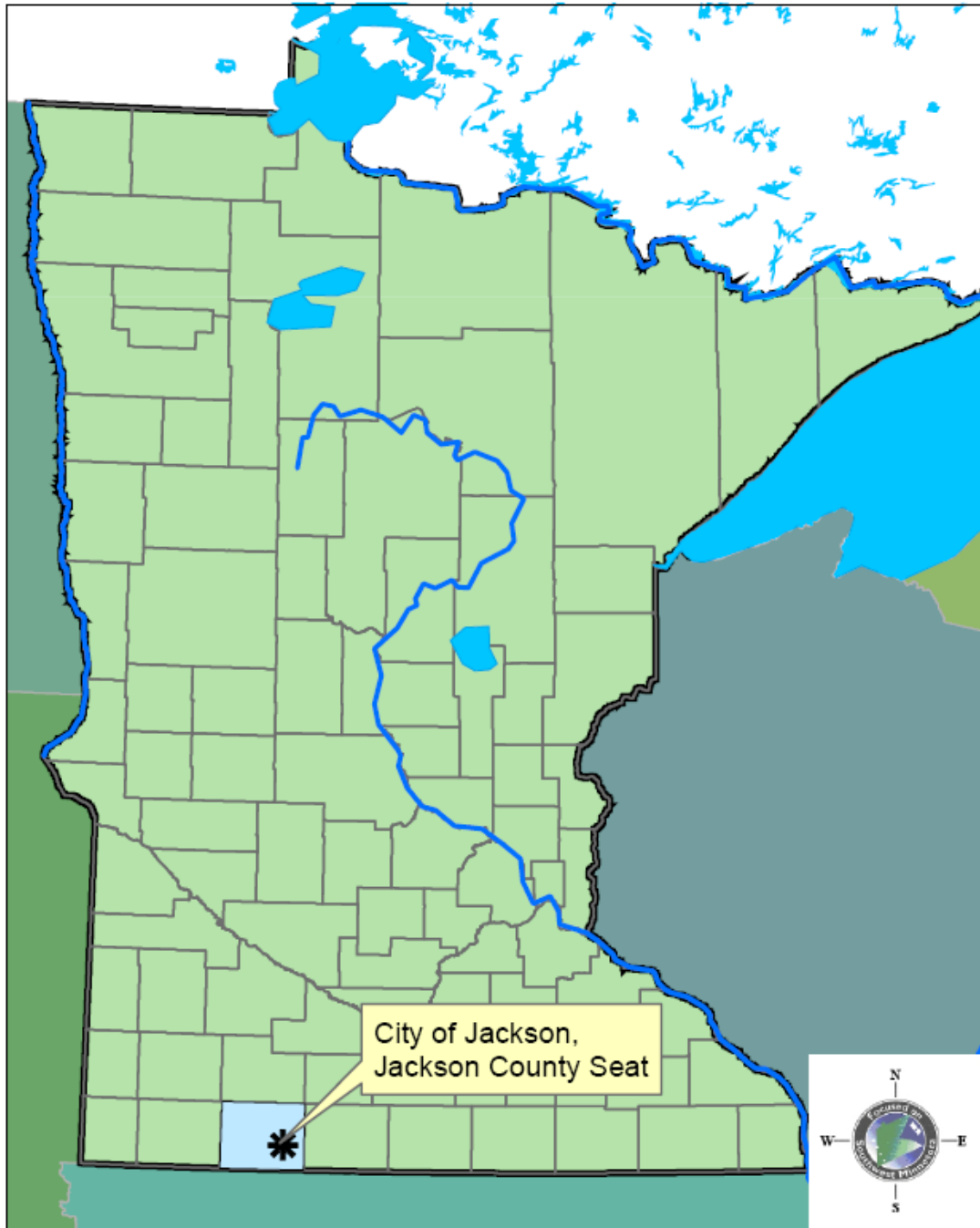


# JACKSON COUNTY LOCAL WATER MANAGEMENT PLAN

A 10-year plan with a 5-year implementation schedule 2008-2018  
2013 Amendment

Prepared for the Jackson County Local Water Management Task Force  
By Jackson Soil and Water Conservation District



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A 10-year plan with a 5-year implementation schedule 2008-2017

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For additional information on water management in Jackson County, Minnesota, contact:  
Jackson Soil and Water Conservation District (SWCD)  
603 South Highway 86, Lakefield, MN 56150  
507-662-6682 Extension 3

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## A. Executive Summary

Jackson County is located in the southwestern corner of Minnesota, adjacent to Martin, Watonwan, Cottonwood, Murray, and Nobles counties. The City of Jackson is the county seat. Jackson County's population in 2010 was 10,266. This is a decrease of 1,002 or 9.8% from the 2000 U.S. Census which was 11,268. The City of Jackson's population was 3,501 in 2000. The population in 2010 was 3,299 or a 6.1% decrease.

The West Fork of the Des Moines River (WFDMR) bisects Jackson County. Six major watershed areas cover the County: the Watonwan and Blue Earth flowing easterly to the Minnesota River; the East Fork Des Moines, and Upper and Lower portions of the (WFDMR)(including the Heron Lake system) flows through Iowa to the Mississippi River; and the Little Sioux River flows through northwestern Iowa to the Missouri River.

### A.1 Purpose & Introduction

**The Jackson County Local Water Management Plan is intended to identify existing and potential water issues in the context of watershed units and groundwater systems, informing specific implementation actions to achieve goals for sound hydrological management of water and related resources.**

Requirements of a local water plan are set forth in current state statute (Minnesota Statute 103B.311, Subd. 4.). The plan must address management of water, effective environmental protection, and efficient resource management, and must be consistent with local water management plans prepared by counties and watershed management organizations wholly or partially within a single watershed unit or ground water systems. This Water Plan is a ten-year management plan with a five-year implementation schedule.

