: PROTECT AND IMPROVE SURFACE WATER  
QUALITY BY REDUCING PRIORITY POLLUTANTS**

Priority Watershed	Action Step	Stakeholders *Local Lead	5-Year Estimated Costs	
			Overall	Local
<b>Objective D: Erosion &amp; sediment control to protect the County's long-term soil resources and surface water quality.</b>				
Lac qui Parle River Watershed: Emily Creek	<b>1.D.1. Emily Creek.</b> Target erosion and sediment control BMPs along Emily Creek.	*SWCD, NRCS, WP, BWSR	\$50,000	\$10,000
	<b>1.D.1.a) Cropland BMPs:</b> <ul style="list-style-type: none"> <li>i. Work with 2 producers to adopt no till or strip till through programs such as EQIP.</li> <li>ii. Work with 6 producers to adjust tillage to increase residue by 10-15%.</li> <li>iii. Target areas where buffers are needed but don't exist. Use one-to-one contacts and establish 4 new sites.</li> <li>iv. Work with 1 producer to apply for the EQIP cover crop initiative.</li> </ul>		\$35,000	\$3,000
	<b>1.D.1.b) Surface Water Management:</b> <ul style="list-style-type: none"> <li>i. Install 4 grade control structures.</li> </ul>		\$10,000	\$2,000
	<b>1.D.1.c) Education/Outreach:</b> <ul style="list-style-type: none"> <li>i. 1 article in each SWCD quarterly newsletter promoting BMPs.</li> <li>ii. 4 radio programs per year promoting BMPS.</li> <li>iii. 1 workshop/field day/demonstrations site on BMPs addressing impairments.</li> <li>iv. Use one to one contacts in target areas.</li> </ul>		\$5,000	\$5,000

Objective D *continued...*

Objective D *continued...*

<b>GOAL 1: PROTECT AND IMPROVE SURFACE WATER QUALITY BY REDUCING PRIORITY POLLUTANTS</b>				
Priority Watershed	Action Step	Stakeholders *Local Lead	5-Year Estimated Costs	
			Overall	Local
<i>Objective D: Erosion &amp; sediment control to protect the County's long-term soil resources and surface water quality.</i>				
Lac qui Parle River Watershed	<b>1.D.2. Lac qui Parle River West of Dawson.</b> Target erosion and sediment control BMPs along the Lac qui Parle River West of Dawson (from Ten Mile Creek to Lac qui Parle Lake).	*SWCD, NRCS, WP, BWSR	<b>\$47,500</b>	<b>\$9,500</b>
	<b>1.D.2.a) Cropland BMPs:</b> <ul style="list-style-type: none"> <li>i. Work with 2 producers to adopt no till or strip till through programs such as EQIP.</li> <li>ii. Work with 6 producers to adjust tillage to increase residue by 10-15%.</li> <li>iii. Target areas where buffers are needed but don't exist. Use one-to-one contacts and establish 4 new sites.</li> <li>iv. Work with 1 producer to apply for the EQIP cover crop initiative.</li> </ul>		\$35,000	\$3,000
	<b>1.D.2.b) Surface Water Management:</b> <ul style="list-style-type: none"> <li>i. Install 3 grade control structures.</li> </ul>		\$7,500	\$1,500
	<b>1.D.2.c) Education/Outreach:</b> <ul style="list-style-type: none"> <li>i. 1 article in each SWCD quarterly newsletter promoting BMPs.</li> <li>ii. 4 radio programs per year promoting BMPS.</li> <li>iii. 1 workshop/field day/demonstrations site on BMPs addressing impairments.</li> <li>iv. Use one to one contacts in target areas.</li> </ul>		\$5,000	\$5,000

Objective D *continued...*

Objective D *continued...*

<b>GOAL 1: PROTECT AND IMPROVE SURFACE WATER QUALITY BY REDUCING PRIORITY POLLUTANTS</b>				
Priority Watershed	Action Step	Stakeholders *Local Lead	5-Year Estimated Costs	
			Overall	Local
<i>Objective D: Erosion &amp; sediment control to protect the County's long-term soil resources and surface water quality.</i>				
Lac qui Parle River Watershed: Mud Creek	<b>1.D.3. Mud Creek.</b> Target erosion and sediment control BMPs along Mud Creek, from Marietta to West of Dawson.	*SWCD, NRCS, WP, BWSR	\$40,000	\$8,000
	<b>1.D.3.a) Cropland BMPs:</b> <ul style="list-style-type: none"> <li>i. Maintain enrolled acres in conservation programs, such as CRP &amp; RIM.</li> <li>ii. Work with 10 producers to adjust tillage to increase residue by 10-15%.</li> <li>iii. Target areas where buffers are needed but don't exist. Use one-to-one contacts and establish 1 new site.</li> <li>iv. Target floodplain acres for new enrollments in long-term grassland programs.</li> </ul>		\$35,000	\$3,000
	<b>1.D.3.b) Education/Outreach:</b> <ul style="list-style-type: none"> <li>v. 1 article in each SWCD quarterly newsletter promoting BMPs.</li> <li>vi. 4 radio programs per year promoting BMPS.</li> <li>vii. 1 workshop/field day/demonstrations site on BMPs addressing impairments.</li> <li>viii. Use one to one contacts in target areas.</li> </ul>		\$5,000	\$5,000

Objective D *continued...*

Objective D *continued...*

<b>GOAL 1: PROTECT AND IMPROVE SURFACE WATER QUALITY BY REDUCING PRIORITY POLLUTANTS</b>				
Priority Watershed	Action Step	Stakeholders <i>*Local Lead</i>	5-Year Estimated Costs	
			Overall	Local
<b>Objective D: Erosion &amp; sediment control to protect the County's long-term soil resources and surface water quality.</b>				
Lac qui Parle River Watershed	<b>1.D.4. Cobb Creek, Crow Creek, West Branch Lac qui Parle River.</b> Target erosion and sediment control BMPs along Cobb Creek, Crow Creek, West Branch Lac qui Parle River (segment not included in the TMDL).	*SWCD, NRCS, WP, BWSR	<b>\$45,500</b>	<b>\$14,500</b>
	<b>1.D.4.a) Cropland BMPs:</b> i. Work with 2 producers to adjust tillage to increase residue by 10-15%.		\$10,000	\$2,000
	<b>1.D.4.b) Surface Water Management:</b> i. Install 10 water and sediment control basins. ii. Install 1 grassed waterway.		\$25,000	\$8,000
	<b>1.D.4.c) Livestock BMPs:</b> i. Assist 2 producers to adopt improved pasture management techniques such as rotational grazing, prescribed grazing, or other pasture improvement BMPs.		\$8,000	\$2,000
	<b>1.D.4.d) Education/Outreach:</b> i. Promote BMPs through the use of newsletters, news releases, radio, workshops, booth/display, or other means - one activity per year. ii. Use one to one contacts in target areas.		\$2,500	\$2,500

Objective D *continued...*

**Objective D continued...**

Countywide	<b>1.D.5 Ag Low Interest Loans.</b> Administer MN Department of Ag low interest loan program	*WP, MDA	\$40,000	\$8,000
Countywide	<b>1.D.6. Technical Assistance.</b> Ensure adequate administrative & technical staff to deliver SWCD, watershed, & other LGU BMP programs, ensuring Water Plan goals & objectives are effectively implemented.	*SWCD, LQPBYWD, CB	\$100,000	\$10,000
Countywide	<b>1.D.7. SWCD Tree Program.</b> Continue fabric mulch program for SWCD conservation tree plantings.	*SWCD	\$40,000	\$20,000
Countywide	<b>1.D.8. Targeting BMPs.</b> Target BMP application using tools such as Digital Elevation Model data and Terrain Analysis, SPI (Stream power Index) signatures, Environmental Benefits Index, BWSR Ecological Ranking Tool website, MPCA Nitrate in Surface Waters Study, and others as they become available.	*LQPYBWD, SWCD, WP, MPCA, BWSR	\$50,000	\$10,000
Countywide	<p><b>1.D.9. Cropland BMPs:</b></p> <p>1.D.9.a) Secure incentive to install BMPs that reduce impact of pesticides and other chemicals as well as nutrients.</p> <p>1.D.9.b) Secure funding to provide incentive for 10 in-field nutrient management plans to reduce nitrates in surface water.</p> <p>1.D.9.c) Work with 1 producer to apply for EQIP cover crop initiative.</p> <p>1.D.9.d) 4 producers adopt no till or strip till through programs i.e. EQIP.</p> <p>1.D.9.e) 4 producers adjust tillage to increase residue by 10-15%.</p> <p>1.D.9.f) Continue the SWCD no-till drill program.</p> <p>1.D.9.g) Target marginal land to promote grassland programs i.e. CRP, RIM, CREP.</p> <p>1.D.9.h) Target buffer programs only where needed but don't exist; 3-4 producers adopt.</p>	*SWCD, NRCS, WP, BWSR	\$50,000	\$10,000

**Objective D continued...**

**Objective D *continued...***

Countywide	<b>1.D.10. Surface Water Management.</b> Promote the use of drainage management BMPs such as restore/create wetlands, saturated buffers, biofilters, etc.) – 1 producer install 1 practice from BMP list.	*SWCD, NRCS, WP, LQPYBWD, BWSR	\$25,000	\$5,000
Countywide	<b>1.D.11. Education/Outreach:</b> 1.D.11.a) Make resource person available; seek funding for additional staff. 1.D.11.b) Develop and distribute road construction/repair BMP information annually at township officers’ meeting 1.D.11.c) Promote erosion prevention during construction/repair of county roads. 1.D.11.d) Educate contractors of stormwater permit requirements – 1 activity annually. 1.D.11.e) Encourage use of new technologies. 1.D.11.f) Promote use of pervious surfaces in public areas such as parks and water access, as well as residential & business. 1.D.11.g) Promote application of BMPs that reduce potential impact of pesticides and other chemicals as well as nutrients. 1.D.11.h) Promote soil health BMPs quarterly using print or electronic media. 1.D.11.i) Promote BMPs as identified in MN Prairie Conservation Plan to provide benefits for both water quality and prairie eco-systems. 1.D.11.j) Provide youth activities including classroom, field days, tours, competitions (local, area, state levels) 10 activities annually.	*SWCD, WP, EO, LQPYBWD	\$50,000	\$12,500
<b>Objective D 5-Year Overall Estimated Costs</b>			<b>\$538,000</b>	<b>\$117,500</b>
<b>Objective D Average Annual Costs</b>			<b>\$107,600</b>	<b>\$23,500</b>



**GOAL 2: GROUNDWATER QUALITY & QUANTITY:  
TO PROTECT THE COUNTY'S AQUIFERS**

Priority Watershed	Action Step	Stakeholders *Local Lead	5-Year Estimated Costs	
			Overall	Local
<i>Objective E: Implement Best Management Practices in Wellhead Protection Areas.</i>				
Countywide	<b>2.E.1. Wellhead Protection.</b> Participate in the preparation and implementation of wellhead protection plans for public water suppliers. Communities of Dawson, Madison, and Boyd are scheduled to be phased into the Wellhead Protection Program in 2017.	*WP, MDH, Cities	\$50,000	\$5,000
Countywide	<b>2.E.2. Land Use Inventory.</b> 2.E.2.a) Develop inventory of land use in Drinking Water Supply Areas and Wellhead Protection Areas (2018). 2.E.2.b) Target groundwater BMPs and conservation/easement programs in DWSA & Wellhead Protection Areas. Work with two (2) landowners annually. 2.E.2.c) Bring feedlots and septic systems in DWSA & WPAs into compliance. Target two (2) projects annually.	*SWCD, *EO, WPM, MDH	\$60,000	\$10,000
Countywide	<b>2.E.3. Zoning Maps.</b> Incorporate Wellhead Protection Areas into local zoning maps and update as necessary.	*EO	\$3,000	\$3,000
Countywide	<b>2.E.4. Abandoned Wells.</b> Target sealing abandoned wells in Wellhead Protection Areas. Cost share sealing two (2) abandoned wells annually.	*WP, EO	\$2,500	\$2,500
Countywide	<b>2.E.5. Local Ordinances.</b> Examine existing ordinances and proposed changes to ensure they protect and do not negatively impact WPAs.	*EO, MDH	\$1,000	\$1,000
<i>Objective E 5-Year Overall Estimated Costs</i>			\$116,500	\$21,500
<i>Objective E Average Annual Costs</i>			\$23,300	\$4,300

**GOAL 2: GROUNDWATER QUALITY & QUANTITY:  
TO PROTECT THE COUNTY'S AQUIFERS**

Priority Watershed	Action Step	Stakeholders <i>*Local Lead</i>	5-Year Estimated Costs	
			Overall	Local
<b>Objective F: Ensure there is an adequate supply of safe drinking water.</b>				
Countywide	<b>2.F.1. Groundwater BMPs:</b>			
	2.F.1.a) Secure funding to provide technical assistance for installation of BMPs. Fund one (1) technical staff.			
	2.F.1.b) Secure funding to ensure development and use of nutrient management plans in Drinking Water Supply Management Areas, Wellhead Protection Areas, or other sensitive groundwater recharge areas.			
	2.F.1.c) Promote & secure funding to implement groundwater BMP projects. Prioritize sensitive groundwater recharge areas. Install 2 projects annually.			
	2.F.1.d) Reduce nitrogen leaving cropped field root zones:	*SWCD, *WP, EO, CB, MDH, DNR, MDA	\$300,000	\$75,000
	i. Improve management of nitrogen – Implement BMP with one (1) landowner annually.			
	ii. Increase use of cover crops – Implement BMP with one (1) landowner annually.			
	iii. Increase perennials in crop rotation – Implement BMP with one (1) landowner annually.			
2.F.1.e) Promote upgrading of SSTS with use of programs such as Ag BMP Loan program, MPCA SRF Loan program, & others as available.				
2.F.1.f) Secure funding to seal fifteen (15) abandoned wells annually.				
2.F.1.g) Incorporate the County's sensitive groundwater recharge areas map into the local land use decision making process.				

**Objective F continued...**

Objective F *continued...*

Countywide	<p><b>2.F.2. Hydrogeologic Atlas.</b> .</p> <p>2.F.2.a) Work with MN Geological Survey and DNR to develop a hydrogeologic assessment as part of the County Geologic Atlas Program for Lac qui Parle County. Secure funding to cost-share creation of hydrogeologic atlas (2014).</p>	*WP, DNR, MGS	\$100,000	\$20,000
Countywide	<p><b>2.F.3. Groundwater Quality Monitoring.</b> Assist with groundwater quality monitoring and promote the adoption of measures to protect groundwater quality.</p> <p>2.F.3.a) Review monitoring data &amp; use to prioritize BMP programs.</p> <p>2.F.3.b) Participate in groundwater studies.</p> <p>2.F.3.c) Nitrate testing clinics – conduct one (1) clinic annually.</p> <p>2.F.3.d) Sponsor campaign to test private well water for nitrates, fecal, or other contaminant of concern. Secure funding to offer financial assistance to landowners for use of certified lab testing (2014).</p> <p>2.F.3.e) Hold a pesticide container collection day annually.</p> <p>2.F.3.f) Hold household hazardous waste collection semiannually.</p> <p>2.F.3.g) Administer the County’s SSTS program.</p> <p>2.F.3.h) Inventory upgraded SSTS systems using County GIS. Use data to evaluate areas where e. Coli is still high.</p>	*EO, SWCD, WP, MPCA, MDA, MDH	\$100,000	\$20,000
Countywide	<p><b>2.F.4. Education/Outreach.</b></p> <p>2.F.4.a) Educate County residents on groundwater (BMPs/ quantity/ quality) through the use of newsletters, news releases, radio, workshops, booth/display, or other means. Make use of national and/or state activities, such as <i>Protect Your Groundwater Day</i>. Implement one (1) activity annually.</p> <p>2.F.4.b) Use permit inquiries for demolition of old building sites to educate landowners on the impacts to groundwater (i.e. hazardous materials, seal well, etc.). Average five (5) contacts annually.</p> <p><b>2.F.4 continued...</b></p>	*WP, SWCD, EO, DNR, MDH, MGS, MDA, WS	\$50,000	\$15,000

	<p><b>2.F.4 continued...</b></p> <p>2.F.4.c) Educate all citizens on the significance of being in a Wellhead Protection or Drinking Water Supply Management Area using newsletters, news releases, radio, workshops, booth/display, personal contacts, or other means. Target additional information to communities as phased into wellhead protection program. Implement one (1) activity annually.</p> <p>2.F.4.d) Educate citizens about the importance of protecting wellhead areas and our groundwater (i.e. “Every well has a wellhead”, private well BMPs, develop “user guide” with suggested setbacks, etc.). Implement one (1) activity annually.</p> <p>2.F.4.e) Conduct one workshop to train local decision makers on use of County Geologic Atlas. Work with neighboring counties.</p> <p>2.F.4.f) Post SSTS operation &amp; maintenance information on the County’s website.</p> <p>2.F.4.g) Hold one SSTS O&amp;M workshop for homeowners &amp; realtors annually.</p> <p>2.F.4.h) Educate producers on the need for nutrient management plans, how to develop, how to use, etc.</p>	<p><i>Refer to previous page</i></p>	<p><i>Refer to previous page</i></p>	<p><i>Refer to previous page</i></p>
<b>Objective F Average Annual Costs</b>			\$550,000	\$130,000
<b>Objective F 5-Year Overall Estimated Costs</b>			\$110,000	\$26,000

**GOAL 2: GROUNDWATER QUALITY & QUANTITY:  
TO PROTECT THE COUNTY'S AQUIFERS**

Priority Watershed	Action Step	Stakeholders <i>*Local Lead</i>	5-Year Estimated Costs	
			Overall	Local
<i>Objective G: Implement Best Management Practices to protect the quantity of groundwater.</i>				
Countywide	<p><b>2.G.1. Groundwater Quantity Monitoring.</b> Assist with groundwater quantity monitoring efforts and promote the adoption of measures to protect groundwater supplies.</p> <p>2.G.1.a) Monitor 7 DNR observation well test sites.</p> <p>2.G.1.b) As irrigation in the LqP County increases, work with DNR to determine when &amp; where additional monitoring wells are needed.</p> <p>2.G.1.c) Participate in community decision process regarding sale of city water to rural water companies. Use groundwater recharge maps.</p> <p>2.G.1.d) Support groundwater use permit requirements that report actual use on annual basis (use protection thresholds).</p>	*SWCD, *WP, DNR, EO	\$20,000	\$5,000
Countywide	<p><b>2.G.2. Groundwater Quantity BMPs.</b> Provide technical &amp; financial assistance to landowners for implementation of groundwater BMPs.</p> <p>2.G.2.a) Secure funding to cost share conversion of conventional irrigation systems to conservation systems – Implement five (5) conversions.</p> <p>2.G.2.b) Hold more water on the landscape with wetland protection/restoration, retention structures, grass plantings, etc., using available federal, state, and/or local programs - Target one (1) subwatershed annually.</p>	*WP, *SWCD, EO, LQPYBWD, MDA, DNR	\$100,000	\$20,000