In August of 1987, the Jackson County Board of Commissioners passed a resolution to enter into a Joint Powers Agreement with 12 other Counties in the Greater Blue Earth Watershed to develop a comprehensive water plan. After much work, the plan was adopted by the County Board on December 10, 1990.

The second edition of Jackson County's water plan, was approved by the Board of Water and Soil Resources (BWSR) on January 7, 1998, and adopted by the County Board on March 9, 1998. That plan expired on December 31, 2007. The Jackson County Board of Commissioners adopted a resolution on September 26, 2006 to revise the current plan, according to Minnesota Statutes in effect at the time.

This is the third edition of a local water management plan for Jackson County. The current version was approved by the BWSR Board on March 26, 2008 and is in effect until March 26, 2018. The Jackson County Commissioners then adopted the plan on May 13, 2008. A resolution to update the Comprehensive Water Management Plan was passed by the Jackson County Commissioners on June 12, 2012.

Major accomplishments to date under the current Comprehensive Water Management Plan include:

- Minnesota Clean Water Fund Application for Fish Lake in cooperation with the Cottonwood SWCD and resulted in the installation of nine woodchip bioreactors and four sediment control structures.
- Minnesota Clean Water Fund in cooperation with Cottonwood SWCD and Murray County for projects in the Des Moines River Watershed which included a large sediment basin on the Rural Electric Association property south of Jackson.

- Reinvest in Minnesota/Wetland Reserve Program (RIM/WRP) easements have been funded at a cost of \$1,548,216.41 on 351.7 acres. Restoration work was completed on our first signup in 2012. As a result of the 2010 flooding, bonding dollars were appropriated for floodplain projects. Eligible landowners were notified resulting in 10 RIM/WRP Floodplain easements on 250.5 acres in 2011.
- Two MPCA Surface Water Assessment Grants have been successfully completed in the Little Sioux River Watershed. The first being in 2008 and 2009. The second which monitored the Loon Lake Outlet, Little Sioux River and West Fork of the Little Sioux River were sampled May through September in 2011 and 2012 for a wide range of pollutants including ammonia, Turbidity, Total Suspended Solids (TSS), E. Coli, Temperature, pH, and Transparency.
- Base line water quality data has been collected in Jackson County Lakes. Clear Lake, Loon Lake, Round Lake, Little Spirit Lake and Fish Lake were sampled for phosphorus, turbidity, nitrogen, chlorophyll A and turbidity.
- Successfully implemented the Wetland Conservation Act, protecting Jackson County wetlands from drainage.
- Ground water monitoring of depth in cooperation with Minnesota Department of Natural Resources (MN DNR).
- Promoted the replacement of non-compliant septic systems, upgraded 198 systems since 2008.
- Partnership with the City of Jackson resulted in a Memorandum of Agreement (MOA) between the City, County and MPCA to update all non-compliant septic systems within the City limits.
- Promoted sealing of abandoned wells with cost share program; provided 50% cost share to seal 97 wells since 2008.

- Provided Ag Best Management Loan Program for Conservation Tillage Equipment and Ag Waste improvements, Septic System Upgrades in partnership with the MN Department of Ag and local banks.

Ag BMP Loans - New and Revolving Funds						
	Tillage Equipment		Ag Waste		Septic Systems	
2007	22	\$ 350,376.00	4	\$ 55,608.00	1	\$ 5,300.00
2008	10	\$ 189,341.00	4	\$ 118,194.00	1	\$ 7,145.00
2009	6	\$ 257,227.00	0		0	
2010	6	\$ 196,745.00	4	\$ 173,000.00	1	\$ 13,277.00
2011	4	\$ 129,126.00	1	\$ 29,551.00	1	\$ 44,000.00
2012	0		0		3	\$ 24,807.65
	48	\$ 1,122,815.00	13	\$ 376,353.00	7	\$ 94,529.65

Source-P&Z/SWCD

- Worked with Minnesota Pollution Control Agency (MPCA) as a Delegated County for the Feedlot Program, and maintained the feedlot data base.
- Worked with county livestock producers in registering their feedlots and completing their Manure Management Plans.
- Fish Lake Community Sanitary Sewer System is now installed and providing service to 72 users.
- Continue to coordinate with the Loon Lake Community Sanitary Sewer System.
- Provided technical assistance to the HLWD in developing the WFDNR and Heron Lake Total Maximum Daily Load (TMDL) Implementation Plan which was approved in September of 2009.
- Entered into a MOA with Nobles, Jackson, Murray, Cottonwood, Martin, Pipestone, and Lyon Counties and SWCDs and the HLWD in October 2009 to leverage funds and resources by solidifying our commitment to the WFDNR watershed. This MOA allows those involved to maximize resources more effectively, provide new opportunities, and establish a diverse, unique commitment. Coordination among local government units is needed to maximize the benefits of the efforts and available resources, while providing the best possible avenues to address the environmental, educational, economic, and agricultural needs of the watershed, its communities, and its residents.

- Partnered with the HLWD on the implementation of an Environmental Protection Agency (EPA) 319 grant in 2008, 2009, and 2010 for conservation tillage incentives in Alba Township resulting in 8,041.90 acres. Provided technical assistance to the HLWD for a CWP grant from 2007 to 2011 that resulted in the implementation of 1,180.9 acres of filter strips, riparian buffers, and wildlife habitat; 2.2 acres of grassed waterways, 18.4 acres of windbreak/shelterbelt establishment, 49.8 acres of wetland restoration, seven acres of sediment basins/wildlife ponds, 78 conserving use acres, 20 acres of flood control, 30 terraces, and six rain gardens in the Heron Lake watershed.
- Offered cost-share for the installation of alternative tile intakes to replace open tile intakes through a CWP grant awarded to the HLWD. The grant runs until June 2013. Fourteen alternative tile intakes have been replaced in Jackson County.
- Partnered with county feedlot officers and SWCD staff in Nobles, Jackson, Murray, and Cottonwood Counties, and HLWD staff to complete an intensive, onsite inventory and inspection (Level III Feedlot inventory) of eighty percent of the feedlots (592) in the WFDNR watershed through in-kind contributions. The inventory is instrumental in order to gauge the need for funds to address the feedlots and ultimately decrease the bacteria concentrations in the streams and rivers. A staff person dedicated to the project was hired to promote the project and seek additional funding for implementation and education. Project partners will host a one-day manure management workshop for feedlot owners and operators, develop a project brochure and website, and conduct committee meetings.
- The RIM Buffers Easement program has resulted in 5 new easements on 46.2 acres at a cost of \$174,631.66
- In partnership with EQIP (\$73,000), the State Feedlot Water Quality grant (\$33,000) and the landowner (\$32,000) a feedlot runoff system was installed in Sioux Valley Township.
- As part of a road reconstruction project through the rural community of Alpha, six rain gardens were installed with three different landowners at a cost of only \$851. The Jackson County Highway Department provided in-kind labor and materials.
- The Working Lands Initiative (WLI) secured three grants totaling nearly \$300,000 to establishing grasses on the landscape in the targeted areas. Nearly 1.4 million in Federal and State dollars were leveraged as a result of this program.
- In 2010 a 3600 square foot rain garden was established on property owned by the Jackson Housing and Redevelopment Authority.
- From 2008-2012 the State Cost Share Program assisted Jackson County Landowners install 19 grassed waterways, four water and sediment control basins, and one stream bank stabilization.
- GBERBA grant funds were used to install five grassed waterways, and one large water and sediment control basin during the period of 2008-2012.
- From 2008-2012 EQIP invested \$1,021,000 into 77 contracts. Total acres treated were 21,542 with 14 grassed waterways, nine terraces, three water and sediment control basins, two stream bank restorations, six cover crop practices, one high tunnel and 42 nutrient/pest management and residue management.
- The September of 2010 flood event resulted in multiple projects and partners. The SWCD received \$100,000 from BWSR in response. This was partnered with \$83,000 in EQIP funds and 15 projects were installed. The projects included repairs and new grassed waterways, water and sediment control basins and a side inlet control structure.
- A permeable paver demonstration was established at the Jackson County Fairgrounds. Partners included the USDA RC&D, Lakefield Landscapes, Federated REA, Knights of Columbus, Bill Phillips Foundation, and the Heron Landers 4H Club.

- CREP II projects wrapped up with easements being finalized and wetland restoration work being completed in 2008 and 2009. The effort resulted in 27 total easements on 744.3 Acres of which 210 acres of wetlands were restored.
- Partnered with the Prairie Ecology Bus Center to educate up to 600 students per year over the past 5 years.
- Partnered with SWMACDE Environmental Fair which is attended by 6<sup>th</sup> grade classes of Jackson County.
- Provided funding for the 5<sup>th</sup> Grade Conservation Day, which is jointly coordinated by the Jackson and Cottonwood SWCD
- Annual Local Water Management Task Force Meetings to report and discuss accomplishments with partners. The task force also participates in setting annual priorities and discussing the annual budget.

Jackson SWCD is responsible for local water management in Jackson County, including facilitation of public input and convening the Jackson County Local Water Management Task Force. Task Force membership included:

**Local Water Management Task Force Members (Adopted on 9/11/12)**

- Gary Willink, Jackson County Commissioner
- Dave Henkels, Jackson County Commissioner
- Jim Westensee, Jackson County Planning Commission
- Dave Hargen, Jackson County Planning Commission
- Larry G. Hansen, Board Member, Jackson County SWCD
- Paul Nelson, Board Member, Jackson County SWCD
- Kelly Rasche, City Administrator, City of Lakefield
- Steve Beckel, City of Jackson, Water Superintendent
- Albert Henning, Jackson County Conservation League
- Jason Espenson, Co-Chair, Fish Lake Association
- Larry Liepold, Jackson County Pork Producers
- Jan Voit, Administrator, (HLWD)
- John Wills, Clean Water Alliance Coordinator
- Karen Boysen, Jackson County Natural Resources Conservation Service (NRCS)
- Brian Nyborg, Water Planner, Jackson SWCD
- Chris Bauer, District Technician, Jackson SWCD
- Jake Grages, Water Resources Technician, Jackson SWCD
- Andy Geiger, Planning and Zoning Administrator
- Mark Hiles, BWSR Board Conservationist
- Randy Markl, MN DNR

**Technical Committee (Adopted on 9/11/12)**

- Brian Nyborg, Water Planner, Jackson SWCD
- Chris Bauer, District Technician, Jackson SWCD
- Jake Grages, Water Resources Technician, Jackson SWCD
- Andy Geiger, Planning and Zoning Administrator
- Mark Hiles, BWSR Board Conservationist
- Randy Markl, MN DNR
- Karen Boysen, Jackson County NRCS
- Jan Voit, HLWD Administrator

### **A.1.a Public and Internal Forums for the 2013 Amendment**

3/26/2008	MN BWSR approved the 10 Years Jackson County Local Water Management Plan with a requirement to update the plan by March 26, 2013.
5/13/2008	Jackson County Board passed a resolution to adopt and implement the Jackson County Local Water Management Plan.
6/12/2012	County Board passes resolution to update Comprehensive County Water Plan
8/14/2012	County Board Delegates Water Plan Administration to the Jackson SWCD
9/14/2012	Open House and beginning of public comment period related to the Update (comment period closed on October 26, 2012). Opportunity to review priorities, and comments on past and future efforts. Eighteen surveys were returned.
9/20/2012	Articles in the Jackson County Pilot and Lakefield Standard regarding the update timetable and intent.
11/14/2012	Task Force meeting to review and seek comments from Task Force members.
1/16/2013	Technical Meeting to review priority concern implementation plan
1/24/2013	Annual Water Plan meeting to review projects and set budget for 2013
1/24/2013	Task Force Meeting to review update and seek comments from Task Force members
2/26/2013	Public Hearing – Jackson County Commissioners meeting
3/7/2013	BWSR Southern Region Water Planning

### **A.1.b Plan Adoption and Amendment**

Upon approval of this plan amendment by the (BWSR), the County Board has up to 120 days to pass an Adoption and Implementation Resolution. After final adoption, the plan may be amended in a similar process, by petitioning the BWSR Board, scheduling a public hearing, and sending notice to the required parties.