Objective G *continued...*

**Objective G continued...**

Countywide	<p><b>2.G.3. Education/Outreach:</b></p> <p>2.G.3.a) Educate citizens on groundwater (BMPs/ quantity/ quality) through the use of newsletters, news releases, radio, workshops, booth/display, or other means. Implement a minimum of one (1) activity annually.</p> <p>2.G.3.b) Host one local workshop or demonstration on BMPs for irrigated acres, Irrigation Management Program, or other pertinent topic on groundwater.</p> <p>2.G.3.c) Host one local workshop on impact of drainage and other land use practices on rates of recharge, why the public should care about the connection between groundwater and rivers/ streams/wetlands, or similar topic; share observation well data.</p> <p>2.G.3.d) Promote development of County Water Conservation Plan/ Drought Contingency Plan. Seek funding to develop plan.</p> <p>2.G.3.e) Partner with stakeholders to provide household water conservation kits, including low-flow showerheads and toilet conversion kits.</p>	*WP, SWCD, EO, Cities, DNR, MDA, MDH, WS	\$80,000	\$20,000
<b>Objective G 5-Year Overall Estimated Costs</b>			\$200,000	\$45,000
<b>Objective G Average Annual Costs</b>			\$40,000	\$9,000

**GOAL 3: EFFECTIVELY MANAGE SURFACE WATER RESOURCES**

Priority Watershed	Action Step	Stakeholders *Local Lead	5-Year Estimated Costs	
			Overall	Local
<i>Objective H: Ensure that surface water resources are managed properly for multiple uses and flood damages are minimized.</i>				
Countywide	<b>3.H.1. Agricultural Drainage.</b> Work with landowners to help ensure that agricultural drainage is functioning properly and that both water quality and quantity issues are addressed.	*LQPYBWD, SWCD, WP, NRCS, BWSR	<b>\$660,000</b>	<b>\$120,000</b>
	<b>3.H.1.a) Drainage BMPs:</b> i. Increase number of stream miles protected by riparian buffers – 1 mile per year. ii. Seek funds to provide incentive for implementation of saturated buffers on 15% ditches/streams within target watershed for each year of funding.		\$150,000	\$15,000
	<b>3.H.1.b) Drainage Inventory &amp; Analysis:</b> i. Use LiDar, terrain analysis, and/or additional engineering assistance, complete a comprehensive watershed drainage system analysis to identify priority watersheds for multipurpose drainage management and development of conservation plans. ii. Seek funding for multipurpose drainage management plans. Target 1 or 2 subwatersheds upon completion of comprehensive drainage system analysis. iii. Investigate feasibility of private tile inventory. iv. Annually review ditch systems to document whether re-determination is required. v. Inventory ditch systems to document existing BMPs. vi. Complete annual drainage ditch report; submit to BWSR annually.		\$500,000	\$100,000

Objective H *continued...*

Objective H *continued...*

	<p><b>3.H.1.c) Education/Outreach:</b></p> <ul style="list-style-type: none"> <li>i. Education campaign “drain only what’s necessary &amp; not a drop more”.</li> <li>ii. Market multipurpose drainage management to landowners within the public drainage system subwatersheds.</li> <li>iii. Target promotion of applicable BMPs in critical areas of the landscape, encouraging use of federal, state, or other BMP implementation funds.</li> <li>iv. Host field day promoting BMPs providing “water management for ag production”.</li> </ul>		\$10,000	\$5,000
Countywide	<p><b>3.H.2. Stormwater Management.</b> Work with landowners to help ensure that stormwater is managed properly and that both water quality and quantity issues are addressed.</p>	*SWCD, WP, NRCS, EO, WS, DNR, BWSR	\$275,000	\$57,000
	<p><b>3.H.2.a) Stormwater BMPs:</b> Provide technical &amp; financial assistance to landowners for implementation of wind &amp; water erosion control BMPs.</p> <ul style="list-style-type: none"> <li>i. Water &amp; sediment control basins – install 5 per year</li> <li>ii. Terraces – install 1 per year</li> <li>iii. Residue management – apply to 500 acres per year</li> <li>iv. Long term vegetation including filter strips (CRP, CCRP, CREP, RIM) – install 25 acres per year</li> <li>v. Field windbreaks – establish 1 every other year</li> <li>vi. Farmstead shelterbelts – install 5 per year</li> <li>vii. Wildlife plantings – establish 1 per year</li> <li>viii. Living snowfence – install 1 per year</li> <li>ix. Seek funding to encourage adoption of new practices such as cover crops – work with 2 landowners annually.</li> </ul>		\$250,000	\$50,000

Objective H *continued...*



Objective H *continued...*

	<b>3.H.2.b)</b> Participate in the MN Department of Climatology Rainfall Monitoring program. Add monitors where needed to fill in gaps in data.		\$10,000	\$2,000
	<b>3.H.2.c) Education/Outreach:</b> i. Promote stormwater BMPs such as rain barrels, pervious surfaces, permanent vegetation, etc, through the use of newsletters, news releases, radio, workshops, booth/display, or other means - 1 activity per year. ii. Target promotion of BMPs in critical areas of the landscape, encouraging use of federal, state, or other BMP implementation funds through the use of newsletter, news releases, radio, workshops, booth/display, personal contacts, or other means – 1 activity annually.		\$15,000	\$5,000
Countywide	<b>3.H.3. Wetlands and Water Storage/Retention.</b> Administer WCA and work with landowners to help ensure that wetlands and water storage/retention are managed properly and that both water quality and quantity issues are addressed.	*SWCD, WP, NRCS, EO, LQPYBWD, BWSR	\$170,000	\$33,000
	<b>3.H.3.a) Wetlands/Water Retention BMPs:</b> Provide technical & financial assistance to landowners for implementation of wetlands/water retention BMPs. i. Provide technical & financial assistance to landowners through RIM, WRP, RIM/WRP, CRP, USFWS & DNR programs, Wetland Banking and Ag Wetland Banking. ii. Promote use of saturated buffers – install on 4 sites. iii. Assist implementation of MN Prairie Plan. Prioritize sites within County, promote, assist landowners with program options.		\$150,000	\$25,000
	<b>3.H.3.b) Landscape Analysis.</b> Create an inventory using LiDar, terrain analysis, and other tools as they become available to identify the most important landscapes for wetland restoration for the purpose of water storage, sediment/nutrient reduction downstream, flood storage, and/or metering water flow.		\$15,000	\$3,000

Objective H *continued...*

**Objective H** *continued...*

	<p><b>3.H.3.c) Education/Outreach:</b></p> <ul style="list-style-type: none"> <li>i. Promote value of wetlands and both urban &amp; rural water storage/retention practices (i.e. rain gardens) through the use of newsletters, news releases, radio, workshops, booth/display, or other means - one activity per year.</li> <li>ii. Target promotion of BMPs in critical areas of the landscape, encouraging use of federal, state, or other BMP implementation funds.</li> </ul>		\$5,000	\$5,000
Countywide	<p><b>3.H.4. Flooding.</b> Implement the floodplain ordinance and work with landowners and stakeholders to help ensure that flooding concerns are properly mitigated.</p>	*LQPYBWD, *EO, SWCD, WP, NRCS	<b>\$510,000</b>	<b>\$55,000</b>
	<p><b>3.H.4.a) Flooding BMPs:</b> Provide technical and financial assistance to landowners for BMPs holding water on the landscape.</p> <ul style="list-style-type: none"> <li>i. Restore 1 wetlands in headwater area of sub watershed per year.</li> <li>ii. Increase number of stream miles protected by riparian buffers/filter strips by 1 stream mile.</li> <li>iii. Install 5 water &amp; sediment control basins annually.</li> <li>iv. Install 1 terrace per year.</li> <li>v. Improve residue management on 500 acres per year.</li> <li>vi. Install long term vegetation (CRP, CCRP, CREP, RIM) in floodplains – 100 acres per year.</li> <li>vii. Seek funding for farmstead ring dike – 1 needed.</li> </ul>		\$500,000	\$50,000
	<p><b>3.H.4.b) Education/Outreach.</b> Educate citizens on protection of SSTS, wells, chemical storage areas, etc., from floodwater through the use of newsletters, news releases, radio, workshops, booth/display, personal contacts, or other means – 1 activity per year.</p>		\$10,000	\$5,000
<b>Objective H 5-Year Overall Estimated Costs</b>			<b>\$1,615,000</b>	<b>\$265,000</b>
<b>Objective H Average Annual Costs</b>			<b>\$323,000</b>	<b>\$53,000</b>

**GOAL 4: TO EFFECTIVELY ADMINISTER THE LAC QUI PARLE WATER PLAN**

Priority Watershed	Action Step	Stakeholders *Local Lead	5-Year Estimated Costs	
			Overall	Local
<b>Objective I: Engage the Citizens and Stakeholders on key water planning issues and implementation opportunities.</b>				
Countywide	<p><b>4.I.1. Maintain Adequate Staffing:</b></p> <p>4.I.1.a) Maintain the County Water Plan Coordinator position.</p> <p>4.I.1.b) Effectively administer the County’s SSTS, Shoreland, Feedlot programs.</p> <p>4.I.1.c) Effectively administer WCA.</p> <p>4.I.1.d) Provide training to increase knowledge and skills.</p> <p>4.I.1.e) Prepare required plans and reports:</p> <ul style="list-style-type: none"> <li>i. 5 year update, or as determined by BWSR</li> <li>ii. Investigate the DNR’s Watershed Health Assessment Framework at <a href="http://www.dnr.state.mn.us/watershed_tool/index.html">www.dnr.state.mn.us/watershed_tool/index.html</a> for useful watershed planning data</li> <li>iii. Evaluate any change in temperature or precipitation for trend that may impact erosion, water quality or quantity.</li> <li>iv. Make use of current technological tools to track &amp; assess accomplishments, results, etc.</li> </ul>	*COUNTY, WP, EO, SWCD, LQPYBWD	\$100,000	\$25,000
Countywide	<p><b>4.I.2 Maintain Stakeholder Cooperation:</b></p> <p>4.I.2.a) Partner with stakeholders on implementation activities to minimize expenditures and to maximize results.</p> <p>4.I.2.b) Resource Commission meet annually or as determined by County Commissioners.</p> <p>4.I.2.c) Water Plan annual work plan determined by Resource Commission or as delegated by County Commissioners.</p> <p><b>4.I.2 continued...</b></p>	*WP, COUNTY	\$10,000	\$10,000

	<p><b>4.I.2 continued...</b></p> <p>4.I.2.d) Education/outreach: Educate public on “what is your county water plan?” by highlighting water plan activities &amp; accomplishments using radio, newspaper, newsletters, booths &amp; displays – 2 activities per year.</p>	<i>Refer to previous page</i>	<i>Refer to previous page</i>	<i>Refer to previous page</i>
Countywide	<p><b>4.I.3 Watershed Focus:</b></p> <p>4.I.3.a) Assist MPCA comprehensive monitoring efforts as part of the watershed approach.</p> <p>4.I.3.b) Assist in development of priorities and implementation strategies.</p> <p>4.I.3.b) Provide financial and/or technical assistance to partners.</p> <p>4.I.3.b) Use LIDAR or innovative technologies as they become available to target BMPs to the most critical landscapes.</p> <p>4.I.3.b) Participate in local work group and other partner meetings.</p> <p>4.I.3.b) Education/outreach: Assist with civic engagement activities.</p>	*LQPYBWD, WP, SWCD	\$10,000	\$10,000
<b>Objective I 5-Year Overall Estimated Costs</b>			\$120,000	\$45,000
<b>Objective I Average Annual Costs</b>			\$24,000	\$9,000

## **Chapter Four: Water Plan Administration**

---

Chapter Four contains information regarding the administration of the Water Plan, including plan coordination, implementation process and timeline, role of the County and other agencies in implementation, recommended changes to State programs, intergovernmental conflicts/resolution process, major and minor plan amendment procedures, and general information.

### **A. Plan Coordination**

Managing Lac qui Parle County's water resources involves cooperation with many local, State and Federal agencies, as well as citizens and special interest groups. For any water planning activity to be successful, a well-coordinated effort is needed. Lac qui Parle County is committed to working with each of these entities to ensure proper management of its water resources.

Throughout the Water Plan, County departments, local government units, special interest groups, and State and Federal agencies are listed pertaining to specific water planning topics. In addition, each Action Step found in Chapter Three under the County's Water Plan Goals and Objectives, identifies the potential stakeholders involved with implementing each Action Step listed. It is hoped that the valuable cooperation that has been established in the past years will continue and be enhanced through properly implementing this Water Plan.

Lac qui Parle County will ensure coordination and implementation of its Comprehensive Local Water Plan through its established Resource Commission. The Resource Commission will meet regularly to review progress, identify emerging problems, discuss opportunities, and to continue to direct the implementation of the Plan. The Resource Commission will be supported by the County Board appointed Water Plan Coordinator, which is housed in the Lac qui Parle County Soil and Water Conservation Office. The Coordinator will administer the Action Step portion of the Plan, coordinate the Resource Commission activities, assist with writing grant proposals, prepare annual work plans and reports, and other activities as needed.

### **B. Implementation Plan and Priorities**

Coordination of Water Plan activities will commence with the County Board adoption of the Plan. These activities will be conducted throughout the planning period identified as 2014 – 2023. Chapter Three of the Water Plan shall serve as the County's official Implementation Plan, and shall cover the first five years of the Plan (2014-2018). In 2018, Chapter Three will need to be updated to cover the years 2018-2023.

The SWCD annually prepares a Work Plan that is reviewed and approved by the Lac qui Parle County SWCD Board of Supervisors. Due to the Water Plan Coordinator position being housed within the SWCD, this Annual Work Plan shall also serve as the County's official set of water planning priorities and list of potential projects on a yearly basis. Many of the Action Steps identified in Chapter Three represent commitments on behalf of Lac qui Parle County that will take place on an ongoing basis. For example, administering the State's Feedlot and SSTS regulations translates into being responsible for a variety of ongoing responsibilities. Conversely, many of the Action Steps identified in Chapter Three represent specific projects that would be implemented within a single year or over a few years.

Table 4A lists these specific projects and ranks them in order of implementation priority (i.e., high, medium, low). Please note that, although specific years are listed for target completion dates, many of the Action Steps will need to rely on grant and/or stakeholder funding in order to be accomplished. Furthermore, it is expected that Table 4A will be revised and updated accordingly as part of the SWCD's Annual Work Plan. This will help to ensure the County's current water planning priorities and list of potential projects are updated on a regular basis. ***Table 4A also does not represent all stakeholders' implementation prioritizes, but simply Lac qui Parle County's priorities.***

Overall, Lac qui Parle County's main water planning priority is to protect and enhance surface water quality. This will be pursued by implementing the Objectives and Action Steps identified in Chapter Three under Goal One.

After surface water quality, the County's next ranked priority water planning issue surrounds addressing surface water management and/or surface water quantity issues. This includes properly managing surface water quantity issues, including agricultural drainage, stormwater management, and water storage. The third priority area, soil erosion and sediment control, are also directly connected to water quality concerns; however, they also happen to be the main focus of the County's SWCD. Groundwater quality and quantity issues rank fourth, however, the issues are still vital to Lac qui Parle County, primarily due to the connection between having access to good groundwater, and people's health and economic development capacity.

***In summary, Lac qui Parle County's priority water planning issues rank in the following order:***

- 1. Surface Water Quality Issues and Action Steps**
- 2. Groundwater Quality/Quantity Issues and Action Steps**
- 3. Surface Water Quantity/Management Issues and Action Steps**
- 4. Water Plan Administration Issues and Action Steps**

**Table 4A:**  
**Lac qui Parle County Water Plan Project Implementation Priorities**

Action Step Number and Brief Description *Means Ranked as High Priority (others listed are medium priority) ~ Please refer to Chapter Three for more details ~	Target Start Year/Duration
<b>2.F.2.a) Hydrogeologic Atlas.</b> Work with MN Geological Society and DNR to develop a hydrogeologic assessment as part of the County Geologic Atlas Program for Lac qui Parle County. Secure funding to cost-share creation of hydrogeologic atlas.	2015-17
<b>2.F.3.d) Groundwater Quality Monitoring.</b> Sponsor campaign to test private well water for nitrates, fecal, or other contaminant of concern. Secure funding to offer financial assistance to landowners for use of certified lab testing.	2015-18
<b>*3.H.1.a) Drainage BMPs.</b> Increase number of stream miles protected by riparian buffers – 1 mile per year. Seek funds to provide incentive for implementation of saturated buffers on 15% ditches/streams within target watershed for each year of funding.	2014-18
<b>*2.F.1.d) Groundwater BMPs.</b> Reduce nitrogen in cropped field root zones: i. Improve management of nitrogen – Implement BMP with one (1) landowner annually. ii. Increase use of cover crops – Implement BMP with one (1) landowner annually. iii. Increase perennials in crop rotation – Implement BMP with one (1) landowner annually.	2016-18
<b>*3.H.3.b) Landscape Analysis.</b> Create an inventory using LiDar, terrain analysis, and other tools as they become available to identify the most important landscapes for wetland restoration for the purpose of water storage, sediment/nutrient reduction downstream, flood storage, and/or metering water flow.	2014-18
<b>1.D.4. Cobb Creek, Crow Creek, West Branch Lac qui Parle River.</b> Target erosion and sediment control BMPs along Cobb Creek, Crow Creek, West Branch Lac qui Parle River (segment not included in the TMDL).	2015-18
<b>*1.A.4. Target BMP Programs</b> that address bacteria and turbidity along Florida Creek, MN/SD Border to West Branch Lac qui Parle River (Assessment Unit # 07020003-521), the West Branch Lac qui Parle River, from Lost Creek to Florida Creek (Assessment Unit # 07020003-516), and the North Fork Yellow Bank River to the Minnesota River (Assessment Unit # 07020001-525).	2014-18
<b>*1.D.6. Technical Assistance.</b> Ensure adequate administrative & technical staff to deliver SWCD, watershed, & other LGU BMP programs, ensuring Water Plan goals & objectives are effectively implemented.	2014-18

### C. Types and Sources of Water Plan Funds

Lac qui Parle County recognizes the importance of comprehensive local water planning and the key role the County, township and city government must play in water planning decisions that impact water resources. The Water Plan's Goals, Objectives and Action Steps are a reflection of the water resource concerns in the County. Implementation will be based on current needs, funding, and availability of staff.