Approximately two years—and no later than 18 months—prior to the end of the five year management schedule, the County Board should consider a new Resolution to update this plan, according to the rules then in place.

## **A.2 Description of Priority Concerns**

The Priority Concerns listed below were selected by the Water Plan Task Force members by consensus, after carefully reviewing submitted concerns and comments, and then refined based on discussion in public meetings. While the assessment of priority concerns utilized the best available information, this plan rests solidly on data and analysis contained in previous editions of the county’s local water management plan.

### **Priority Concern 1. Improve Surface Water Quality.**

The first step in improving surface water quality is protecting soil from erosion, holding waters on the landscape to allow natural filtration time to work. Currently several rivers and lakes are listed as TMDL Impaired Waters, with more proposed for listing. High priority soil erosion problems, agricultural best management practices and stream bank and lakeshore development all impact surface water quality.

### **Priority Concern 2. Feedlots & Subsurface Sewage Treatment Systems (SSTS)**

Nutrient management plans and controlling feedlot runoff are important tools in preventing water quality issues. There are also many dispersed farmsteads and rural residential properties with outdated septic systems; there is a need and demand to continue upgrades.

### **Priority Concern 3. Drainage Management.**

Waters flow across a landscape changed greatly by development. Management of the resulting drainage system—the modern hydrograph—is typically disjointed and uncoordinated, leading to issues with both quantity and quality of water.

### **Priority Concern 4. Protect Groundwater.**

All of the residents of Jackson County rely on groundwater for their drinking water, either through individual wells, municipal supply or rural water systems. Much of the water supply currently is and will continue to come from sources outside the county.

## **A.3 Summary of Goals, Actions, and Projected Costs**

Goals and Actions were selected to address priority concerns, with a focus on principles of sound hydrological management.

### **Priority Concern 1. Improve Surface Water Quality.**

This concern will be addressed to improve and prevent further degradation of stream and lake water quality, with a priority for highly-erodible land, shoreland areas, and TMDL-listed waters. Objectives include preventing soil erosion; encouraging perennial cover, buffers and conservation tillage; improving stream bank and lakeshore development, and addressing TMDL impaired waters.

Implementation actions include promotion and education, administration and review of plans and ordinances, providing technical assistance with programs and best management practices, providing financial incentives for conservation practices, and working with state and federal agencies on measures to improve water quality.

Projected costs over the five years of the management plan to implement all actions would include about \$940,000 for TMDL plans and implementation, \$552,500 for financial assistance with projects, \$1,079,500 for technical assistance and consulting, and \$77,969 for outreach and education, as well as annual in-kind services. All dollar figures are estimates and recognize approximate costs of all identified implementation partners.

### **Priority Concern 2. Feedlots & SSTS**

This concern will be addressed to protect public waters and assist residents in meeting feedlot and septic standards, focusing on shoreland and un-sewered communities. Objectives include improving nutrient management, maintaining feedlot inventory and registration, encouraging appropriate technology for SSTS (also known as ISTS or Individual Septic Treatment Systems) and community sewer systems, and continuing to bring nonconforming septic systems into compliance with regulations.

Implementation actions include education and outreach, technical assistance with nutrient and manure plan development, maintenance of GIS layers, updates of ordinances, technical and financial assistance for feedlot compliance, and replacing non-compliant septic systems.

Projected costs would include about \$1,500,000 towards bringing sewer and septic systems into compliance, \$500,000 in financial assistance, \$1,592,000 for technical assistance, and \$81,625 for outreach and education, as well as annual in-kind services.

### **Priority Concern 3. Drainage Management.**

This concern will be addressed to work toward more natural flows in the drainage system, focusing on the Heron Lake watershed and areas tributary to the Des Moines River above Jackson Dam. Objectives include restoring the hydrograph, promoting the use of modern structures and technology, wetland restoration and management, and reducing impacts of flooding.

Implementation actions include providing education and outreach, modernizing drainage system management, technical assistance with conservation and wetlands projects, and floodplain administration.

Projected costs would include about \$645,000 for financial assistance with projects, \$1,802,500 for technical assistance and consulting, and \$200,000 for outreach and education, as well as annual in-kind services.

### **Priority Concern 4. Protect Groundwater.**

This concern will be addressed to assure long-term quality and quantity of groundwater supplies, with a priority for wellhead protection areas and areas not currently served by public/community systems. Objectives include supporting well head protection, preventing groundwater contamination, and protecting long-term supplies.

Implementation actions include providing technical assistance and incentives for landowners, outreach and education, review of ordinances, maintenance of GIS data, testing well water quality, providing assistance to seal unused wells, and working with cities and water providers for long-term water supplies.

Projected costs would include about \$52,500 for assistance to landowners sealing unused wells, \$653,250 for technical assistance, and \$11,750 for outreach and education, as well as annual in-kind services.

## **A.4 Consistency with Local, State and Regional Plans**

Jackson County Planning and Zoning Office staff administer the County's comprehensive land use plan and zoning ordinance. This helps to maintain consistency between this plan and these other plans and ordinances. The County's *comprehensive plan* identifies goals and policies for the County, which have been reviewed for consistency with this water management plan. No other plans were received for review.

## **A.5 Summary of Recommended Amendments to Other Plans and Official Controls**

No specific amendments are recommended at this time. Action items include updates to the comprehensive plan and zoning ordinances within this document's management timeline. It would be recommended to incorporate data from this plan into other local plans and controls when they are updated.