The annual work plan will provide basic information on the actions intended to be implemented. The County realizes that completion of all Goals and Objectives requires staff and funds beyond the County's budget. It is also understood that State funding cannot provide the funding for all Goals and Objectives, therefore total stakeholder cooperation will be required. The County, through various sources, will pursue outside funding opportunities as they become available. To properly fund the implementation of the Water Plan and related activities, Lac qui Parle County will rely on a combination of the following types and sources of funding:

- **Natural Resource Block Grant Funds**, including but not limited to:
  - ❖ ***MPCA Feedlot Permit Program*** - This program was created to protect water quality by improving animal waste treatment systems on feedlots. A county feedlot program is established by transferring of regulatory authority from the Minnesota Pollution Control Agency to the county. This transfer of authority is granted by statute and it allows the Minnesota Pollution Control Agency to "delegate" administration of certain parts of the feedlot program to counties. County feedlot programs have the responsibility for implementing state feedlot regulations including: registration; permitting; inspection; education and assistance; and compliance follow-up.
  - ❖ ***Local Water Management Program*** - The Comprehensive Local Water Management Program is a voluntary program that requires counties to use local Resource Commissions to develop and implement water plans based on local priorities.
  - ❖ ***DNR Shoreland Management Program*** - The State Shoreland Management Program was established to promote the wise development of shorelands in order to preserve and enhance the quality of surface waters, preserve the economic values of shorelands, and ensure the wise use of water and related resources.
  - ❖ ***MPCA Subsurface Sewage Treatment Systems (SSTS)*** - Based on 1997 changes to Minnesota Statutes, all counties are required to pass ordinances regulating Individual Sewage Treatment Systems countywide. In return, Lac qui Parle County receives money annually to implement the SSTS Program.



❖ **Wetland Conservation Act (WCA) Implementation** - The purpose of the Wetland Conservation Act (WCA) is to maintain and protect Minnesota's wetlands and the benefits they provide. The Board of Water and Soil Resources requires that under this grant program, a county must transfer a minimum of \$5,000 to the SWCD for WCA activities or a greater amount as agreed upon by the County and SWCD.

- **State, Local, and Federal Grants** – Numerous grant funds and programs are made available to implement local water plan or related initiatives, including but not limited to Minnesota’s Clean Water Fund.
- **Local Governmental Unit (LGU) Funds/In-Kind** – Some water planning initiatives will require funds spent by the various LGUs involved. This will include cities, townships, and watershed districts, along with Lac qui Parle County. Numerous grant programs count the time spent by LGU representatives as an In-Kind expense.
- **Lac qui Parle County Staff** – Lac qui Parle County will continue to maintain a trained staff to properly implement the various Water Plan initiatives. This expense is normally considered as an in-kind contribution towards implementing various State and Federal Grant Programs.
- **Landowner Expenses** – Although many Water Plan Action Steps can be completed at no cost to landowners, some projects may require landowners to contribute a portion of the overall costs.
- **Stakeholder Participation** – The various stakeholders involved with implementing the Water Plan will also contribute funds and staffing, as available.

#### **D. Recommended State Cooperation**

In order to implement the goals and objectives set forth in the Lac qui Parle County Water Plan, continued cooperation between the County and various State agencies is necessary. In an effort to increase coordination in this effort, the County makes the following recommendations:

1. Counties should continue to be notified of State agency program changes and the availability of funding; and
2. Data collected by State agencies should be readily shared with the County and other water plan stakeholders to avoid duplicative efforts; and
3. State agencies should continue to provide local and/or regional staff to assist local officials with agency programs; and

4. Fees collected at the County level should be allowed to remain within the County to administer and implement water-related programs; and
5. An annual listing of State agency staff that are assigned to water management planning should be created to facilitate increased coordination between local officials and agency staff; and
6. State agencies should provide greater flexibility to counties in setting annual work plan priorities. Priorities should be based upon current needs, funding, availability of staff and changes in State initiatives and regulations.

#### **E. Intergovernmental Conflicts/Resolution Process**

In the development of this Plan, there were no intergovernmental conflicts that arose. In the event that an intergovernmental conflict over the Water Plan does occur, the Lac qui Parle County Board of Commissioners shall request the Lac qui Parle County Resource Commission to attempt to negotiate resolution of the conflict. If the Resource Commission does not resolve the conflict, the County shall petition the Board of Water and Soil Resources (BWSR) for a contested case hearing.

#### **F. Water Plan Amendment Procedure**

The Lac qui Parle County Comprehensive Local Water Plan is intended to extend through the year 2023. If the County needs to revise the Plan for any reason prior to a new Plan being developed, the County will need to follow Minnesota Statute 103B.314, Subdivision 6. In summary, copies of the proposed amendments (along with the date of the public hearing) need to be sent to BWSR, and local governmental units, and the State agencies for review. After the public hearing, BWSR must approve the amendments and copies shall be sent to the various stakeholders identified by State Statute.

#### **G. Water Plan Key Stakeholders**

The success of the County's Water Plan depends upon the collaborative efforts of multiple water plan stakeholders. This section briefly outlines some of Lac qui Parle County's key Water Plan Stakeholders, including a link to the stakeholder's current website. *It should be noted that watershed organizations were profiled in Chapter Two.*

### **Lac qui Parle County Soil & Water Conservation District (SWCD)**

Lac qui Parle SWCD is a local unit of government established under state law to carry out conservation programs at the local level. The SWCD works with Lac qui Parle County landowners to help them manage and protect land and water resources on all private land and also assist with a variety of natural resource concerns. The Mission of the Lac qui Parle Soil & Water Conservation District is “To take available technical, financial and educational resources, whatever their source and focus or coordinate them so that they meet the needs of the local landusers to help them protect Lac qui Parle's natural resources.” The Lac qui Parle SWCD is responsible for administering the County’s Water Plan. The SWCD office is co-located with the *USDA Natural Resource Conservation Service (NRCS)*. For more information on the Lac qui Parle County SWCD, visit the following website:

<http://www.lacquiparleswcd.org/>

### **Lac qui Parle County Environmental Office**

The Environmental Office is responsible for administering plans and ordinances relating to planning and zoning, shoreline ordinance, floodplain ordinance, solid waste management, recycling and feedlot management. In addition to these local controls, the Environmental Office is also responsible for permitting and enforcement programs of the State’s individual septic treatment system program. The department’s overall mission in administering these programs is to protect the public’s health, safety and welfare. For more information on Lac qui Parle County’s Environmental Office, please visit the following website:

<http://www.lqpc.com/environment.php>

### **Natural Resource Conservation Service (NRCS)**

The Natural Resources Conservation Service (NRCS) draws on a long history of helping people help the land. For more than 75 years, NRCS and its predecessor agencies have worked in close partnerships with farmers and ranchers, local and state governments, and other federal agencies to maintain healthy and productive working landscapes. The main connection to the Water Plan is the NRCS administers many of the Farm Bill’s conservation initiatives. The Lac qui Parle County NRCS is co-located with the Lac qui Parle County SWCD. For more information, visit the following website:

<http://www.mn.nrcs.usda.gov/>

## **State Agencies**

Many of Minnesota's State Agencies are involved with some form of environmental protection efforts, especially when it pertains to protecting Minnesota's water resources. A brief synopsis of their major water planning efforts are summarized below.

**Board on Water and Soil Resources (BWSR)** - The Minnesota Board of Water and Soil Resources (BWSR) was created in 1987, when the Legislature combined the Soil and Water Conservation Board with two other organizations with local government and natural resource ties: the Water Resources Board and the Southern Minnesota Rivers Basin Council. Upon inception, its membership included 17 members: representing soil and water conservation districts; watershed management organizations, counties, citizen members, agency members (University of Minnesota Extension Service, the Minnesota Department of Natural Resources, the Minnesota Department of Agriculture, the Minnesota Department of Health, and the Minnesota Pollution Control Agency). BWSR provides oversight of local Water Management Plans. For more information, visit BWSR's website:

<http://www.bwsr.state.mn.us>

**Minnesota Department of Natural Resources (DNR)** – The Department of Natural Resources (DNR) is a key water plan stakeholder in many ways. They assist with monitoring ground and surface water quantity, they are the permitting agency for water appropriations, and they are the main agency working with preventing the spread of Aquatic Invasive Species. In addition, they work with a variety of stakeholders, including the general public, on providing a vast amount of water resource education. For more information, visit the DNR website:

<http://www.dnr.state.mn.us/water/index.html>

**Minnesota Pollution Control Agency (MPCA)** - The Minnesota Pollution Control Agency (MPCA) helps protect our water by monitoring its quality, setting standards and regulating what may go into it. They assist with water surface and groundwater quality protection programs including ground water monitoring, stormwater management, municipal wastewater permitting, identifying Impaired Waters, solid and hazardous waste management, Subsurface Soil Treatment System (SSTS) management, and animal feedlot registration and enforcement. They also provide a vast amount of technical and educational assistance on Best Management Practices (BMPs) related to water quality protection and land use practices. For more information, visit MPCA's website:

<http://www.pca.state.mn.us/index.php/water/index.html>

**Minnesota Department of Health (MDH)** – The Minnesota Department of Health (MDH) is the primary State agency involved with monitoring and protecting ground and drinking water supplies. They have a vast amount of ground water quality data, and take the lead in developing Wellhead Protection Plans for public water suppliers. They also provide information on the importance of sealing abandoned wells and testing household wells for a variety of contaminants. For more information on MDH’s activities, visit MDH’s website:

<http://www.health.state.mn.us/macros/topics/environment.html>

**Minnesota Department of Agriculture (MDA)** – As a leading agricultural state with more surface waters than any other of the 48 contiguous states, and an abundance of clean drinking water, Minnesota is committed to helping farmers, homeowners, and industry protect these water resources. The MDA is responsible for or involved in many water quality programs and initiatives. These include, but are not limited to, the following:

- Agricultural Best Management Practices Loan Program. A low interest loan program administered by the MDA that helps finance water quality practices.
- Minnesota Clean Water Legacy Act. The MDA currently oversees several research projects aimed at making cleanup efforts more effective.
- Comprehensive Groundwater Protection Act of 1989. The MDA regulates most matters relating to pesticides and fertilizers.

The MDA has also developed the following website to assist with County Water Plans:

<http://www.mda.state.mn.us/en/protecting/waterprotection/waterplanning.aspx>

**Appendix A:**  
**Water Plan Supporting Documents**

*~ Resolution to Update the Lac qui Parle County Water Plan ~*

*~ Notice of Plan Update ~*

*~ Water Plan News Release ~*

*~ Water Plan Public Meeting Summary ~*

*~ Water Plan Public Informational Meeting Sign-In Sheet ~*

*~ Lac qui Parle County Water Plan Survey ~*

*~ Resource Commission Meeting August 14, 2012, Sign-In Sheet ~*



***Lac qui Parle County***  
***Auditor-Treasurer***

600 6<sup>th</sup> Street  
Madison, MN 56256

MAY 31 2012

Email: [jake.sieg@lqpc.com](mailto:jake.sieg@lqpc.com)  
Phone: 320-598-7444  
Fax: 320-598-3125

**Jacob Sieg**  
**Auditor-Treasurer**

**Official Resolution to Update the Lac qui Parle County  
Comprehensive Water Management Plan  
May 15, 2012**

WHEREAS, Minnesota Statutes, Chapter 103B.301, Comprehensive Local Water Management Act, authorizes Minnesota Counties to develop and implement a local water management plan, and

WHEREAS, the Act requires that a county update and revise their local water management plan on a periodic basis, and

WHEREAS, the Act encourages that a county coordinate its planning with contiguous counties, and solicit input from local governmental units and state review agencies, and

WHEREAS, the Act requires that plans and official controls of other local governmental units be consistent with the local water management plan, and

WHEREAS, Lac qui Parle County has determined that the revision and continued implementation of a local water management plan will help promote the health and welfare of the citizens of Lac qui Parle County, and

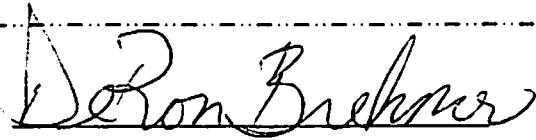
NOW, THEREFORE, BE IT RESOLVED, that the Lac qui Parle County Board of Commissioners resolve to revise and update its current local water management plan.

BE IT FURTHER RESOLVED that Lac qui Parle County will coordinate its efforts in the revision and update of its plan with all local units of government within the county, and the state review agencies; and will incorporate, where appropriate, any existing plans and rules which have been developed and adopted by watershed districts having jurisdiction wholly or partly within Lac qui Parle County into its local water management plan.

BE IT FURTHER RESOLVED that the Lac qui Parle County Board of Commissioners authorizes the establishment of a Water Management Resource Committee with the responsibility of revising and updating the plan and who shall report to the County Board on a periodic basis.

**BE IT FURTHER RESOLVED** that Lac qui Parle County Board of Commissioners delegates the Lac qui Parle Soil and Water Conservation District the responsibility of coordinating, assembling, writing and implementing the revised local water management plan pursuant to M.S. 103B.301.

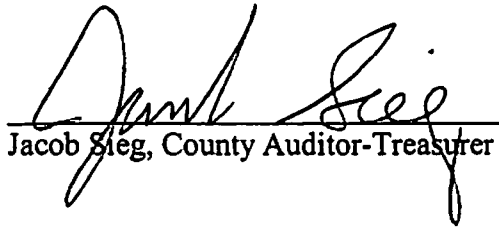
---



DeRon Brehmer, Board Chairman

**CERTIFICATION**

I hereby certify that the above is a true and correct copy of Board action duly passed, adopted and approved by the County Board of said County on May 15, 2012



---

Jacob Sleg, County Auditor-Treasurer



## **Notice of Decision to Revise & Update Lac qui Parle County's Water Plan**

Lac qui Parle County Water Plan Stakeholder:

Lac qui Parle County is currently in the process of updating their Comprehensive Water Plan. As a valuable water plan stakeholder, you are being asked to complete the attached Lac qui Parle County Priority Concerns Input Form. Please feel free to only complete as much of the information as you want (you may have to "Enable Content" after you open the file in order to complete the form...Microsoft Word should prompt you to do this). Simply input your answers by typing into the boxes, save a copy of the document, and e-mail me back a copy **by August 6, 2012**. The County Water Plan Task Force will then use this information to help write the County's Water Plan Priority Concerns Scoping Document.

In addition to completing a Priority Concerns Input Form, **Lac qui Parle County is holding an Open House for the County Water Plan on July 30**. The Monday, July 30 open house will take place from 4:00 to 6:00 at the Lac qui Parle Soil & Water Conservation District office in Madison. The meeting will be facilitated by Matthew Johnson from Midwest Community Planning, LLC.

Lac qui Parle County has also created an online Water Plan Survey which can be accessed by the following link: <http://www.surveymonkey.com/s/B2FDT89>

If you have any comments or questions, please contact Terry Wittnebel, Lac qui Parle County Water Plan Coordinator at (320) 598-7321 extension 3 or by e-mail at [terrywittnebel@mn.nacdnet.net](mailto:terrywittnebel@mn.nacdnet.net).

Please feel free to forward this email to anyone else who may be interested in Lac qui Parle County's Water Plan. Thank you!

## **NEWS RELEASE**

### Lac qui Parle County Water Plan Open Houses & Public Survey

Lac qui Parle County is holding an Open House for the County Water Plan update on Monday, July 30, 2012. The Open House s will take place from 4:00 to 6:00 p.m. and will be held at the Lac qui Parle Soil & Water Conservation District office in Madison. A brief presentation will be given with discussion to follow.

Lac qui Parle County has also created an online Water Plan Survey which can be accessed by the following link: <http://www.surveymonkey.com/s/B2FDT89>

If you have any comments or questions, please contact Terry Wittnebel, Lac qui Parle County Water Plan Coordinator, at [\(320\) 598-7321](tel:(320)598-7321) extension 3 or by e-mail at [terrywittnebel@mn.nacdnet.net](mailto:terrywittnebel@mn.nacdnet.net).

# **Lac qui Parle County Water Plan**

## **Public Meeting Summary**

- Date:** July 30, 2012
- Time:** 4:00 – 6:00 P.M.
- Location:** Lac qui Parle Soil & Water Conservation District Office ~ Madison, MN
- Purpose:** Water Plan Open House Priority Issues Meeting

Lac qui Parle County hosted an open house on July 30, 2012, from 4:00 p.m. to 6:00 p.m. The purpose of the meeting was to invite Lac qui Parle citizens to voice their concerns on which County water planning issues they would like to see addressed in the Lac qui Parle County Water Plan. The following issues were identified and discussed:

### **1) Flooding**

- a) One property owner expressed his concern that flooding on his property and nearby has occurred more frequently recently than did historically. He requested that a ring-dyke be installed so that he can access his property even during spring flooding.
- b) Parts of the County may be experiencing cross-over flooding from adjacent watersheds.
- c) Part of the FEMA floodplain map may not be correct.
- d) Beaver dam, plugged culvert, or similar has blocked water near a portion of the railroad. A question arose on the railroad's jurisdiction of dealing with flooding issues.
- e) The County continues to have a beaver nuisance control program.

### **2) TMDL Plan**

- a) There are 19 impairments on 11 reaches in the Lac qui Parle and Yellow Bank watersheds.
- b) A TMDL Assessment Report has been developed: The Lac qui Parle, Yellow Bank – Bacteria, Turbidity, and Low Dissolved Oxygen. More information is available by visiting the MPCA's website at:  
<http://www.pca.state.mn.us/index.php/water/water-types-and-programs/minnesotas-impaired-waters-and-tmdls/tmdl-projects/minnesota-river-basin-tmdl-projects/project-lac-qui-parle-river-dissolved-oxygen.html>
- c) The TMDL Plan and implementation steps will be incorporated into the Lac qui Parle County Water Plan.

### **3) Feedlots**

- a) More incentives should be developed to ensure that feedlot operators follow their manure management plans.
- b) County is currently working on a Level 3 Feedlot Inventory. This should identify a number of projects that would benefit by receiving grant assistance

### **4) Groundwater**

- a) Countryside Public Health conducts drinking water testing
- b) Participant was worried about not being able to continue irrigating out Lac qui Parle River due to its TMDL listing.
- c) County has a program to install well kits in flood prone areas.

### **5) Drainage**

- a) The County would benefit from conducting a hydro-geologic study to determine how best to manage surface water resources.
- b) Wetland restoration and other water retention projects should be pursued.
- c) LiDar and other GIS data should be used for water and land use planning decisions.
- d) Temporary water storage and properly placed water control structures are important to overall drainage management.
- e) The impacts of pattern tiling need to be better understood.
- f) The County should consider creating a drainage management plan.