## **B. Priority Concerns**

### **B.1 Identification of Priority Concerns**

Priority Concerns for local water management were selected by the Jackson County Local Water Management Plan Task Force members after reviewing the concerns submitted by state and local agencies and other stakeholders. (See *Priority Concerns Scoping Document* appended.)

Local water management concerns and comments were received from:

- *Minnesota Board of Water and Soil Resources*
- *Minnesota Department of Agriculture*
- *Minnesota Department of Health*
- *Minnesota Department of Natural Resources*
- *Minnesota Environmental Quality Board*
- *Minnesota Pollution Control Agency*
- *Jackson County Soil & Water Conservation District*
- *Martin County Soil & Water Conservation District*
- *Nobles County*
- *City of Alpha*
- *Hunter Township*
- *Round Lake Township*
- *West Heron Lake Township*

Concerns were presented at the public input meeting and discussed. Staff then reviewed, refined, and developed focused Priority Concerns for Task Force consideration. After further discussion, the Task Force members selected the Priority Concerns by consensus. During the planning process, the Task Force revised the initial priority concerns to better reflect the needs of the County.

For the update, public input was requested at the September 14, 2012 Open House. Surveys were sent to all local government units (LGU's) that share a political boundary with Jackson County, all State Agencies as required, as well as all the LGU's within Jackson County. Eleven individuals came to the Open House. Eighteen surveys were returned to the SWCD Office. Comments were received from the MN DNR and the MDA.

## B.2 Assessment of Priority Concerns

Population Change			
	2000	2010	% Change
Jackson County			
Alpha, City	126	116	-8.6%
Heron Lake, City	768	698	-10.0%
Jackson, City	3501	3299	-6.1%
Lakefield, City	1721	1694	-1.6%
Okabena, City	185	188	1.6%
Wilder, City	69	60	-15.0%
Alba Township	200	170	-17.6%
Belmont Township	223	210	-6.2%
Christiania Township	331	249	-32.9%
Delafield Township	281	226	-24.3%
Des Moines Township	273	232	-17.7%
Enterprise Township	204	187	-9.1%
Ewington Township	233	244	4.5%
Heron Lake Township	401	333	-20.4%
Hunter Township	258	224	-15.2%
Kimball Township	158	129	-22.5%
La Crosse Township	180	156	-15.4%
Middletown Township	243	227	-7.0%
Minneota Township	285	259	-10.0%
Petersburg Township	269	232	-15.9%
Rost Township	250	211	-18.5%
Round Lake Township	202	166	-21.7%
Sioux Valley Township	270	192	-40.6%
Weimer Township	172	142	-21.1%
West Heron Lake Township	202	181	-11.6%
Wisconsin Township	263	233	-12.9%
Jackson County Total	11268	10266	-9.8%

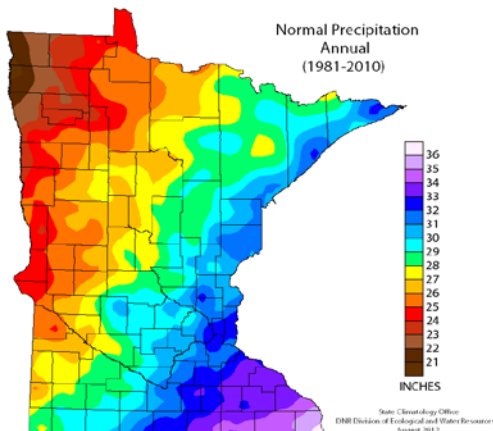
Source: Minnesota State Demographic Center

Jackson County has six (6) incorporated cities, a number of unincorporated villages, and twenty (20) townships. The Minnesota State Demographic Center estimates that there are 10,266 residents in the county as of 2010, 9.8% fewer than counted in the year 2000 US Census. Growth has been found in Ewington Township and the City of Okabena. The Demographic Center projects the County's population will grow to 11,570 in 2035. Although total population has declined in the county, the number of households is stable to slightly expanding. The Demographic Center estimates 4988 households in the county in 2011. There are also areas of seasonal housing development in the county that may not be adequately captured by Census figures.

Jackson County is well-served by transportation networks. I-90 runs east-west through the City of Jackson, connecting I-35 at Albert Lea and I-29 at Sioux Falls, South Dakota. US Highway 71 runs north-south through Jackson and MN State Highway 86 runs north-south through Lakefield, both connecting to Spirit Lake, Iowa. MN State Highway 60 runs on a diagonal through Windom, Wilder and Heron Lake between Worthington and Mankato, providing a major link between the Twin Cities and Sioux City, Iowa. The Union

Pacific Railroad runs parallel to Highway 60.

Agriculture is the primary economic driver in the county, with some industrial businesses along Highway 60 and in the City of Jackson. The University of Minnesota found that about 82% of the land area in Jackson County was cultivated, with 8% urban, 6% in grass/shrub/wetlands, 3% forest, and 2% covered by water in the year 2000 (Remote Sensing and Geospatial Analysis Laboratory, **see attached map**). There were almost 9,500 acres of impervious area, or over 2% of the county overall.



Jackson County is a typical prairie environment on the edge of the Midwestern humid area, with average annual precipitation of 26-28 inches (Minnesota's state-wide median since 1890 is about 26 inches). Normal precipitation has increased to 28-30" per year in Jackson County. Typically 75% of precipitation falls between April and September.

The landscape of Jackson County is the result of glacial activity that occurred 12,000 to 20,000 years ago. The

reworking of the landscape by the glacier and by glacial melt water resulted in distinct physiographic regions. The eastern part of the county is an essentially nearly flat to gently rolling landscape. In the center, the West Fork of the Des Moines River flows along the east side of the Altamont moraine, with a valley floor about 100 feet lower than the surrounding landscape. The Heron Lake system gives evidence of an ancient glacial lake that once covered much of the northwest part of the county. The southwestern part of the county is characterized by hills and small bodies of water. Pre-settlement vegetation consisted of wetlands, grasslands and hardwood forests in river-bottom stands; however, most of the farmland has been artificially drained. Six major watershed areas cover the County (**see attached maps**).