### **6) Other Water Plan Issues**

- a) County has approximately 20,000 acres in CRP.
- b) Current proposed revisions to the Clean Water Act may extend jurisdiction from navigable water to all types of surface water.
- c) Urban storm water runoff need to be addressed, especially the use of lawn chemicals and the impact of grass clippings on local water resources.
- d) A lot of State funds are currently available to implement water plan activities
- e) All water plan stakeholders should be pushed to identify how they can partner with the Lac qui Parle County Water Plan
- f) Lac qui Parle County Water Plan Survey was discussed and participants were encouraged to complete during the Open House or online at:

<http://www.surveymonkey.com/s/B2FDT89>

# Please Sign In!

Date: 7/30/12

Location: Lac qui Parle

Purpose: County Water Plan

Name	Representing
1. David Bergeron	Farm Bureau
2. Jim Aikle	
3. Brad Olson	DNR
4. Matthew Johnson	MCP
5. Dick Olson	
6. Brent Hendrick	NRCS
7. Verlye Littlebel	Water Plan & SWCD
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	
16.	
17.	
18.	
19.	

# LAC QUI PARLE County Comprehensive Local Water Management Survey

The Lac qui Parle County Comprehensive Local Water Plan focuses on priority issues concerning the groundwater and surface water in our county. The locally appointed Resource Commission would like your help as we prepare the Water Plan 10-year update. **Thank you** in advance for taking the time to complete this short survey!

1. How do you rate the progress of erosion control and runoff in the past 20 years?  
 good  progressing  fair  poor
2. How do you rate the progress of city runoff containing fertilizer and grass clippings?  
 good  progressing  fair  poor
3. What urban practices would you like to install or take responsibility for to reduce stormwater runoff that you would be interested in ~~cost-share or an incentive for?~~

	Rain gardens		Rain barrels		Reduce square footage of impervious surfaces
<input checked="" type="checkbox"/>	Keeping storm drains clear of debris		Other:		Other:

4. What rural practices do you feel money would best be spent on? Choose your top 2 choices.

<input checked="" type="checkbox"/>	Alternative Tile Inlets		Buffer Strips		Conservation Tillage
	Construction Site Erosion		Contour Farming		Streambank Erosion Control
	Easements		Flood Control Structures		Native Prairie Restoration
	Grassed Waterways		Livestock Waste Mgmt.		Detailed Nutrient/Manure Management Plans
	Wetland Restorations	<input checked="" type="checkbox"/>	Terraces/Water & Sediment Control Basins		
	Other:				

5. In Lac qui Parle County what do you think will be the biggest water problem in the next 10-years? Mark only one.

- Not enough water for us to use
- Groundwater will be too polluted for us to use
- Surface water will be too polluted for us to use
- The systems that supply and move our water will need expensive repairs and upgrades
- We will not have any major water problems

6. What do you think is the most likely potential source of water quality concern Lac qui Parle County will be faced with in the next 10-years?

- Industrial Pollution (factories, wastewater treatment plants)
- Soil Erosion (agricultural fields, shoreland, construction sites, roads)
- Streambank/Ditch Bank Erosion
- Nutrient Runoff (from lawns, gardens, as well as agricultural fields)
- Pesticide Runoff (from lawns, gardens, as well as agricultural fields)
- Faulty Individual Sewage Treatment Systems
- Runoff from Livestock Production
- Stormwater Runoff
- Water quantity (flooding) problems
- Drought conditions
- Other: \_\_\_\_\_

7. Where do you get your water?  my own well  city well  rural water  
 8. Do you drink your well water?  yes  no If no, why?

9. How often do you test your well?  annually  every 1-3 yrs.  every 4-10 yrs.  never

10. What do you feel is the best way to reach you with new information on water plan topics (i.e. water quality, household hazardous waste, septic systems, and pharmaceutical waste) and programs (i.e. cost-share) being offered?

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Madison Newspaper       | <input type="checkbox"/> Dawson Newspaper  | <input type="checkbox"/> Ortonville Newspaper  |
| <input type="checkbox"/> Canby Newspaper         | <input type="checkbox"/> Montevideo Newspaper                                    | <input checked="" type="checkbox"/> Radio KLQP |
| <input type="checkbox"/> Internet/Email          | <input type="checkbox"/> Facebook  | <input type="checkbox"/> Radio KDMA            |
| <input type="checkbox"/> Local TV Channel        | <input type="checkbox"/> Meetings & Workshops                                    | <input type="checkbox"/> Other Radio: _____    |
| <input type="checkbox"/> Mail/Newsletters        | <input type="checkbox"/> Displays/Presentations at local fair, expo events, etc. |  |
| <input type="checkbox"/> Mail/Postcards, Letters | <input type="checkbox"/> Other: _____  |  |

11. Are there topics that you would like to learn more about? Please list:

tile inlet alternatives

12. Do you have any water concerns in your area that you feel need to be addressed?

More well water tests available  
Test for small fee/free

13. Do you have any concerns about the continued improvement of our soil and water resources the Resource Commission might address through its ongoing voluntary approach with Lac qui Parle County residents?

Yes  No

If you answered Yes, what are your concerns?

14. PLEASE RETURN by August 6, 2012, TO:

Lac qui Parle Soil & Water Conservation District, 122 - 8<sup>th</sup> Avenue S, Madison MN 56256

Thank You for your Time!!

On behalf of the Lac qui Parle Resource Commission

Voting Members:

- Jeff Rheingans
- Ron Enger
- Kay Fernholz
- John Plathe
- Mark Hastad
- Jim Nesvold
- Jerry Stensrud
- Jeff Olson
- James Barthel
- Myron Anhalt
- Darrell Ellefson
- Bob Ludvigson
- Dave Craigmile
- Mark Bourne
- Graylen Carlson, Commissioner

Non-Voting Members:

- Terry Wittnebel, LqP Water Plan
- Grant Bullemer, LqP SWCD
- Jennifer Breberg, Environmental Officer
- Trudy Hastad, LqPYB Watershed District
- Mary Homan, LqPYB CWP
- Jon Radermacher, city of Madison
- Sonja Farmer, city of Marietta
- David Sill, BWSR Board Conservationist
- Burton Hendrickson, NRCS
- Stacy Salvevold, US F&W
- Brađ Olson, DNR
- Katherine P-Scott, MPCA

# Lac qui Parle Resource Commission



August 14  
2012

## REGISTER

Name	Organization/Address
1. <i>Angie Mitchell</i>	<i>Lac qui Parle County Water Plan</i>
2. <i>Gerry Stensrud</i>	<i>Sewer Contractor</i>
3. <i>Wade Cvekovic</i>	<i>LQP-403 &amp; P &amp; Z</i>
4. <i>Gary Bullenger</i>	<i>LQP SWCD</i>
5. <i>Matthew Johnson</i>	<i>Midwest Planning</i>
6. <i>Mary Homan</i>	<i>LQP-4B WD</i>
7. <i>Al Klays</i>	<i>Farm - Madison</i>
8. <i>Jenny Breberg</i>	<i>LQP Cty Enviro.</i>
9. <i>Tracy Hoad</i>	<i>LQP-4B watershed</i>
10. <i>David Sill</i>	<i>BWSR</i>
11. <i>Donald Lager</i>	<i>Resource Comm.</i>
12. <i>Burt Hendt</i>	<i>NRCS</i>
13. <i>Shel Lauchelt</i>	<i>SWCD</i>
14.	
15.	
16.	



## **Appendix B:**

### **Water Plan Priority Concerns Input Forms**

*~ The Minnesota Department of Agriculture ~*

*~ The Minnesota Pollution Control Agency ~*

*~ The Minnesota Board of Water and Soil Resources ~*

*~ Lac qui Parle SWCD ~*



651-201-6000  
800-967-2474  
800-627-3529  
TDD

[ANIMALS](#) ⇄ [CHEMICALS](#) ⇄ [ENERGY](#) ⇄ [FOOD](#) ⇄ [FUNDING](#) ⇄ [LAND/WATER](#) ⇄ [LICENSING](#) ⇄ [PLANTS/PESTS](#) ⇄

[Home](#) > [Protecting Our Lands & Waters](#) > [Water Protection](#) > Water Planning Assistance

## Water Planning Assistance

### County Water Plans

In the State of Minnesota, the Board of Water and Soil Resources (BWSR) has oversight to ensure that county water plans are prepared and coordinated with existing local, and state efforts and that plans are implemented effectively. County Water Plans are a major tool for addressing water resource concerns in Minnesota. The Minnesota Department of Agriculture (MDA), through this website and via input on County Water Plans, seeks to provide current planning guidance and references to support the planning process.

The MDA has a role in protecting water quality as it relates to agricultural pesticides and fertilizers. We can provide technical information, financial assistance to implement specific programs, and education and outreach assistance.

At the beginning of the County Water Plan Update Process, State Agencies, including the Minnesota Department of Agriculture are invited to provide input, in the form of Priority Concerns to the County. MDA has selected five Priority Concerns to focus on in Minnesota.

The MDA has redeveloped its process to comment on local water plans and to provide comments to local units of government. The MDA appreciates the opportunity to work with counties and other partners on these local plans. This information is general guidance primary focused on counties that are conducting 10-year water plan re-writes. The MDA will provide more specific comments to counties that are going through this process. Information provided may not specifically be applicable for 5-year water plan updates. For those counties working on the 5-year updates, the MDA may also provide detailed comments or guidance. In any case, MDA will work closely with the local unit of government to provide information.

### Priority Concerns

[Agricultural Drainage, Wetlands & Water Retention](#)

[Agricultural Chemicals & Nutrients in Ground & Surface Water](#)

[Livestock & Manure Management](#)

[Agricultural Land Management](#)

[Targeting BMPs, Aligning Local Plans & Engaging Agriculture](#)

[MDA Contacts](#)



651-201-6000  
800-967-2474  
800-627-3529  
TDD

ANIMALS ⇄ CHEMICALS ⇄ ENERGY ⇄ FOOD ⇄ FUNDING ⇄ LAND/WATER ⇄ LICENSING ⇄ PLANTS/PESTS ⇄

[Home](#) > [Protecting Our Lands & Waters](#) > [Water Protection](#) > [Water Planning Assistance](#) > Ag Drainage

## Agricultural Drainage, Wetlands and Water Retention

### Why is it important the plan focus on this concern?

Adequate drainage can be a critical component of a successful farm operation. High crop and land prices have the potential of increasing conversion of pasture and forage land to row crops, which in turn may lead to the installation of new drainage systems or drainage improvements to existing systems. New drainage and drainage improvements represent an opportunity to design and install systems in ways that help reduce nutrient losses into surface water and positively affect the timing and flows of drainage water into surface waters. These efforts combined with wetland restoration and water retention initiatives can have positive impacts upon water quality in agricultural landscapes.

### What actions are needed for Agricultural Drainage?

Generally, local plans should provide guidance, objectives, goals and action items for further coordination of agricultural water management issues and Conservation Drainage (CD) implementation efforts at the local level. A number of CD practices exist to address water quality issues. There is no single CD practice that will address all agricultural drainage issues. However, multi-purpose approaches to managing water quality and quantity on the agricultural landscape using a suite of CD initiatives is the best approach. It is recommended that:

- Local plans discuss how CD practices can be utilized based on the drainage needs of the county coupled with associated water management issues.
- Local drainage authorities be proactive in encouraging the use of CD practices and designs during repairs and improvements of existing drainage systems.
- Redetermination of Benefits for ditch systems continue to be done in a proactive, consistent and systematic manner.
- Buffer initiatives continue to be implemented consistently and according to current drainage law.
- The local drainage authority continues to base drainage regulations on science and current best management practice knowledge.
- The local drainage authority consider multipurpose drainage approaches as developed by BWSR.

As a point of interest, a technical and scientific committee is currently addressing the effect of tiling upon flooding in the Red River Valley. Here's a [weblink](#) where two recent briefing papers can be viewed on this subject. This committee conducted an extensive literature review and developed a number of conclusions from the review in addition to a set of statements and recommendations from these papers. While this document and effort is specific to the Red River Valley, counties may find it useful to reference this report within the drainage discussion of draft water plan amendments or re-writes.

### What actions are needed for Wetlands and Water Retention?

Properly locating wetlands and water storage or retention projects can be a strategic component of overall efforts to manage nutrients, sediments and water quantity issues. Counties may consider consulting with the Red River

Watershed Management Board – Flood Damage Reduction Workgroup to determine how flood damage reduction, retention and mitigation efforts have progressed in Northwest Minnesota in conjunction with wetland restoration (via various state and federal programs).

The Red River Valley has a long history of managing floodwater and constructing impoundments to manage floodwaters and significant insight could be gained by corresponding with this organization regarding water retention. A Technical and Scientific Advisory Committee as part of this Board has also developed a number of scientific papers on a variety of issues related to flood damage reduction. Specifically, counties should consider:

- Conducting/updating culvert inventories in conjunction with identifying where water retention projects can be constructed utilizing LIDAR and GIS technologies.
- Identifying projects where tile water from public drainage systems can potentially be used to augment long-term water levels in wetland restorations for water retention purposes.
- Working with local farmers on agricultural wetland mitigation banking initiatives and include agricultural sectors on overall wetland planning efforts.
- Identify areas where constructed wetlands can be located for treating tile drainage water.

## What resources may be available to accomplish the actions for Agricultural Drainage, Wetlands and Water Retention?

- [MDA Drainage Information](#)
- [MDA Drainage Demonstration Sites](#)
- [Conservation Drainage Practices](#)
- [Conservation Drainage Designs](#)
- [University of Minnesota Drainage Research](#)
- [Board of Water and Soil Resources](#)
- [University of Minnesota Extension Service](#)
- [Red River Watershed Management Board](#)

## What area(s) of the county is high priority?

All agricultural lands of the county.

[Affirmative action policy](#) | [Site terms of use](#) | [Privacy policy](#) | [Careers](#) | [Minnesota.gov](#)

Minnesota Dept. of Agriculture, 625 Robert St. N, St. Paul, MN 55155-2538, [mda.info@state.mn.us](mailto:mda.info@state.mn.us)

©2012 MDA



651-201-6000  
800-967-2474  
800-627-3529  
TDD

ANIMALS ⇄ **CHEMICALS** ⇄ ENERGY ⇄ **FOOD** ⇄ FUNDING ⇄ LAND/WATER ⇄ LICENSING ⇄ PLANTS/PESTS ⇄

[Home](#) > [Protecting Our Lands & Waters](#) > [Water Protection](#) > [Water Planning Assistance](#) > Ag Chemicals

## Groundwater and Surface Water Protection: Agricultural Chemicals and Nutrients/Water Use/Land Management in Wellhead Protection Areas

### Why is it important the plan focus on this concern?

Agricultural chemicals may contribute to water pollution from runoff into surface waters or infiltration into groundwater. Contaminated groundwater and surface water can affect human health as well as ecosystem quality. The protection of drinking water is an important health issue as approximately 75 percent of Minnesotans obtain their drinking water from groundwater. In areas with vulnerable groundwater, nitrates may exceed the drinking water standard. Once the standard is exceeded, it may be difficult to reduce the levels of contaminants. Therefore, it is highly desirable to prevent contamination of groundwater from occurring through protective actions in areas with vulnerable aquifers.

In areas with elevated nitrates in groundwater it is important to reduce their concentration. Similarly, pesticides may be present in shallow vulnerable groundwater. Agricultural chemicals are also frequently a concern related to surface water impairments under the clean water act. The most common agricultural sources of excess nutrients in surface water are chemical fertilizers and manure. Such nutrients contribute to eutrophication in surface water and have been identified as a source of hypoxia in the Gulf of Mexico.

### What actions are needed?

- Continue the sealing of abandoned wells in agricultural landscapes and prioritize efforts for ISTS upgrades in sensitive areas. Utilize the MDA Ag BMP loan program and cost-share programs to assist landowners in addressing these issues.
- Crop Irrigation - Encourage the conversion of older irrigation systems to low pressure. [MDA](#)

### What resources may be available to accomplish the actions?

The MDA prepares specific maps for counties to assist in local groundwater protection efforts. The maps should be used to prioritize groundwater BMP implementation, protection and restoration efforts. The Water Table Aquifer Sensitivity map classifies the county into three aquifer sensitivity ratings: low, medium and high. These reflect the likelihood that infiltrating precipitation or surface water would reach the water table possibly bringing surface contaminants with it. Priority should be given to the Drinking Water Supply Management Areas (DWSAs), Wellhead Protection Areas and to the areas given a high aquifer sensitivity rating.

Nitrate concentrations found in MDA monitoring wells and wells in the County Well Index (CWI) are also shown on the map. Concentrations greater than 3 mg/L indicate nitrate concentrations above background levels, while concentrations greater than 10 mg/L are above the nitrate drinking water standard. Additional websites:

#### EVALUATE

- [Agricultural Chemical Monitoring and Assessment Programs](#)
- [Interactive Source Water Mapping Tool](#)
- [County Geologic Map Program](#)
- [Farm Nutrient Management Assessment Program \(FANMAP\)](#)
- [Nutrient Management Initiative](#)

#### PREVENT

- [Management Ideas for Wellhead Protection Programs](#)

[website on irrigation BMPs](#). The MDA recommends that this water plan consider the following items specific to irrigation:

- Develop and implement educational programs regarding water management in conjunction with nitrogen fertilizer management. Reference the following websites regarding coarse textured soils:
  - [Best Management Practices for Nitrogen on Coarse Textured Soils](#)
  - [Best Management Practices for Nitrogen Use - Irrigated Potatoes](#)
- Promote the establishment and data access of local climate stations to irrigators for ET (evapotranspiration) estimates.
  - [Water Quality BMPs for Agricultural Herbicides](#)
  - [Water Quality BMPs for Nitrogen Fertilizers](#)
  - [Private Well Testing for Pesticide Contamination](#)
  - [Nutrient and Manure Management Planning](#)
  - [Nutrient and Manure Management Tables](#)
  - [Precision Conservation](#)
  - [Animal Mortality Composting](#)
- Promote the use and availability of irrigation scheduling software and record keeping.
- Promote the use of the county soil survey and other localized soils information in determining soil moisture holding capacity on a field-specific scale.
- Encourage the use of soil moisture sensors (moisture blocks, tensiometers, etc.) and other advanced tools for determining crop water stress.
- Fertigation (nitrogen applied through the irrigation water) is an excellent option for irrigators to distribute small amounts of nitrogen (20-30 lb/A). See the website above regarding coarse textured soils for details. Note that a fertigation permit and the proper backflow equipment is required by the MDA.
- Provide assistance in irrigation uniformity testing and nozzle calibrations.
- Provide nitrate testing services on irrigation water to help promote N crediting concepts and environmental protection. MDA staff can help provide equipment and technical assistance.
- Promote hybrid and crop selection that have lower water and/or nitrogen requirements.
- Conduct training sessions and workshops for farmers that have agricultural production activities within wellhead protection areas and drinking water supply management areas. Encourage the use of the Nutrient BMP Challenge, Nutrient Management Initiative and similar tools within these areas. More resources regarding [drinking water protection in agricultural settings](#).

## What area(s) of the county is high priority?

Rural or agricultural areas that are actively growing crops/producing livestock, coarse textured soils areas and wellhead protection areas that have agricultural activity.

[Affirmative action policy](#) | [Site terms of use](#) | [Privacy policy](#) | [Careers](#) | [Minnesota.gov](#)

Minnesota Dept. of Agriculture, 625 Robert St. N, St. Paul, MN 55155-2538, [mda.info@state.mn.us](mailto:mda.info@state.mn.us)

©2012 MDA



651-201-6000  
800-967-2474  
800-627-3529  
TDD

ANIMALS ⇄ CHEMICALS ⇄ ENERGY ⇄ FOOD ⇄ FUNDING ⇄ LAND/WATER ⇄ LICENSING ⇄ PLANTS/PESTS ⇄

[Home](#) > [Protecting Our Lands & Waters](#) > [Water Protection](#) > [Water Planning Assistance](#) > Livestock Manure Mgmt

## Manure Management and Livestock Issues

### Why is it important the plan focus on this concern?

Livestock manure used as fertilizer has benefited farmers for decades and if applied properly can meet crop nutrient requirements, build up soil organic material and decrease dependence on commercial fertilizers, increase soil fertility, and in some cases, reduce soil erosion. Manure as fertilizer is a constant reminder that we can reuse and recycle a product that was once thought of as a waste product with insignificant value. However, if manure is not properly applied it can lead to negative environmental impacts.

Manure, feed/silage leachate and milkhouse waste can be high in nutrient values, specifically pertaining to nitrogen and phosphorous. If improperly applied, manure does have the potential to contribute to nutrient loading and bacteria/viral levels of water sources. It is important for counties in the state to encourage the development of manure/nutrient management plans for the livestock producers within their borders. These plans address agronomic application rates for crops planted, buffered or protection areas around sensitive features, and reduce the potential of impacting surface or ground water.

Pasturing livestock is a common practice among livestock producers. Several studies and research through the University of Minnesota show that livestock grazing, if done properly, can enhance the quality of grazing lands. As your county is aware, pasture areas are often those areas that are not conducive to farming and generally contain sensitive landscape and surface water features. Nutrients left by livestock serve as a fertilizer source to pasture plant species, which then utilize and filter the nutrients rather than the nutrients being in excess and exiting the area in the form of runoff.

Types of vegetation, length of time in a pasture, stocking density and water availability are all issues livestock producers must be continued to be educated, in order to produce and utilize a productive, environmentally sound pasture or grazing system. Pastures or grazing systems not managed properly can restrict or eliminate vegetative growth and cover, which in turn can result in potentially negative water quality issues.

Producers in watersheds that are impaired due to fecal coliform/E coli impairments need to be encouraged to be involved in TMDLs developed in the region. Local producer involvement on water plan advisory committees and water quality initiatives will provide additional insight into how producers can work with agencies to improve water quality.

### What actions are needed?

- Continue and renew education and outreach efforts on manure/nutrient/pasture management planning and implementation. Work closely with local NRCS staff on this issue as well as regional MPCA staff.
- Encourage livestock producers to work with Technical Service Providers and/or Certified Crop Advisors to better utilize and understand the value of using GIS/GPS technologies in developing:
  - Manure management plans.
  - Comprehensive nutrient management plans
  - Pasture management plans

- Rotational grazing plans
- Encourage involvement from livestock producers located within impaired watersheds and vulnerable areas in the landscape. One such approach may be the development of a [local agricultural advisory committee](#).
- Continue and/or make it a priority to provide technical and financial assistance for livestock producers to assist them with adopting best management practices to reduce impacts from manure runoff and manure storage structures or areas.
- Encourage livestock producers to participate in an on-farm environmental assessment program. A number of livestock producer groups in the state have specific programs that are available to their members. The [Livestock Environmental Quality Assurance \(LEQA\)](#) program is available to all livestock producers in Minnesota. LEQA is an on-farm environmental assessment and results in a water quality score for a farm.

As ecosystem services are better defined, producers that participate in an on-farm environmental assessment may be better situated to participate in future water quality or ecosystem services trading markets.

## What resources may be available to accomplish the actions?

- [MDA Ag BMP Loan Program](#)
- [Sustainable Ag Loan Program](#)
- [NRCS Cost Share Programs](#)
- [BWSR Cost Share Funds](#)
- [MPCA 319 Grants](#)
- [Minnesota Rural Finance Authority Loans](#)
- [Livestock Environmental Quality Assurance Program \(LEQA\)](#)

## What area(s) of the county is high priority?

Feedlots with open lots in shoreland or near sensitive water features and land where manure is applied in shoreland or near sensitive water features. Pasture areas located adjacent to shoreland areas.

## Contacts/Resources:

[MDA Livestock Resources](#)

[MPCA Feedlot Program](#)

[University of Minnesota Manure Management and Air Quality Education and Research](#)

[Affirmative action policy](#) | [Site terms of use](#) | [Privacy policy](#) | [Careers](#) | [Minnesota.gov](#)

Minnesota Dept. of Agriculture, 625 Robert St. N, St. Paul, MN 55155-2538, [mda.info@state.mn.us](mailto:mda.info@state.mn.us)

©2012 MDA





651-201-6000  
800-967-2474  
800-627-3529  
TDD

ANIMALS ⇄ CHEMICALS ⇄ ENERGY ⇄ FOOD ⇄ FUNDING ⇄ LAND/WATER ⇄ LICENSING ⇄ PLANTS/PESTS ⇄

[Home](#) > [Protecting Our Lands & Waters](#) > [Water Protection](#) > [Water Planning Assistance](#) > Ag Land Mgmt

## Agricultural Land Management

### Why is it important the plan focus on this concern?

The MDA recommends voluntary approaches to addressing soil loss and soil erosion issues and offers some suggestions as outlined below to engage agricultural producers in your county. Many advances have been made over the past decades to assist crop and livestock producers in managing their lands, including both from a technological and scientific standpoint. Advancements have also been made in recent years regarding seed technology, nutrient placement and timing of application, crop physiology research and overall land management, including improved soil and water management techniques. However, on certain soils, steep slopes, hydrologic settings or unique landscape features, there may be a need for additional voluntary measures to be implemented.

### What actions are needed? What resources may be available to accomplish the actions?

The water plan should consider including discussion about how to further encourage voluntary initiatives, such as the use of:

- Enhanced use of [Precision Agricultural Technologies \(PCT\)](#). While adoption of PCT has been widely adopted and accepted by many agricultural producers, there may be additional opportunities to further encourage the voluntary use of PCT in various agricultural settings of the county.
- [Cover crops](#) when appropriate. The use of cover crops may not be conducive to every crop rotation or landscape setting. However, certain cover crops can be beneficial for soil quality improvements, erosion control and soil fertility.
- Innovative [residue management](#) techniques that are crop rotation appropriate and designed to fit the needs of individual farming operations.
- Survey tools. The MDA developed a diagnostic tool a number of years ago called [Farm Nutrient Management Assessment Process \(FANMAP\)](#) to get a clear understanding of existing farm practices regarding agricultural inputs such as fertilizers, manures and pesticides. The use of FANMAP or other survey tools may be useful in certain areas of the county when working on a minor watershed basis. Contact the MDA for more specifics about how FANMAP can be used in your county.
- Enhanced promotion of buffer strips, filter strips, water and sediment and control basins and grassed waterways in areas with steep slopes, coarse soils and other high priority areas. The MDA realizes that resources are needed to accomplish promotional and educational initiatives to encourage the adoption of these types of practices. Your county may want to partner with other local units of government in promoting higher levels of adoption for the above mentioned BMPs.

### What area(s) of the county is high priority?

All agricultural areas of the county. Specifically important for areas with steep slopes or coarse soils.



651-201-6000  
800-967-2474  
800-627-3529  
TDD

ANIMALS ⇄ CHEMICALS ⇄ ENERGY ⇄ FOOD ⇄ FUNDING ⇄ LAND/WATER ⇄ LICENSING ⇄ PLANTS/PESTS ⇄

[Home](#) > [Protecting Our Lands & Waters](#) > [Water Protection](#) > [Water Planning Assistance](#) > Targeting BMPs

## Targeting of BMPs, Aligning Local Plans and Engaging Agriculture

### Why is it important the plan focus on this concern?

Technical, financial and staff resources are becoming more difficult to retain and obtain. As resources are scarce, the targeting of agricultural BMPs and conservation structures to the most vulnerable areas of the landscape is critical. The goal should be to target conservation practices to the areas of the landscape where they will be most effective to meet local and regional water quality and ecosystem goals and objectives.

New tools and technologies are making it possible to [target conservation practices](#) to specific areas of the landscape. State agencies are working together to support the development of new technologies and to make them available to local partners through training and online resources. This area of research is developing and more tools such as digital terrain analysis, are made available each year. These resources should be used whenever possible. A multi-faceted approach to implementing BMPs on the landscape is an important component of preserving, conserving, enhancing and sustaining water and natural resources. It is recommended that consideration be given towards further developing and enhancing relations with all local conservation partners to align goals, objectives and outcomes of local plans to meet local water quality goals.

It is recommended that the authors of the local water plan continually review and acknowledge areas of shared concern and opportunity between complementary plans and to foster new partnerships. Considerations should be given for further engaging the agricultural sector while developing new plans or updating existing plans. Agricultural producers involved with local TMDL implementation plans, local water management plan advisory committees, NRCS local workgroups and other local committees can provide additional insight into agricultural landscape management.

### What actions are needed?

- Utilize targeting tools and technologies to locate BMPs and conservation structures using the targeting tools.
- Consider and implement multifaceted approaches to working with agricultural producers.
- Further engage local partners on conservation implementation such as NRCS staff, local conservation groups, lake associations, etc.
- Foster new relationships with the agricultural sector or enhance existing relations. Consider joint meetings of NRCS local work groups and local water management plan advisory committees.

### What resources may be available to accomplish the actions?

Agricultural producers are key stakeholders in working with local, state and federal agencies on implementing positive changes within the agricultural landscape. The [Clean Water Fund Activities](#) website was developed to encourage producers to become involved at the local level with impaired waters issues.

The [Minnesota Conservation Funding Guide](#) provides more detailed information about funding opportunities. This guide complements, but does not replace the customized local expertise available via SWCDs and other local units

of government to landowners throughout Minnesota. The guide provides contact information for Minnesota's 90 local SWCDs and other organizations that help landowners plan and implement conservation.

The [Minnesota Agricultural Water Resource Center](#) may be able to provide additional expertise on engaging agricultural producers in your county.

## What area(s) of the county is high priority?

All areas of the county.

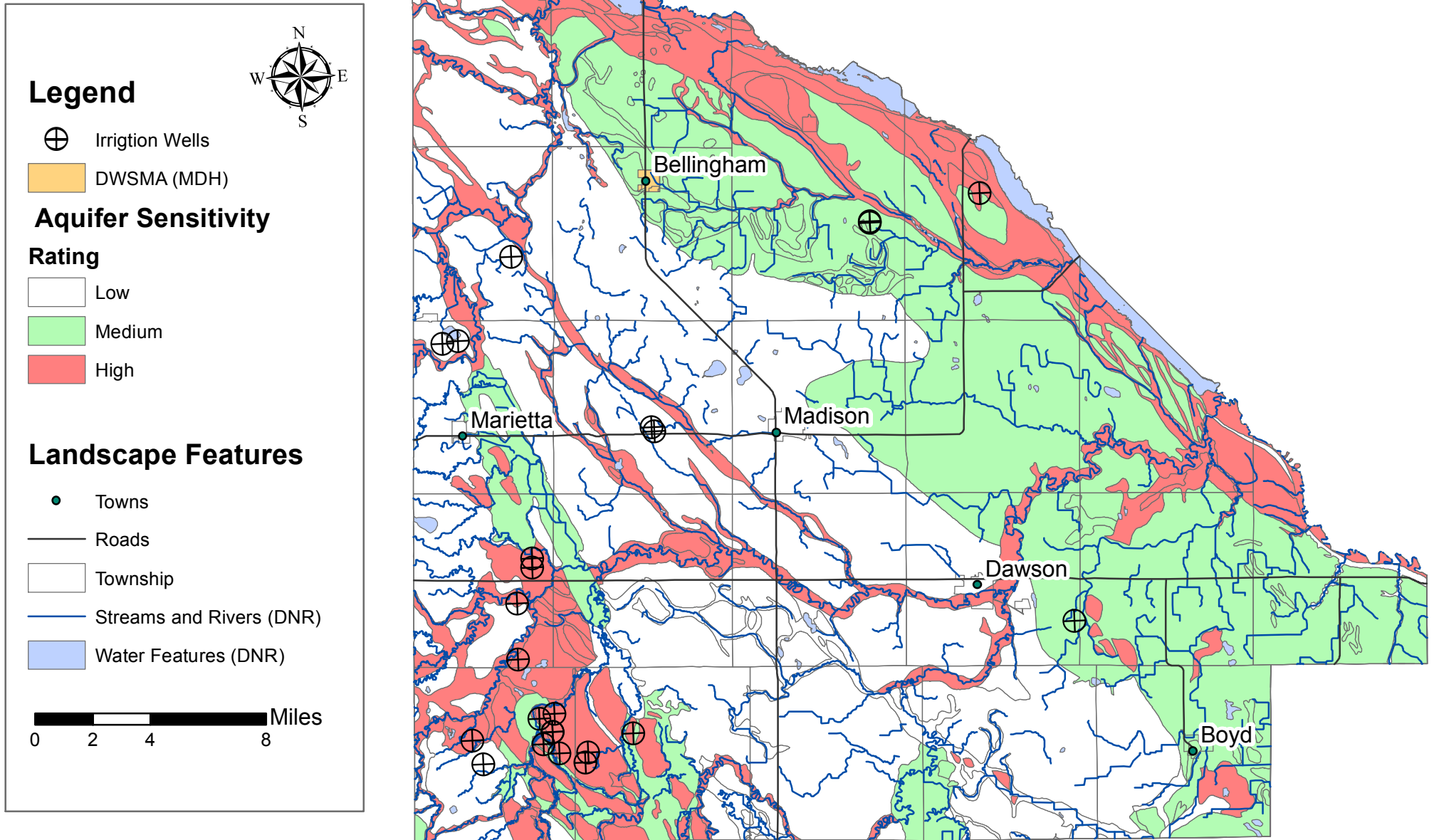
[Affirmative action policy](#) | [Site terms of use](#) | [Privacy policy](#) | [Careers](#) | [Minnesota.gov](#)

Minnesota Dept. of Agriculture, 625 Robert St. N, St. Paul, MN 55155-2538, [mda.info@state.mn.us](mailto:mda.info@state.mn.us)

©2012 MDA

# LAC QUI PARLE COUNTY SURFICIAL AQUIFER SENSITIVITY

Surficial Aquifer vulnerability based on Sediment Association of Mn Geomorphology, (DNR 1997)



## *Lac qui Parle County Water Plan – Priority Concerns Input*

---

---

Your Agency/Organization: Minnesota Board of Water and Soil Resources (BWSR)

Submitted by (name): David Sill

Submitted on: 8/06/12 (via e-mail)

---

---

### **1. Top Priority Concern: Erosion and sediment control; nutrient management on agricultural land**

***Why is it important the plan focus on this concern (include or cite relevant data)?*** According to the “2003 – 2012 Lac qui Parle County Comprehensive Local Water Plan”, the single largest land use in the County is cultivated agricultural land--approximately 82%. Farming practices change over the decades. What once was a diversified agricultural landscape is now primarily cash grain operations. Cash grain operations tend to have soils that are more susceptible to water and/or wind erosion, which can and do impact the quality and quantity of surface and ground water resources. The rivers, shallow lake/wetlands and streams of the County (and Minnesota) depend on best management practices to be implemented on these lands so water quality degradation from sediment of eroding lands does not occur. To provide for the long-term productive capacity of the County’s soil resource base (and the quality of surface water), these agricultural soils need to be protected.

Agricultural runoff can be a significant source of nutrient loading to surface and ground waters. Commercial fertilizers as well as animal waste (manure) from livestock and hog producers are utilized for crop production on agricultural land. Proper application of commercial fertilizer and animal waste is critical in reducing loss of these nutrients to receiving waters. Preventing soil loss due to erosion and attached phosphorous from entering receiving waters will help to improve water quality.

The Minnesota Pollution Control Agency continues to update its Impaired Waters listing, which includes specific reaches of surface waters in the county. Implementation of best management practices are needed to protect and keep the productive soils in place, provide for proper utilization of chemical fertilizers and animal waste, and to retain precipitation on the land that aids in the control of surface water runoff.

#### ***What actions are needed?***

- Continue and accelerate the promotion and marketing of state and federal conservation program opportunities to land owners/users.
- Increase the assistance to landowners in implementing agricultural best management practices (structural and land use change).
- Continue and accelerate *technical assistance* to landowners planning and implementing agricultural best management practices within the county.
- Continue the participation with watershed management projects and groups to pool financial and technical resources.
- Educating the land owners and users to follow University of Minnesota nutrient management recommendations.
- Regarding non field erosion - investigate, gather and record gully and bank survey information via the Lac qui Parle Yellow Bank River Watershed Project regarding high priority erosion sites.
- Utilize LiDAR analysis to identify critical erosion areas, catchment areas, etc. to help prioritize and target implementation activity.

***What resources may be available to accomplish the actions?*** (include contact names, funding sources, partnerships, citizen volunteers, etc.)

- USDA Farm Bill conservation provisions administered by NRCS (Natural Resources Conservation Service) and FSA (Farm Service Agency) at the county level.
- State Cost Share Program, Re-Invest in Minnesota Reserve (RIM) Program, etc. through local SWCD.
- State Clean Water Fund Program opportunities available through the County and local SWCD.
- State Revolving Loan Fund through Minnesota Department of Agriculture.
- Possible private grant opportunities.
- Conservation/implementation programs through Minnesota Pollution Control Agency.
- Ongoing educational opportunities provided by the University of Minnesota, Minnesota Department of Agriculture.
- Information available through MN Pollution Control Agency, MN Dept. of Agriculture, University of MN.