- Watonwan and Blue Earth rivers flow easterly to the Minnesota River.
- East Fork Des Moines, and Upper and Lower portions of the WFDMR flow through Iowa to the Mississippi River.
- Little Sioux River flows through Iowa to the Missouri River.

In addition to these rivers and streams, there are about 40 lakes in Jackson County with DNR-designated shoreland areas. **High priority water quality problems are seen in areas where sediment, nutrients, chemicals or other pollutants discharge to MN DNR designated protected waters or to any high priority waters as identified in this plan, or discharge to a sinkhole or ground water.** The pollutant delivery rate to the water source is in amounts that will impair the quality or usefulness of the water resource.

#### **Priority Concern 1. Improve Surface Water Quality.**

As precipitation falls from the sky onto our fields, forests and cities, we have many opportunities to protect the quality of that water as it flows, whether down to the ocean or up into our tap. Often the first step is to slow that water down in order to minimize the disruptions of drainage. Holding water on the landscape then can filter contaminants naturally. Ag BMP's optimize farm profits, while conserving soil and protecting ground and surface water quality.

##### **a. TMDL Impaired Waters**

The federal Clean Water Act requires states to adopt water quality standards. A water body is considered "impaired" or polluted if it fails to meet these standards. The Act requires the state to conduct a (TMDL) study to identify point and non-point sources of each of these pollutants. MPCA and other agencies are working to reduce impairments in these waters (**see attached map**). Statewide, there were 2,274 impairments listed on 1,304 waters in 2006. The 2010 State approved impaired waters list has 3,050. New impairments within the County include Loon, Clear, and Flahtery Lakes. Stream reaches include the Headwaters and South Fork of Elm Creek, as well as Skunk Creek.

Jackson County is part of TMDL studies in three different watersheds. The (WFDMR) and Heron Lake TMDL Study addressed 32 impairments that included bacteria, turbidity, pH, as well as excess nutrients in Heron Lake. The TMDL Study was approved by the Environmental Protection Agency in December of 2008. The WFDMR and Heron Lake TMDL Implementation Plan was approved in September of 2009. The Implementation Plan combines best management practices and education to address the water quality impairments. The Missouri River (Little Sioux River) watershed was part of an intensive watershed analysis project in 2011 and 2012. An intensive watershed monitoring project will be conducted in the Des Moines River (Headwater, Lower and East Fork) Watershed in 2014 to 2018. The East Fork Des Moines is scheduled for a turbidity study through from 2013 to 2015. Little Spirit Lake, in the Missouri

River basin, is scheduled for an excess nutrients study from 2013 to 2017. (For MPCA project schedules, see <http://www.pca.state.mn.us/tmdl>)

2010 Impaired Waters List								
Reach Name	Reach Description [from' - 'to']	Year added		Affected Designated Use	Pollutant or stressor	TMDL Target Start	TMDL Target Completion	
		to Inventory	Basin					
Elm Creek	Headwaters to South Fork Elm Creek	2010	MnR	Aquatic Life	Turbidity	2017	2023	
Elm Creek, South Fork	T103 R34W S30, West Line to T103 R34W S1, North Line	2010	MnR	Aquatic Life	Turbidity	2017	2023	
Des Moines River	Windom Dam to Jackson Dam	1994	DesM	Aquatic Life	Ammonia (Un-ionized)	2004	2008	
Des Moines River	Windom Dam to Jackson Dam	1994	DesM	Aquatic Life	Oxygen, Dissolved	2004	2008	
Des Moines River, East Branch	Headwaters to Okamanpeedan Lake	2006	DesM	Aquatic Life	Oxygen, Dissolved	2011	2016	
Des Moines River, East Branch	Headwaters to Okamanpeedan Lake	2002	DesM	Aquatic Life	Turbidity	2011	2016	
Judicial Ditch 56	Unnamed Creek to Des Moines River	2008	DesM	Aquatic Life	Turbidity	2010	2015	
Okabena Creek	Unnamed Creek to T102 R38W S6, North Line	2010	DesM	Limited Resource Value	<i>Escherichia coli</i>	2014	2021	
Flaherty	Lake	2010	DesM	Aquatic Recreation	Biological Indicators	2014	2021	
Heron (North Marsh)	Lake	2002	DesM	Aquatic Recreation	Biological Indicators	2004	2008	
Heron (Duck)	Lake	2002	DesM	Aquatic Recreation	Biological Indicators	2004	2008	
Judicial Ditch 13 (Skunk Creek)	Headwaters to West Fork Little Sioux River	2010	MoR	Aquatic Recreation	<i>Escherichia coli</i>	2011	2017	
Judicial Ditch 13 (Skunk Creek)	Headwaters to West Fork Little Sioux River	2010	MoR	Aquatic Life	Turbidity	2011	2017	
Clear	Lake	2008	MoR	Aquatic Recreation	Biological Indicators	2010	2015	
Little Spirit	Lake	2004	MoR	Aquatic Recreation	Biological Indicators	2012	2017	
Loon	Lake	2008	MoR	Aquatic Recreation	Biological Indicators	2010	2015	

Source: MPCA GIS Files

## b. Soil erosion

Approximately 50% of the soils within Jackson County are prone to erosion from wind and water. Simple conservation practices, such as grass waterways, terraces, and sediment basins, can substantially reduce the impacts of soil erosion on surface waters and wetlands. Vegetative buffers separating cropland from bodies of water act as a last line of defense from runoff. These buffers should be a minimum of 33 feet wide and extend at least to the edge of the flood plain.