***What areas of the county are high priority?*** Meet with Lac qui Parle Yellow Bank Watershed Project to identify targeted, priority areas (stream reaches/sub watersheds) for implementation - using their monitoring results and data from the completed TMDL and draft tmdl implementation plan---(key in on available turbidity, suspended solids and nutrient data.)

## **2. Second Priority Concern: Feedlot Management and Non-conforming Subsurface Septic Treatment Systems**

***Why is it important the plan focus on this concern (include or cite relevant data)?*** The “2003 – 2012 Lac qui Parle County Comprehensive Local Water Plan” identifies feedlots and Individual Septic Treatment Systems (ISTS), also called subsurface septic treatment systems (SSTS), as potential pollution sources in the County. These pollution sources if improperly managed will contribute to the nutrient and contaminate loading of water resources in the County. The County has capable staff in place to provide assistance to land owners for both resource issues. This assistance is a critical component in properly managing water resources. There are MN Statues in place that provide for enforcement actions to address problems associated with feedlots and non-conforming septic systems. Enforcement action must take place as warranted, *but* incentives and assistance to obtain voluntary compliance is a better approach. Financial incentives opportunities are available. The County needs to continue to seek out these opportunities to help bring the land owners in to compliance.

***What actions are needed?***

- Continue to be a Feedlot Program delegated county.
- Accelerate County/SWCD staff assistance in engaging and assisting feedlot operators.
- Complete a Level III feedlot inventory.
- Continue to implement the County’s SSTS Program.
- Continue to provide County staff to administer the SSTS Program and assist land owners.
- Seek out Federal, State and other funding sources to provide cost-share assistance and loan program assistance to land owners/users.
- Educate the land owner/user and general public on feedlot and SSTS issues and health effects as well as water quality concerns.
- Review and revise local ordinances as needed.

***What resources may be available to accomplish the actions?*** (include contact names, funding sources, partnerships, citizen volunteers, etc.)

- Technical: NRCS, SWCD, Technical Service Area (area SWCD engineering), private.
- Financial: Federal Farm Bill, State Cost Share, MN Clean Water Fund, MN Pollution Control Agency programs ( Federal 319 program opportunities), MN Department of Agriculture Loan program.

***What areas of the county are high priority?*** Note areas identified on the Impaired Waters list for fecal or E-coli and nutrients. For the Lac qui Parle River and Yellow Bank River systems, the exceedances of the e-coli standard appears to be more frequent and severe in the upper reaches. The percent reduction needed to reach the standard are consequently much higher for those upper reaches. It is possible that addressing exceedances in the upper reaches of the system may have a significant beneficial effect on addressing exceedances in the lower reaches of the same system. Use the Lac qui Parle Yellow Bank TMDL to identify the specific reaches identified for bacteria impairment in Lac qui Parle County, focusing on the upper reaches. (For feedlot issues a Level III feedlot inventory would provide some prioritization of problem areas.) Also note – when seeking grant funding for these activities a riparian location will be a higher priority.

## **3. Third Priority Concern: Drainage water management planning / drainage system maintenance and repair**

***Why is it important the plan focus on this concern (include or cite relevant data)?*** According to the “2003 – 2012 Lac qui Parle County Comprehensive Local Water Plan”, there is a significant system (miles) of county open public ditches in the County. Many of these systems probably date back to the early 1900s and require repair and maintenance. In many cases the systems were not designed for the current drainage volume. Private drainage of agricultural lands adds hundreds of miles of underground tile that tie to the county’s public system. The waters of these public (county) and private drainage systems make their way to streams and lakes, in turn impacting the water quality of these water resources.

Many counties are beginning to complete a systematic redetermination of benefits for each of their county drainage systems. Lac qui Parle County should consider this also.

Drainage systems that require repair can make use of new drainage water management technologies that can aid in flood water control and water quality improvement as well as address the drainage needs for agriculture. Properly maintained drainage systems support the productive capability and erosion protection of soils.

***What actions are needed?***

- Continue and accelerate the promotion and marketing of conservation buffers.
- Continue to promote and market State and Federal conservation programs (RIM, CRP, WRP, etc.).
- Develop and implement a plan to complete a systematic redetermination of benefits for each county drainage system.
- Continue to use and update a GIS-based county-wide public drainage system inventory to be used to compliment management efforts and use as a tool for current and future water resources management efforts.
  - Additional information could include identifying systems that are overloaded, areas needing filter/buffer strips, potential wetland restorations/water storage areas, potential sites via landowner expressed interest for drainage water management bmps, etc.
- Market and implement Drainage Water Management – Conservation Drainage bmps to land users.
- Select and assess several drainage systems to learn more about the water quality of each system.
- Overview the economic benefits and concerns of these selected systems.
- Identify areas of these systems that are overloaded and research the creation of water storage areas.
- Manage these systems at the watershed scale when repairs, maintenance or improvements are being considered.
- Seek out information from other county drainage authorities regarding management of their drainage systems.
- Make use of technologies that aid in flood water reduction and water quality improvement in the design and implementation of public drainage system repair and maintenance.
- Provide information and assistance to private drainage system operators to include technologies used on public drainage systems.

***What resources may be available to accomplish the actions?*** (include contact names, funding sources, partnerships, citizen volunteers, etc.)

- Long-term set-aside programs such as RIM, CRP, WRP via local NRCS and SWCD office.
- Clean Water Fund application opportunities via County and local SWCD.
- Watershed projects, such as the Lac qui Parle – Yellow Bank Clean Water Partnership, Lac qui Parle- Yellow Bank Watershed District, etc.
- Utilize local ditch authority funding mechanism.
- University of MN Research and Outreach Centers (Waseca, Lamberton).
- MN Department of Agriculture / Conservation Drainage (contact Mark Dittrich).
- University of MN Agricultural Engineering Department.
- MN Board of Water and Soil Resources Drainage Engineering staff.

***What areas of the county are high priority?*** County-wide application – but I would encourage some identification of several priority or targeted county drainage systems that will be your focus over the next 5 years. Where do you want to place emphasis in the next 5 years – I would identify it as part of this priority concern.

**4. Fourth Priority Concern: Address accelerated runoff impacts via Wetland Restoration, Protection and Enhancement / Water Storage**

***Why is it important the plan focus on this concern (include or cite relevant data)?*** Like many other agricultural counties, most of the pre-settlement wetlands were drained beginning in the early 1900s (the start of public ditching) and probably reached its peak in the mid-1900s. This effort was for the purpose of land improvement. We now know that wetlands and flood plains provide for a wide range of functions including: helping to control flooding; purifying waters by recycling nutrients, filtering pollutants, and reducing siltation; controlling erosion; sustaining biodiversity and providing habitat for plants and animals; recharging groundwater, augmenting water flow, and storing carbon.

Gains have been made in restoring lost wetlands through the efforts of the local SWCD and NRCS offices: conservation programs and state/federal wetland protection programs. These efforts need to continue to balance ongoing land use demands from agricultural and development pressures. Retaining water on the landscape in the watershed by wetland protection and restoration, other water storage opportunities, and

restoring existing flood plain connectivity will help address priority concerns of erosion control and storm water quantity and quality.

***What actions are needed?***

- Continue and accelerate the promotion and marketing of wetland preservation and restoration programs (RIM, CRP, WRP, etc.) – develop a strategy / priorities for drained wetland restoration.
- Continue administering the MN Wetland Conservation Act.
- Continue educational efforts on the function and value of wetlands.
- Consider targeted inventory and identification of high priority areas for wetland restoration/enhancement/water storage.
- Continue administration of shore land and flood plain ordinances.
- Identify and target natural corridors to be enhanced or protected – increase/restore floodplain connectivity.
- Determine protection level for targeted areas through local ordinance development and voluntary conservation programs.
- Focus stream bank restorations in headwater areas.

***What resources may be available to accomplish the actions?*** (include contact names, funding sources, partnerships, citizen volunteers, etc.)

- Long-term set-aside programs such as RIM, CRP, WRP (Wetland Reserve Program) via local NRCS and SWCD office.
- Clean Water Fund grant opportunities.
- Wetland Inventory Guidebook - June 1991, available through MN BWSR and MN DNR (Dept. of Natural Resources).

***What areas of the county are high priority?*** This can be determined more thoroughly as inventories and assessments are completed. I would encourage some targeted watershed or sub watershed areas to be identified for this priority concern and 5 year implementation window.

.....  
**Other Considerations.**

When developing the county’s Priority Concerns Scoping Document that will be distributed for state agency review and comment, don’t forget to add a brief section that talks about implementing the County’s ongoing programs and ordinances. Although these ongoing programs and ordinances may not be among the selected priority concerns for the next five or ten years, implementing them will work hand-in-hand with the selected priority concerns to protect and improve the natural resources of the county.

**Note:**

To have a useful, fundable plan (i.e. receive competitive grant funds) targeting and prioritization of priority concerns, and goals and actions will be needed. You will not be successful if your plan reflects implementation with a county wide or even watershed wide emphasis. A more targeted approach will be necessary!





# Minnesota Pollution Control Agency

250 Lafayette Road North | St. Paul, Minnesota 55155-4194 | 651-296-6300

800-657-3864 | 651-282-5332 TTY | [www.pca.state.mn.us](http://www.pca.state.mn.us) | Equal Opportunity Employer

August 1, 2012

Mr. Matthew Johnson  
Midwest Community Planning, LLC  
Post Office Box 541  
Willmar, MN 56201

RE: Lac qui Parle County Priority Concerns  
Local Water Management Program

Dear Mr. Johnson:

The Minnesota Pollution Control Agency (MPCA) is pleased to provide priority concerns for consideration in Lac qui Parle County's (County) Local Water Management (LWM) planning efforts. We trust these priority concerns will be helpful with developing the forthcoming Priority Concerns Scoping Document (PCSD) and Local Water Management (LWM) Plan.

## 1. Impaired Waters/Total Maximum Daily Loads

The federal Clean Water Act requires states to adopt water quality standards to protect the nation's waters. These standards define how much pollution can be in a surface and/or groundwater while still allowing it to meet its designated uses, such as for drinking water, fishing, swimming, irrigation or industrial purposes. Many of Minnesota's water resources cannot currently meet their designated uses because of pollution problems from a combination of point and nonpoint sources.

Addressing impaired waters in LWM plans is voluntary. However, the MPCA strongly encourages counties to consider how their LWM plans address impaired waters, as identified on the "Final List of Impaired Waters" available on MPCA's website at:

<http://www.pca.state.mn.us/water/tmdl/tmdl-303dlist.html#finalist>

It is suggested the LWM Plan:

- identify the priority the County places on addressing impaired waters, and how the County plans to participate in the development of Total Maximum Daily Load (TMDL) pollutant allocations and implementation of TMDLs for impaired waters
- include a list of impaired waters and types of impairment(s) (see table below)
- identify the pollutant(s) causing the impairment (see table below)
- address the commitment of the County to submit any data it collects to the MPCA for use in identifying impaired waters, provide plans, if any, for monitoring as yet unmonitored waters for a more comprehensive assessment of waters in the County
- describe actions and timing the County intends to take to reduce the pollutant(s) causing the impairment, including those actions that are part of an approved implementation plan for TMDLs

Regional TMDL reports for mercury have been approved by the U.S. Environmental Protection Agency (EPA). The MPCA recommends counties address waters listed for pollutants/stressors other than mercury and polychlorinated biphenyls (PCB) in their LWM plans.

The list of impaired waters in the County is provided in the table below.

**Clean Water Act Section 303 [d] List of Impaired Waters in the County.**

**Reach**

Assessment Unit	ID	Impaired Use	Impairment Cause	Impairment Status
Lac qui Parle River, West Branch: Unnamed cr to Unnamed ditch	07020003-512	AqCons	Mercury in Fish Tissue	TMDL Approved
Minnesota River: Yellow Bank R to Marsh Lk	07020001-511	AqCons	Mercury in Fish Tissue	TMDL Approved
Lac qui Parle River, West Branch: Florida Cr to Unnamed cr	07020003-515	AqCons	Mercury in Fish Tissue	TMDL Approved
Minnesota River: Lac qui Parle dam to Chippewa R	07020004-688	AqCons	Mercury in Fish Tissue	TMDL Approved
Minnesota River: Lac qui Parle R to Lac qui Parle dam	07020001-550	AqCons	Mercury in Fish Tissue	TMDL Approved
Minnesota River: Whetstone R to Yellow Bank R	07020001-503	AqCons	Mercury in Fish Tissue	TMDL Approved
Lac qui Parle River, West Branch: MN/SD border to Lost Cr	07020003-519	AqCons	Mercury in Fish Tissue	TMDL Approved
Minnesota River: Lac Qui Parle Lk to Lac Qui Parle R	07020001-502	AqCons	Mercury in Fish Tissue	TMDL Approved
Minnesota River: Marsh Lk to Lac Qui Parle Lk	07020001-516	AqCons	Mercury in Fish Tissue	TMDL Approved
Lac qui Parle River, West Branch: Lost Cr to Florida Cr	07020003-516	AqCons	Mercury in Fish Tissue	TMDL Approved
Minnesota River (Lac Qui Parle Lake): Lac Qui Parle Lk below Emily Cr	07020001-517	AqLife	Ammonia (Un-ionized)	TMDL Required
Florida Creek: MN/SD border to W Br Lac Qui Parle R	07020003-521	AqLife	Fishes Bioassessments	TMDL Required
Tenmile Creek: Headwaters to Lac Qui Parle R	07020003-511	AqLife	Fishes Bioassessments	TMDL Required
Unnamed creek: Unnamed cr to Emily Cr	07020001-548	AqLife	Fishes Bioassessments	TMDL Required
Stony Run Creek: Unnamed cr to Minnesota R	07020001-531	AqLife	Fishes Bioassessments	TMDL Required
Lac qui Parle River: W Br Lac Qui Parle R to Tenmile Cr	07020003-501	AqLife	Oxygen, Dissolved	TMDL Required
Florida Creek: MN/SD border to W Br Lac Qui Parle R	07020003-521	AqRec	Fecal Coliform	TMDL Required
Yellow Bank River: N Fk Yellow Bank R to Minnesota R	07020001-525	AqRec	Fecal Coliform	TMDL Required
Yellow Bank River, South Fork: MN/SD border to N Fk Yellow Bank R	07020001-526	AqRec	Fecal Coliform	TMDL Required
Tenmile Creek: Headwaters to Lac Qui Parle R	07020003-511	AqRec	Fecal Coliform	TMDL Required

Lac qui Parle River, West Branch: Unnamed cr to Unnamed ditch	07020003-512	AqRec	Fecal Coliform	TMDL Required
Lac qui Parle River, West Branch: Lost Cr to Florida Cr	07020003-516	AqRec	Fecal Coliform	TMDL Required
Lac qui Parle River: Lazarus Cr (Canby Cr) to W Br Lac Qui Parle R	07020003-506	AqRec	Fecal Coliform	TMDL Required
Lac qui Parle River: W Br Lac Qui Parle R to Tenmile Cr	07020003-501	AqRec	Fecal Coliform	TMDL Required
Lazarus Creek (Canby Creek): Canby Cr to Lac Qui Parle R	07020003-508	AqRec	Fecal Coliform	TMDL Required
Yellow Bank River, North Fork: MN/SD border to Yellow Bank R	07020001-510	AqRec	Fecal Coliform	TMDL Required
Lazarus Creek (Canby Creek): Canby Cr to Lac Qui Parle R	07020003-508	AqLife	Turbidity	TMDL Required
Lac qui Parle River: Lazarus Cr (Canby Cr) to W Br Lac Qui Parle R	07020003-506	AqLife	Turbidity	TMDL Required
Lac qui Parle River: W Br Lac Qui Parle R to Tenmile Cr	07020003-501	AqLife	Turbidity	TMDL Required
Yellow Bank River: N Fk Yellow Bank R to Minnesota R	07020001-525	AqLife	Turbidity	TMDL Required
Florida Creek: MN/SD border to W Br Lac Qui Parle R	07020003-521	AqLife	Turbidity	TMDL Required
Lac qui Parle River, West Branch: Lost Cr to Florida Cr	07020003-516	AqLife	Turbidity	TMDL Required

## Lakes

Assessment Unit	ID	Impaired Use	Impairment Cause	Impairment Status
Lac Qui Parle: NW Bay	37-0046-02	AqCons	Mercury in Fish Tissue	TMDL Approved
Lac Qui Parle: SE Bay	37-0046-01	AqCons	Mercury in Fish Tissue	TMDL Approved
Marsh	06-0001-00	AqCons	Mercury in Fish Tissue	TMDL Approved

The County should consider participating with other units of government in the watershed to develop and implement TMDL implementation plans once TMDL studies receive final approval from the EPA. Grant funding applications for TMDL impaired water implementation projects may request citations from local water plans identifying water bodies as County priorities. This documented commitment by a county may improve an applications ranking and ultimately the County's ability to secure implementation funding.

Areas of the County that should be considered priority waters are the impaired water bodies and reaches of impaired water bodies on the Clean Water Act 303 [d] TMDL List. We believe the County should consider impaired waters as a top priority for discussion in the LWM Plan.

Draft/public noticed TMDL studies and approved TMDLs and implementation plans can be viewed on MPCA's website at: <http://www.pca.state.mn.us/index.php/water/water-types-and-programs/minnesotas-impaired-waters-and-tmdls/tmdl-projects/tmdl-projects-and-staff-contacts.html>

### **MPCA Environmental Data Access System**

The water quality section of MPCA's Environmental Data Access (EDA) system allows visitors to find and download data from surface water monitoring sites located throughout the state. Where available, conditions of lakes, rivers or streams that have been assessed can be viewed. We encourage the County to visit this site for water quality monitoring data which may be useful with LWM planning efforts:

<http://www.pca.state.mn.us/data/edaWater/index.cfm>

### **2. Watershed Approach**

Since 2007, the MPCA has been assessing waters by the process known as the Watershed Approach (<http://www.pca.state.mn.us/index.php/water/water-types-and-programs/surface-water/watershed-approach/watershed-approach.html>).

The Watershed Approach process begins with the Intensive Watershed Monitoring and Assessment. The Watershed Approach project area is at the 8 digit hydrologic scale referred to as the Watershed Restoration and Protection (WRAP) area. The Hawk Creek-Yellow Medicine River WRAP project began this approach in 2010; the Lac qui Parle WRAP project and the Upper Minnesota River are scheduled to start in 2015. The MPCA encourages the County to incorporate the Watershed Approach and WRAP for these watersheds.

The Watershed Approach is a 10-year rotation for addressing waters of the state on the level of Minnesota's major watersheds. Since 2007, the MPCA and its partners have begun implementing this approach, as recommended by the Clean Water Council and directed by the Minnesota Legislature <http://www.pca.state.mn.us/index.php/view-document.html?gid=6125>

The Watershed Approach focuses on the watershed's condition as the starting point for water quality assessment, planning, implementation, and measurement of results. This approach may be modified to meet local conditions, based on factors such as watershed size, landscape diversity, and geographic complexity. This Watershed Approach will ultimately lead to a more comprehensive list of impaired and non-impaired waters. This list will be used to develop TMDLs and restoration strategies for impaired waters as well as protection strategies for non-impaired waters. The development of strategies will rely greatly on County participation and counties will likely be asked to provide priority areas to target restoration and protection activities. Targeted priorities may be an important step toward receiving funding for implementation activities. Communication and coordination between counties located in the WRAP watersheds will be essential to develop a comprehensive and effective implementation plan.

Recommended actions include:

- **Monitor and gather data and information.** MPCA employs an intensive watershed monitoring schedule that will provide comprehensive assessments of all of the major watersheds on a 10-year cycle. This schedule provides intensive monitoring of streams and lakes within each major watershed to determine overall health of the water resources, to identify impaired waters, and to identify those waters in need of additional protection to prevent future impairments. It is suggested that the LWM Plan address Surface Water Assessment Grants (SWAGs) and additional County monitoring that may be used in the WRAP.

- **Assess the data.** Based on results of intensive watershed monitoring in step one, MPCA staff and its partners conduct a rigorous process to determine whether or not water resources meet water quality standards and designated uses. Waters that do not meet water quality standards are listed as impaired waters. It is suggested that the LWM Plan address data submittal and representation to participate in the assessment process for use in the WRAP.
- **Establish implementation strategies to meet standards.** Based on the watershed assessments, a TMDL study with restoration and/or protection strategy is completed. Existing LWM plans and water body studies are incorporated into the planning process. It is suggested that the LWM Plan address participation in development of restoration and protection strategies developed through the WRAP as well as priority management zones.
- **Implement water quality activities.** Included in this step are all traditional permitting activities, in addition to programs and actions directed at nonpoint sources. Partnerships with state agencies and various local units of government, including watershed districts, municipalities, and soil and water conservation districts, will be necessary to implement these water quality activities. It is suggested that the LWM Plan address implementation of restoration and protection strategies once developed through the WRAP.

It is suggested the County maintain the current relationships with the Yellow Medicine River Watershed District, the Upper Minnesota River Watershed District, and the Lac qui Parle-Yellow Bank Watershed District for continued participation in the watershed projects. Financial resources for coordination and communication between counties could include, but not be limited to, grants from the Clean Water Fund (CWF), Clean Water Partnership (CWP), Surface Water Assessment Grant (SWAG), Legislative Citizen Commission on Minnesota Resources (LCCMR), and Section 319. Technical assistance could be sought from an advisory group of local and state agency staff, local decision makers and landowners.

Priorities by year (start-completion) include: Hawk Creek-Yellow Medicine River (2010-2014), Lac qui Parle River and Upper Minnesota River (2015-2019).

### **3. Agricultural Drainage Management**

The MPCA recognizes the importance of agricultural drainage for maintaining crop production in Lac qui Parle County. However, agricultural drainage can have unintended consequences on the hydrology and water quality of Lac qui Parle County lakes and rivers. Public and private drainage systems provide a direct conduit for transport of pollutants such as nutrients, pesticides and herbicides to water bodies degrading their recreational, aesthetic, and functional value. In addition, drainage short-circuits the landscape's water storage potential resulting in flashier river systems with higher peak flows. The higher flows result in bank and channel erosion as the streams adjust to the increased energy and force. The down cutting and widening of the channel limits stream access to the natural floodplain reducing sediment deposition and increasing sediment transport.

The LWM Plan can prescribe several practices to mitigate the effects of agricultural drainage including wetland restorations, alternative tile intakes and vegetated filter strips. The MPCA recommends that the County develop a comprehensive Drainage Management Plan (DMP) that addresses present and future drainage needs as well as methods to mitigate the unintended consequences as described above. To ensure the DMP is maintained and utilized, the MPCA recommends it be incorporated into the County

Mr. Matthew E. Johnson

Page 6

LWM Plan and that it include explicit language that the County drainage authority should consult the plan with any petition to improve a public drainage system and consider options for mitigating increases in flow volume. A concerted effort by local decision makers, local and state agencies, and landowners will be necessary to ensure sufficient drainage for crop production while maintaining and improving the water quality.

Financial resources for development of a comprehensive DMP could include, but not be limited to, grants from the CWF, LCCMR and Section 319. Technical assistance for development of the plan could be sought from the state Drainage Management Team and/or an advisory group of local and state agency staff, local decision makers and landowners.

High priority areas would include impaired waterbodies and reaches of impaired waterbodies on the Clean Water Act 303 [d] TMDL List, though any area with high resource value waters should be considered.

#### **4. Update of LWM Plan Information Relative to MPCA Programs**

Much of the information and terminology on MPCA programs is out of date (ex. STORET is now Environment Quality Information System (EQuIS); Individual Sewage Treatment System (ISTS) is now Subsurface Sewage Treatment System (SSTS).

It is recommended to use updated information and terminology in the new LWM Plan. Resources to help accomplish these actions include MPCA website ([www.pca.mn.us](http://www.pca.mn.us)), and appropriate program staff.

If we may be of further assistance, please contact Mark Hanson in the Marshall Regional Office at 507-476-4259 or Dave L. Johnson in the St. Paul Office at 651-757-2470.

Thank you and we look forward to reviewing the forthcoming PCSD and LWM Plan.

Sincerely,



Rebecca J. Flood  
Assistant Commissioner

RJF/DLJ:kb

cc: Jeff Nielsen, Minnesota Board of Water and Soil Resources  
Mark Hanson, Minnesota Pollution Control Agency, Marshall Office

## *Lac qui Parle County Water Plan – Priority Concerns Input*

---

Your Agency/Organization: Lac qui Parle Soil & Water Conservation District

Submitted by (name): Terry Wittnebel

Submitted on: August 22, 2012

---

A priority concern for the LqP SWCD is to ensure adequate staffing for the SWCD, both administrative and technical. The SWCD is tasked with administration of the LqP County Water Plan as well as being responsible for many of the conservation delivery action items in the Plan. The Water Plan cannot be an effective resource protection tool without appropriate staff.

### **1. Top Priority Resource Concern:**

#### **Erosion and sediment control; nutrient management on agricultural land**

##### *Why is it important the plan focus on this concern?*

The single largest land use in the County is cultivated agricultural land. What once was a diversified agricultural landscape is now primarily cash grain operation, and soils are susceptible to water and/or wind erosion which impacts the quality and quantity of surface and ground water resources. Surface waters depend on best management practices to prevent degradation due to sediment and nutrients from attached commercial fertilizer and/or manure.

##### *What actions are needed?*

- promotion and marketing of state and federal conservation program opportunities to land owners/users
- accelerate SWCD administrative & technical assistance to landowners planning and implementing agricultural best management practices including ecological, structural, and land use change
- Pursue partnerships to pool financial and technical resources
- Educate land owners/users and other segments of the public on value/effectiveness BMPs
- Use LiDAR to identify, prioritize and target implementation activity

##### *What resources may be available to accomplish the actions?*

- State Cost Share Program, Re-Invest in Minnesota Reserve (RIM) Program, etc. through LqP SWCD
- Clean Water Fund grant opportunities through LqP SWCD
- MN Dept of Ag Revolving Loan Program through the LqP SWCD
- USDA Farm Bill conservation provisions administered by NRCS (Natural Resources Conservation Service) and FSA (Farm Service Agency)
- SW Prairie Technical Service Area
- Other funding opportunities as they become available

##### *What areas of the county are high priority?*

- Riparian areas, for both remediation and protection purposes
- Western portion of the county where there is a significant change in elevation

### **2. Second Priority Concern:**

#### **Feedlot Management and Non-conforming Subsurface Septic Treatment Systems**

##### *Why is it important the plan focus on this concern?*

Feedlots, pastures, and Subsurface Septic Treatment Systems (SSTS) are potential sources of pollution. Assistance is a critical component to address problems associated with livestock and non-conforming septic systems. Incentives and assistance to obtain voluntary compliance is better than enforcement.

##### *What actions are needed?*

- Accelerate SWCD staff assistance in engaging and assisting livestock producers.
- promotion and marketing of state and federal conservation program opportunities to land owners/users
- Educate land owner/users and all sectors of the public on livestock and SSTS issues such as health effects and other water quality concerns.

***What resources may be available to accomplish the actions?***

- NRCS, SWCD, Southwest Prairie Technical Service Area
- Federal Farm Bill, State Cost Share, MN Clean Water Fund grants, MN Department of Agriculture Loan program, MPCA, MN Department of Health

***What areas of the county are high priority?***

- Riparian areas, for both remediation and protection purposes
- Lac qui Parle Yellow Bank TMDL identified reaches

**3. Third Priority Concern**

**Drainage water management planning / drainage system maintenance and repair**

***Why is it important the plan focus on this concern?***

The county has many miles of public ditches, many dating back to the early 1900s, that require repair and maintenance. In many cases the systems were not designed for the current drainage volume. Private drainage of agricultural lands adds hundreds of miles of underground tile that tie to the county's public system. The waters of these public (county) and private drainage systems make their way to streams and lakes, impacting the quality of these water resources.

Drainage systems that require repair can make use of new drainage water management technologies that can aid in flood water control and water quality improvement as well as address the drainage needs for agriculture. Properly maintained drainage systems support the productive capability and erosion protection of soils.

***What actions are needed?***

- Continue and accelerate the promotion and marketing of conservation buffers.
- Market and implement Drainage Water Management/Conservation Drainage BMPs to land users.
- Use LiDAR to target implementation activity such as identifying systems that are overloaded, areas needing filter/buffer strips, potential wetland restorations/water storage areas, etc
- Provide information and assistance to private drainage system operators to include technologies used on public drainage systems.

***What resources may be available to accomplish the actions?***

- state and Federal conservation programs (RIM, CRP, WRP, etc.) via local NRCS and SWCD office
- MN Department of Agriculture / Conservation Drainage (contact Mark Dittrich).
- SWCD/BWSR/NRCS technical & engineering staff, SW Prairie Technical Service Area

***What areas of the county are high priority?***

County-wide application

**4. Fourth Priority Concern:**

**Wetland Restoration, Protection and Enhancement / Water Storage**

***Why is it important the plan focus on this concern?***

Most pre-settlement wetlands were drained beginning in the early 1900s (the start of public ditching) for the purpose of land improvement. We now know that wetlands and flood plains: help to control flooding; purify waters by recycling nutrients, filter pollutants, and reduce siltation; control erosion; sustain biodiversity and provide habitat for plants and animals; recharge groundwater, augmenting water flow; and store carbon.

Restoring lost wetlands balances ongoing land use demands from agricultural and development pressures. Retaining water on the landscape by wetland protection and restoration, other water storage opportunities, and restoring existing flood plain connectivity helps address priority concerns of erosion control and storm water quantity and quality.

***What actions are needed?***

- Continue and accelerate the promotion and marketing of wetland protection/restoration programs (RIM, CRP, WRP, etc.) via local NRCS and SWCD office
- Continue administering the MN Wetland Conservation Act.
- Continue educational efforts on the function and value of wetlands



***What resources may be available to accomplish the actions?***

- Long-term set-aside programs such as RIM, CCRP, WRP, Ag Wetland Banking, etc., via local NRCS and SWCD office.
- Clean Water Fund grant opportunities.

***What areas of the county are high priority?***

- Focus stream bank restorations in headwater areas.
- Watersheds impaired for turbidity

**Appendix C:**  
**Water Plan Public Review & Adoption Documents**

**Lac qui Parle County**  
**Water Plan Public Hearing**

**~ Minutes ~**

The Lac qui Parle County Board of Commissioners held a public hearing on the County's draft Water Plan. The public hearing took place in the Commissioners' Room at the Lac qui Parle County Courthouse on Tuesday, September 3. The public hearing was legally advertised in the official local newspaper, The Western Guard. Commissioner Overlander declared the Public Hearing open.

Terry Wittnebel, Water Plan Coordinator, presented the comments she received from BWSR, MPCA, the LqP SWCD, and a phone conversation with one private individual. Most comments pertained to general spelling errors, wording, and numbering.

BWSR indicated that there were a lot of good actions addressing livestock BMP's, but there was nothing specifically addressing feedlots. Also the table listing priority items should be ranked low, medium, or high priority.

MPCA made note that some of the hyperlinks did not work. Also wording of the West Fork of the Lac qui Parle River should be changed to West Branch instead. BWSR should be added as a stakeholder for several action items.

The Wes Shepherd phone conversation included questioned how irrigation systems were permitted, and whether "need" was considered.

The SWCD questioned some data accuracy, Water Plan task force should be identified as the Resource Commission, and the LqP SWCD mission statement needed correction.

Commissioner Brehmer inquired about how many hours Wittnebel had put into revising the plan with her response being numerous. Commissioner Patzer indicated he had no comments. Overlander questioned the length of the plan and Carlson inquired about where the funds were coming from to pay the consultant.

There being no additional comments, Wittnebel informed the commissioners of the final process for adoption of the Lac qui Parle County Water Plan.

Commissioner Overlander declared the public hearing closed.

**Lac qui Parle County**  
**Water Plan Public Hearing**  
~ September 3, 2013 ~

	<i>Please Sign In</i>	<i>Representing</i>
1.	Todd Patzer	LqP Co
2.	De Ron Brehmer	LqP Co
3.	Shaylen J. Carlson	LqP Co
4.	[Signature]	LqP Co.
5.	By Mail	LqP Co.
6.	Janet Sieg	LqP Co.
7.	[Signature]	Western Guard
8.	Sheil Luechelt	SWCD
9.	Vernyle Wittnebel	LqP SWCD
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		

# Lac qui Parle Resource Commission



September 4  
2013

## REGISTER

Name	Organization/Address
1. <i>Jon Engel</i>	<i>Producer - Corn, Soybean, Groves</i>
2. <del><i>Joe Crockett</i></del>	<i>LGP DEZ</i>
3. <i>Brand Olson</i>	<i>DNR</i>
4. <i>Jeff Rhein</i>	<i>Producer</i>
5. <i>Tony Hosted</i>	<i>LGP 4B watershed</i>
6. <i>Jennifer Buberg</i>	<i>LGP Envr. Office</i>
7. <i>Mary Haman</i>	
8. <i>Wynne Stadel</i>	<i>LGP SWCD/WaterPlan</i>
9. <i>Aeri Lechelt</i>	<i>LGP SWCD</i>
10. <i>Burt Henschel</i>	<i>NRC</i>
11.	
12.	
13.	
14.	
15.	
16.	



# Lac qui Parle County Comprehensive Water Plan

122 – 8<sup>th</sup> Avenue S.  
Madison MN 56256  
320-598-7321 x 3

## Resource Commission Meeting September 4, 2013 10:00 a.m. Lac qui Parle County Annex

### AGENDA/MINUTES

In attendance: Ron Enger, David Craigmile, Brad Olson, Jeff Rheingans, Trudy Hastad, Jennifer Breberg, Mary Homan, Sheri Laechelt, Burt Hendrickson, Terry Wittnebel.

#### Well Sealing Cost Share Applications

Seven cost share applications were presented for approval for Doug Kennedy, Tom Fernholz, Joseph Bothun (2 applications, 2 wells), Dennis Thomson (2 applications, 2 wells), David Haas. Remaining funds can seal only 3. Mary moved, Trudy second, all in favor to fund Dennis Thomson wells (part of wellpit retrofit grant project) and David Haas, with Doug Kennedy next priority; Tom Fernholz & 2 Joseph Bothun as soon as new funds become available.

#### Draft Water Plan

##### Review agency & public comments

Terry summarized written comments received from BWSR, MPCA, & SWCD. Mary said SWCD and NRCS should be lead agency in TMDL implementation rather than LqPYBWatershed.

Discussed were:

**\*correct data/estimates**

Terry will confer with Burt to see if any numbers need correcting.

**\*Add feedlot/open lot fixes under TMDL action steps**

Consensus to add another action step under Countywide to *seek funds to assist remediation of nonconforming feedlots.*

**\*Irrigation permits based on need**

Wes Sheppard of rural Madison had called the Water Plan Coordinator during public comment period questioning permit process for new irrigation systems, and whether the issue of “need” was addressed. He pointed out there are tools available to determine need beyond the fact that the top 4 inches of soil are dry. Discussion on permit process and whether farmers would make the financial investment required if not truly needed. Consensus to include this stewardship issue as part of irrigation workshop identified 2.G.1.b)

**\*Select hi/medium priorities**

Table of Project Implementation Priorities was passed out for review.

Noted that MN Geological Society should read “Survey”.

Discussion on wording for Groundwater BMPs - Reduce nitrogen in cropped field root zones better wording would be “leaving”. Terry to review Plan for other places this should be changed.

Chosen for HI priority were:

3.H.1.a)

2.F.1.d)

3.H.3.b)

1.A.4.

1.D.6.

MEDIUM priority were the remaining 3 on the list

2.F.2.a)

2.F.3.d)

1.D.4.

## **EQIP Local Work Group**

Burt conducted discussion of EQIP program and local priorities. No priorities were identified beyond those in the Water Plan and TMDL implementation plan, but frustration was expressed regarding unrealistic implementation timeline (1 year start; funds spent), and whole process so cumbersome many landowners don't want to get involved. As a result, there may be resource needs which are not addressed.

Burt and Terry thanked everyone for coming. Meeting adjourned at 11:50.

*“We cannot solve our problems with the same thinking we used when we created them.” - Albert Einstein*



# Lac qui Parle County Comprehensive Water Plan

122 – 8<sup>th</sup> Avenue S.  
Madison MN 56256  
320-598-7321 x 3

Resource Commission Meeting  
September 4, 2013 10:00 a.m.  
Lac qui Parle County Annex

## Draft Water Plan

Reviewed agency & public comment with consensus for the following changes.....

- Replace LqPYBWatershed with **SWCD/NRCS** as stakeholder local lead
  - Page 3-3, 1.A.1.
  - Page 3-5, 1.A.2.
  - Page 3-7, 1.A.3.
  - Page 3-8, 1.A.4.
  - Page 3-10, 1.A.5.
  - Page 3-11, 1.A.6.
  