*High priority erosion problems* occur in areas where erosion from wind or water is occurring equal to or in excess of twice the “tolerable rate” as defined by NRCS. High priority erosion problems also occur in any area that exhibits active gully erosion. As well, the focus areas for this local water management plan, including watersheds of impaired waters, should be considered high priority for erosion prevention.

LiDAR mapping is a process that rapidly transmits pulses of light that reflect off the terrain and other height objects. LiDAR systems collect positional (x,y and z) data at pre-designed intervals. The resulting LiDAR data is a very dense network of elevation postings. Jackson County now has LiDAR data for the entire county. The data provided consist of a Digital Elevation Model and a two foot contour shapefile.

## c. Perennial cover, buffers and conservation tillage

Voluntary conservation programs have proven a popular method to reward agricultural producers for doing their part to prevent erosion. Conservation Reserve Program(CRP), Conservation Reserve Enhancement Program (CREP), Grassland Reserve Program, Environmental Quality Incentives Program (EQIP), (RIM), (WRP) and other similar initiatives provide tools to return appropriate land to a native ecology that is better able to respond to erosion pressures. According to the Conservation Lands Summary compiled by BWSR, in August 2007, 3.2% of cropland acres in Jackson County were enrolled in these conservation programs. In the same report for August 2012, there was a slight increase to 3.3% of cropland enrolled into a conservation program. Local efforts continue to assist producers with navigating

the paperwork and time-factors involved in accessing these resources. In particular, there is a need to reach out in support of agricultural tenants to educate absentee landowners on the benefits of conservation methods.

<b>Jackson County Water Plan</b>						
SWCD Tillage Transect Survey Results						
<b>Corn</b>						
Year	No Till >30% residue	Ridge-Till >30% residue	Mulch-Till >30% residue	Reduced-Till 15-30% residue	Convt-Till <15% residue	Meeting Goal
1995	1%	0%	1%	10%	87%	12%
1996	1%	2%	1%	29%	67%	33%
1997	1%	1%	9%	42%	47%	53%
1998	0%	2%	9%	47%	43%	58%
1999	1%	6%	13%	48%	33%	68%
2000	1%	4%	2%	42%	50%	49%
2001	1%	5%	2%	42%	50%	50%
2002	2%	5%	5%	49%	41%	61%
2004	3%	5%	11%	52%	29%	71%
2007	1%	1%	21%	61%	15%	84%

<b>Soybeans</b>						
Year	No Till >30% residue	Ridge-Till >30% residue	Mulch-Till >30% residue	Reduced-Till 15-30% residue	Convt-Till <15% residue	Meeting Goal
1995	10%	4%	16%	43%	27%	30%
1996	12%	5%	25%	44%	14%	42%
1997	11%	3%	56%	23%	7%	70%
1998	5%	4%	46%	29%	15%	55%
1999	7%	4%	54%	25%	9%	65%
2000	5%	6%	56%	26%	7%	67%
2001	7%	4%	45%	37%	8%	56%
2002	8%	5%	51%	29%	8%	64%
2004	10%	6%	59%	20%	5%	75%
2007	8%	4%	72%	12%	4%	84%

Source: Jackson SWCD

Conservation tillage—leaving adequate crop residue—provides a layer of protection from water and wind erosion and increases organic matter in the soil. Ridge till and strip till have become popular methods to protect soils. In the state of Illinois, for example, no-till soil conservation practices have surpassed conventional tillage, according to NRCS and state (SWCD) surveys. Jackson County SWCD and NRCS have completed tillage transect surveys in the past to better understand trends in local conservation tillage. Changes in market economics for corn and soybean production have raised concerns among producers about the efficiency of conservation tillage. In particular, recent increases in the price of corn have led to predictions of increasing acres planted “corn-on-corn”, rather than the typical

corn-soybean rotation. Farmers are pressed to get into the field earlier each year. There is a constant need to balance program standards, such as national program criteria which may conflict with mapped or actual conditions in the field. These concerns must be addressed by ag educators and advocates, such as the UMN Extension Service, HLWD, SWCD, and other County officials, through promotion, education and demonstration.

**d. Stream bank and lakeshore development**

Effects of erosion are also evident on many of the county’s stream-banks and lakeshores. Aquatic plants provide a natural buffer between windswept open water and fragile shores. Drainage and development have eliminated many of these plants, leading to bank erosion, runoff of fertilizer from fields and lawns, and other problems. The typical modern response has been hard-scape—concrete and rock rip-rap. A concerted effort to replace riparian vegetation in shorelands, including tree windbreaks, would help protect lake shores and restore wildlife habitat.

The State of Minnesota regulates the use of shoreland—land within 300 feet of a river or 1,000 feet of a lake (**see attached maps**). The MN DNR identifies three river types in Jackson County—Transition, Agricultural, and Tributary river segments—as well as Natural Environment, Recreational Development and General Development lakes. Guidelines for the

development of shoreland areas were developed by the MN DNR and adopted by the County in its zoning code.

Many lakes in the County have areas that are unsuitable for development, such as wetlands or soils not capable for development (poorly suited for septic systems, wet soils, strength, etc.). However, new development does not always lead to degradation of environmental quality. Conservation Design, for example, is a planning process which clusters development in a portion of the site so that other areas can remain in natural or agricultural use. Low Impact Development (LID) is another technique intended to manage stormwater by replicating natural filtration processes of a site's pre-development hydrology. Conservation Design and LID projects both rely on creative street and lot design, with runoff typically retained to minimize impervious surfaces and create attractive building sites.

Other jurisdictions address the specific impacts of construction on water and soil. Federal permits are required for any project disturbing over a certain amount of area, although enforcement through state agencies can be problematic. There may be opportunities in local land use codes to provide more clear local guidance, in line with the intent of federal rules.