- Changes to stakeholder list
  - Page 3-13, 1.B.2 add **EO**
  - Page 3-13, 1.B.3 **SWCD co lead**
  - Page 3-14, 1.B.4. change **SWCD lead**
  - Page 3-15, 1.C.2. **add WS & SWCD**
  - Page 3-16, 1.C.5. **add WS**
  - Page 3-23, 2.E.1. **remove EO**
  - Page 3-25, 2.F.4. **add WS**
  - Page 3-21, 1.D.8. Change stakeholder local lead to **LqPYBWatershed**
  - Page 3-28, 2.G.3. **add WS**
  - Page 3-30, 3.H.2. **add WS**
  - Page 3-32, 3.H.4. with to **LqPYBWatershed & EO co-lead**
  
- Correction supersedes MPCA suggested deletion – page 3-18, 1.D.2, change wording by replacing (segment not included in the TMDL) with **“from Ten Mile Creek to Lac qui Parle Lake.”**



- Correction on acreage
  - Page 3-30, 3.H.2.a)iv. - 2500 acres should read “**25**” acres
  - Page 3-32, 3.H.4.a)vi. – 1000 acres should read “**100**” acres
  
- Add action step for feedlot/openlot fixes under TMDL
  - Page 3-12, add another action step to read as follows:  
**“ 1.A.1.d)iii. Seek funds to assist remediation of nonconforming feedlots”**
  
- Select hi/medium priorities for Table of Project Implementation Priorities.....
  - Page 4-3
    - 2.F.2.a) MN Geological Society should read “**Survey**”
      - This change also required on page 3-25
    - 2.F.1.d) Groundwater BMPs - Reduce nitrogen in cropped field root zones, should read “**leaving**”
      - This change is also required on page 3-24
  
  - Chosen for **HI priority** were:
    - 3.H.1.a)
    - 2.F.1.d)
    - 3.H.3.b)
    - 1.A.4.
    - 1.D.6.
  
  - **MEDIUM priority** were the remaining 3 on the list
    - 2.F.2.a)
    - 2.F.3.d)
    - 1.D.4.

*“We cannot solve our problems with the same thinking we used when we created them.” - Albert Einstein*



Date: August 29, 2013

To: Terry Wittnebel, Lac qui Parle SWCD

From: David Sill, BWSR Board Conservationist

RE: Comments – *Draft* Lac qui Parle County Local Water Management Plan for Public Hearing

Enclosed are my comments regarding the Lac qui Parle County Local Water Management Plan draft document (2014 – 2023) which was noticed for public hearing on September 3, 2013:

- Page 2-6, Table 2A - Conservation Lands Summary – Statewide Table – On August 1, 2013 BWSR updated this table highlighting conservation lands throughout the state broken down by county. I would suggest updating the information in Table 2A. I have attached this document for your use.
- Page 2-37 – second paragraph – where you write --- BWSR has increasingly become an important stakeholder in assisting with agricultural drainage issues. One of the categories in the last BWSR Clean Water Fund competitive grant RFP (FY2013) was: Clean Water Conservation Drainage Management Grants – the purpose of these grants .... This is correct wording and I would leave the text as written. *You may want to add this:* However for FY2014 and on - the installation of conservation practices on drainage systems are still eligible, in the future however they simply will be part of a larger category of Clean Water Funds called BWSR Projects and Practices and not a separate grant program.
- Page 3-3 – 3-14 – There are many good actions addressing Livestock BMPs through these pages – *nutrient management planning, pasture management, managed water access, county feedlot program administration, close unused ag waste impoundments, etc.* However it seems to me the actions never address actual feedlot or open lot fixes that are experiencing potential runoff problems. The feedlot inventory most likely identified some problem sites. The water plan should reflect an action or actions to actually assist producers with technical assistance, engineering assistance, cost share, etc. to fix a certain number or percentage of these sites.
- Page 4-3 – Table 4A seems to need some additional work and thought. Please work with plan consultant to add more implementation year targets and High, Medium, Low priority designation. (Suggest working with plan consultant - see similar table in the Pope County Water Plan for detail level.)

c: Matthew Johnson, Midwest Community Planning

8/30/2013

From: Katherine Pekarek-Scott (MPCA)

RE: Comments – *Draft* Lac qui Parle County Local Water Management Plan for Public Hearing

*I will be sending my comments back to you in multiple emails. I did not include all of the grammar changes, but I did put a note on the front page of items that need to be addressed.*

Following highlights of emailed comments assembled by Terry Wittnebel, LqP Water Plan:

- Inconsistent numbering & labeling, with some missing altogether
- Hyperlinks that don't work
- Add BWSR as stakeholder in multiple action steps
- viii – ag drainage – one mile annually = 35 ft. wide buffer, 1 mile both sides=8.5 ac This estimate seems low.
- ix & 3-34,4I3a) – replace TMDL process with “watershed approach”
- pg 3-7 1A3 need to delete LqP River Watershed as its only the Yellow Bank River in this action
- pg 3-8 1A4 W Fork LqP River should read “W Branch”
- pg 3-29 3H1a) 1 mile per year seems low estimate
- pg 4-5 – LqP County staff – cash contribution should read “in-kind”
- pg 4-7 Land & Resource Management Office should read Environmental Office
- pg 4-8 controlling should read “regulating”

## *Lac qui Parle Soil and Water Conservation District*



122 8<sup>th</sup> Avenue S.  
Madison MN 56256  
320-598-7321 Ext. 3  
FAX 320-598-3432

*The mission of the Lac qui Parle Soil and Water Conservation District is to take available technical, financial and educational resources, whatever their source, and focus or coordinate them so that they meet the needs of the local land user to help him/her protect Lac qui Parle's natural resources.*

Date: August 29, 2013

To: Matthew Johnson, Midwest Community Planning  
Terry Wittnebel, Lac qui Parle County Water Plan

From: Terry Wittnebel, Lac qui Parle Soil & Water Conservation District

RE: Comments – *Draft* Lac qui Parle County Local Water Management Plan for Public Hearing

There are numerous edits needed as identified in an email sent August 29, 2013 including continuity of layout, identification of illustrations, correct identification of County Offices, and so forth.

Following are my comments regarding some content issues the Lac qui Parle County Local Water Management Plan draft document (2014 – 2023) which was noticed for public hearing on September 3, 2013. These were also identified in the previously mentioned email:

- Page 2 – Word changes 2<sup>nd</sup> paragraph at top of page: Progress of the plan is reported to the LqPRC, the Lac qui Parle County Board of Commissioners, and BWSR as well as a news articles throughout the year. The LqPRC meets annually with additional meetings as needed.
- Page 16 – Flooding B. – Parts of the County experience cross-over flooding from adjacent watersheds, especially a result of the Coteau elevation difference.
- Page 22 – Water Plan Task Force should be changed to read Resource Commission (used 4 times).
- Page 2-66, Table 2E – confirm the number of readings for DNR Observation Well 37008.
- Page 3-1 – Priority Watershed(s) at bottom of page – Delete incorrect statement “All is listed for Countywide implementation”
- Page 3-1 – Stakeholder(s) at bottom of page – Delete incorrect phrase “and Underline”
- Page 3-14- Table 1.B.4.Pasture Management – should read 1.B.4.a) Improve 100 acres of pasture..... and then 1.B.4.b) Managed Water Access....
- Page 3-14- Table 1.B.5.Education/Outreach – should read 1.B.5.a) Continuing education (news releases.....) and then 1.B.5.b) Host a workshop/field day.....

- Page 4-1 – Plan Coordination, 3<sup>rd</sup> paragraph, Water Plan Task Force should be changed to read Resource Commission (used 4 times)
- Page 4-3 – Table 4A: Implementation Priorities – Consider addition of additional erosion control actions step to priority list.
- Page 4-7 – top of page first paragraph misstates the Lac qui Parle SWCD mission statement. It should read: *The mission of the Lac qui Parle Soil and Water Conservation District is to take available technical, financial and educational resources, whatever their source, and focus or coordinate them so that they meet the needs of the local land user to help him/her protect Lac qui Parle's natural resources.*

C: David Sill, Board Conservationist



December 18, 2013

Lac qui Parle County Commissioners  
c/o Terry Wittnebel, Water Planner  
Lac qui Parle Soil & Water Conservation District  
122 8<sup>th</sup> Avenue South  
Madison, MN 56256

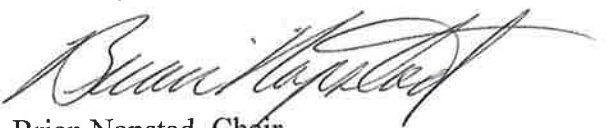
Dear Lac qui Parle County Commissioners:

The Minnesota Board of Water and Soil Resources (BWSR) is pleased to inform you it approved the revised Lac qui Parle County Local Water Management Plan (Plan) at its regular meeting held on December 18, 2013. Attached is a signed Findings of Fact, Conclusion, and Order that documents approval of the Plan and indicates it meets all relevant requirements of law and rule. This update of the Lac qui Parle County Local Water Management Plan is effective for a ten-year period until December 18, 2023.

The County must adopt and begin implementing the Plan within 120 days (M.S. 103B.315, Subd. 6, Adoption and Implementation). An example of a resolution adopting the plan can be found on BWSR's website at <http://www.bwsr.state.mn.us/planning/CLWM/Adoption.doc>. Upon adoption, please forward a copy of the resolution to Jeff Nielsen, BWSR regional supervisor.

The Lac qui Parle SWCD staff, County and local partner agencies, and water plan advisory members are to be commended for writing a plan that clearly presents water management goals, actions, and priorities of the County. With continued implementation of this water plan, the protection and management of Lac qui Parle County's water resources will be greatly enhanced. The BWSR looks forward to working with you as you implement this Plan and document its outcomes.

Sincerely,

  
Brian Napstad, Chair  
Minnesota Board of Water and Soil Resources

c: Jeff Nielsen, Southern Region Supervisor  
David Sill, Board Conservationist

<i>Bemidji</i>	<i>Brainerd</i>	<i>Duluth</i>	<i>Fergus Falls</i>	<i>Mankato</i>	<i>Marshall</i>	<i>New Ulm</i>	<i>Rochester</i>
403 Fourth Street NW Suite 200 Bemidji, MN 56601 (218) 755-2600	1601 Minnesota Drive Brainerd, MN 56401 (218) 828-2383	394 S. Lake Avenue Suite 403 Duluth, MN 55802 (218) 723-4752	1004 Frontier Drive Fergus Falls, MN 56537 (218) 736-5445	12 Civic Center Plaza Suite 3000B Mankato, MN 56001 (507) 344-2821	1400 East Lyon Street Marshall, MN 56258 (507) 537-6060	261 Highway 15 South New Ulm, MN 56073 (507) 359-6074	3555 9 <sup>th</sup> Street NW Suite 350 Rochester, MN 55901 (507) 206-2889

Central Office / Metro Office

520 Lafayette Road North

Saint Paul, MN 55155

Phone: (651) 296-3767

Fax: (651) 297-5615



In the Matter of Reviewing the Local Water Management Plan Update  
for Lac qui Parle County (Minnesota Statutes, Section 103B.311,  
Subdivision 4 and Section 103B.315, Subdivision 5.)

ORDER  
APPROVING  
LOCAL  
WATER MANAGEMENT  
PLAN UPDATE

---

**Whereas**, the Lac qui Parle County (County) Board of Commissioners submitted a Local Water Management Plan Update (Plan Update) to the Board of Water and Soil Resources (Board) on September 6, 2013 pursuant to M.S. Section 103B.315, Subd. 5, and

**Whereas**, the Board has completed its review of the Plan Update;

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

**FINDINGS OF FACT**

1. On December 7, 2012, the Board received a Priority Concerns Scoping Document (PCSD) from the County, pursuant to M.S. Section 103B.312.
2. On February 7, 2013, the Board received a written request (resolution) from the County for an extension of their current local water management plan.
3. On March 27, 2013, the Board approved official comments on the County PCSD, which were mailed to the county on March 27, 2013. The priority concerns the PCSD and Plan Update addresses include:
  - Reduce Priority Pollutants – Surface Water Quality
  - Surface Water Management
  - Groundwater Quality & Quantity
  - Plan Administration
4. On March 27, 2013, the Board approved the extension request made by the County. The end date of the current local water management plan was extended to December 31, 2013. This approval was mailed to the County on March 27, 2013.
5. On September 6, 2013, the Board received the County Plan Update, a record of the public hearing, and copies of all written comments pertaining to the Plan Update for final State review pursuant to M.S. Section 103B.315, Subd. 5.

6. On November 7, 2013, the Southern Region Committee of the Board met to review the following state agency comments, commendations and approval recommendations regarding the final approval of the County Plan Update:

- Minnesota Pollution Control Agency (MPCA) noted the Plan does not violate any statutory or rule requirements administered by MPCA and recommends approval of the entire Plan as submitted. (MPCA did provide several comments providing minor corrections or clarification.)
- Minnesota Department of Health (MDH) provided no comments.
- Minnesota Department of Natural Resources (DNR) noted Plan Update does not violate any statutory or rule requirement administered by DNR and recommends approval of the entire Plan Update.
- Minnesota Department of Agriculture (MDA) noted Plan Update does not violate any statutory or rule requirement administered by the MDA and recommends approval of the entire Plan Update. (MDA also offered several comments for consideration for clarification purposes regarding that crop prices are not the only factor that may cause increases in tiled farmland.)
- Minnesota Environmental Quality Board provided no comments.

The Committee's decision was to present a recommendation of approval of the Plan Update to the Board at the Board's December 18, 2013 meeting.

7. On December 18, 2013, the Southern Region Committee of the Board presented its recommendation of approval of the Lac qui Parle County Local Water Management Plan Update to the Board. The Board adopted the Committee's recommendation.
8. This Plan Update will be in effect for a ten-year period until December 18, 2023, with the Goals, Objectives and Action items amended by December 18, 2018.

### CONCLUSIONS

1. All relevant requirements of law have been fulfilled. The Board has proper jurisdiction in the matter of approving a Local Water Management Plan Update of Lac qui Parle County pursuant to Minnesota Statutes, 103B.315, Subd. 5.
2. The Lac qui Parle County Plan Update states water and water-related problems within the county; possible solutions; goals, objectives, and actions of the county; and an implementation program. The Plan Update is in conformance with the requirements of M.S. Section 103B.301.

### ORDER

The Board hereby approves the update of the Lac qui Parle County Local Water Management Plan 2014-2023 with a required update of the Implementation section (Goals, Objectives, and Action) to be completed by December 18, 2018.

Dated at St Paul, Minnesota this December 18, 2013.

**MINNESOTA BOARD OF WATER AND SOIL RESOURCES**

  
BY: Brian Napstad, Chair



**Adoption and Implementation  
After BWSR Approval**

RESOLUTION

WHEREAS, the Lac qui Parle County Board of Commissioners has been notified by the Minnesota Board of Water and Soil Resources that the Lac qui Parle County Comprehensive Local Water Management Plan has been approved according to Minnesota Statutes Chapter 103B.301:

NOW, THEREFORE BE IT RESOLVED, the Lac qui Parle County Board Commissioners hereby adopts and will begin implementation of its approved comprehensive water plan.

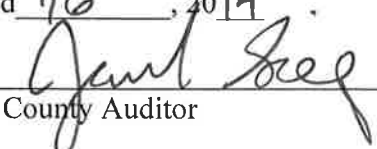
BE IT FURTHER RESOLVED, after the adoption of the local comprehensive water management plan, the Lac qui Parle County Board shall amend existing water and related land resources plans and official controls as necessary to conform them to the applicable and approved comprehensive water plan.

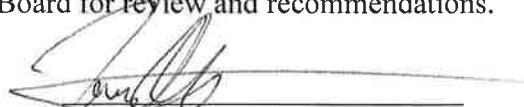
BE IT FURTHER RESOLVED, after the adoption of the local comprehensive water management plan, Lac qui Parle County shall notify local units of government within the County of the adoption of the plan or amendments to the plan. The local units of government are required to submit existing water and related land resources plans and official controls within 90 days to the County Board for review.

BE IT FURTHER RESOLVED, Within 180 days, the Lac qui Parle County Board shall review the submitted plans and official controls and identify any inconsistencies between the local plans and official controls, and local comprehensive water management plan. The Lac qui Parle County Board shall specify applicable and necessary measures to bring the local plans and official controls into conformance with the local comprehensive water management plan.

BE IT FURTHER RESOLVED, if a local unit of government disagrees with any changes to its plan, the local unit has 60 days after receiving the county's recommendations to appeal the recommendations to the Board of Water and Soil Resources.

BE IT FURTHER RESOLVED, after receiving the recommendations of the Lac qui Parle County Board, or a resolution of an appeal, a local unit of government has 180 days to initiate revisions to its plan or official controls. The new or revised plans and official controls must be submitted to the Lac qui Parle County Board for review and recommendations.

Adopted 1/6, 2014  
Attest:   
County Auditor

  
Chair of County Board

Lac qui Parle Soil and Water Conservation District Resolution  
To Adopt Summary of Watercourses  
for inclusion in Local Water Management Plan

**Whereas;** Minnesota statues 103F.48 requires SWCDs in consultation with local water management authorities, to develop, adopt, and submit to each local water management authority within its boundary a summary of watercourses for inclusion in the local water management plan.

**Whereas;** The Board of Water and Soil Resources has adopted the Local Water Resources Riparian Protection (“Other Watercourses”) Policy August 25, 2016 which identifies steps SWCDs are required to take in developing said inventory.

**Whereas;** Lac qui Parle SWCD has met with local water management authorities within its jurisdiction.

**Whereas;** Lac qui Parle SWCD and the water management authorities within its jurisdiction discussed watershed data, water quality data and land use information as a criteria in development of this list.

**Whereas;** Lac qui Parle SWCD has assessed the water quality benefits that buffers and alternative practices could provide and determined that current State and Federal programs have eligibility criteria for watercourses where water quality would benefit from the installation of a buffer or filter strip.

**Whereas;** The Lac qui Parle SWCD determined that the rational for inclusion of “other watercourses” is to be inclusive of all watercourses where water quality would benefit from the voluntary installation of a buffer, filter strip, or other conservation practice that benefits water quality.

**Whereas;** producing a map of all the watercourses meeting the eligibility criteria would be time consuming and may not be inclusive of all watercourses where water quality would benefit from the voluntary installation of a buffer or filter strip.

**Therefore be it resolved that;** The summary of watercourses or “other waters” for Lac qui Parle County shall be descriptive in format instead of in map format.

**Be it further resolved that;** the description of watercourses to be included in the summary of watercourses or “other waters” **shall be;** all watercourses deemed eligible for the adjacent land to be voluntarily enrolled into a buffer or filter strip practice under the current eligibility criteria for state and federal programs.

Excluding those watercourses depicted on the DNR buffer protection map.

A list of watercourses included in this descriptive inventory are;

Perennial streams, Seasonal streams depicted on USGS topographic maps,

Perennial streams, Seasonal streams depicted on soil survey maps,

Other watercourses identified by onsite visits,

And

Drainage ditches that are perennial or seasonal streams