## **Priority Concern 2. Feedlots & SSTS (Subsurface Sewage Treatment Systems).**

Development in rural communities is a process of balancing interests. The majority of land in Jackson County is in agriculture. Feedlot expansion in the region has, at times, created conflicts with nearby residents. Residential development itself can lead to conflicts with established agricultural operations, waters and wildlife. While the County may seek to provide opportunities for housing in both town and country, that development must fit into working landscapes and natural areas.

### **a. Nutrient Management**

Nutrient management programs are intended to prevent and mitigate non-point nutrient contamination of water and soil resources. This is particularly important in areas with a great deal of surface runoff, as well as surficial aquifer areas. As the MDA and other state and local agencies have emphasized, nutrients such as phosphorus and nitrogen may have deleterious effects on the county's surface water and have been frequently detected in samples from river systems similar to those in Jackson County. "According to the UMN, land application of manure, under certain circumstances, has the potential to be a larger contributor of nutrient loading to waters than open lot feedlots. The development of manure management and nutrient management plans will help ensure that producers have the tools to apply manure at agronomic rates and reduce the potential for impacts to surface and ground waters" (MDA Priority Concern Scoping Document (PCSD) comments).

Technical assistance from county staff can help farm operators understand the variety of rules and regulations, which can be confusing. While larger operations are required to develop formal management plans, more modest feedlots can also benefit from the same sound scientific management principles.

### **b. Feedlot inventory and registration**

Local trends in agriculture have been similar to other areas across southwestern Minnesota. The 2007 U.S. Census of Agriculture reported 969 (89 in 2002) farms on 400,531 (398,068 in 2002) acres in Jackson County. Of these, 353,872 (349,930 in 2002) acres were harvested cropland. The Ag Census counted 149 (203 in 2002) farms with cattle, 128 (144 in 2002) with

swine, and 40 (44 in 2002) with sheep. Questionnaires for the next Census of Agriculture are scheduled for distribution in December 2012.

It can be difficult to balance the location of feedlots and other animal confinement operations with demand for rural residences. Trends in feedlot management, such as changing demographics; market trends for feed, beef and pork; and economics of fertilizer will effect growth in the industry. Population growth in some townships, however, may also lead to future land use conflicts with feedlots and manure management.

MPCA regulates the collection, transportation, storage, processing and disposal of animal manure. As of December 2012, there are 345 registered feedlots in Jackson County (**see attached map**). Approximately 15% of registered feedlots and other livestock facilities should be considered high priority for improvements.

Jackson County is delegated to administer the MPCA Animal Feedlot Rules (MN Rule Chapter 7020) for feedlots that are not required to have a National Pollutant Discharge Elimination System Permit. All different types of facilities are inspected as a part of this program, including open lots. A Minnesota Feedlot Annualized Runoff Model (MinnFARM) is conducted at sites where there may be the potential to pollute Waters of the State with manure contaminated runoff. If a pollution hazard is identified, Jackson County offers the producer both technical and financial assistance, if possible, to correct the pollution hazard. Corrections range from replacing open tile intakes with rock inlets to runoff control structures.

As noted above, the County continues to implement AgBMPs in conjunction with MDA, such as feedlot improvements; upgrading manure storage facilities, and odor control; improved manure handling, and spreading and incorporation equipment. In many cases, issues are minimized simply by improving record keeping and regulatory compliance.

**c. Appropriate technology for SSTS and community sewer systems**

Many communities rely on traditional central sewer systems. Technology and regulatory requirements are constantly changing and improving, demanding professional and skilled management. Many households also still rely on SSTS, also known as, which often can provide a high degree of sewage treatment if properly sited, installed and maintained.

Another option for treatment is a regional sewer district, which functions in a similar manner as rural water systems. A central entity organizes construction of sewer collection and treatment facilities and provides annual maintenance, and in return collects payment on a utility fee-for-service basis. Jackson County has been working for several years with residents of the Loon Lake and Fish Lake areas to study such an option for their unincorporated communities.

**d. SSTS compliance regulation**

State legislation governing SSTS is implemented at the county level. Failing and nonconforming sewage treatment systems are considered an imminent threat to public health. These systems can spread hepatitis, dysentery and other diseases that are spread by bacteria, viruses and parasites in wastewater. Untreated sewage also may contain toxic chemicals from household cleaning products. This wastewater can directly enter surface waters and spread to unsuspecting humans, as well as pets and wildlife. Excess nutrients reaching lakes or streams will also promote algae growth, making lakes unsuitable for swimming, boating and fishing. Over time, wastewater will reach down to groundwater as well.

At the present time in Jackson County, existing septic systems are required to be brought into compliance at the time of property transfer. Other triggers that apply countywide include the addition of a bedroom or a validated complaint.

Development should be discouraged in areas where poor soil characteristics may not support SSTS systems. Enforcement of standards for on-site sewage treatment systems is necessary to protect public health and safety, as well as preventing pollution of public waters. Jackson County has a successful record of assisting landowners to upgrade their septic systems through a low-interest loan program (**see attached map**). Public interest in assistance is expected to continue into the future.

**Priority Concern 3. Drainage Management.**

Surface waters of Minnesota are managed under the doctrine of riparian rights. This means that riverbank landowners have equal rights to reasonable use of waters that border their property. The MN DNR Division of Waters has the authority to issue permits for water use, and to limit withdrawals of surface water and groundwater in accordance with the public interest (see also the discussion of groundwater below).

Jackson County Water Plan Surface Water Appropriation Permits December 2012							
Permit #	Organization	Last Name	First Name	Resource Name	Use Name	GPM	MG/Y
1954-0211		SCHUMACHER	DEAN	Heron	Nursery	1100	8.5
1996-0075		HODNEFIELD	PETER	Loon	Golf Course Irrigation	100	26
1990-4052	JACKSON GOLF CLUB			Des Moines River (DMR)	Golf Course Irrigation	200	8.5
1990-4068	EMERALD HILLS LC			Unknown or Invalid	Golf Course Irrigation	200	10.4
2011-0591	MNDNR - WILDLIFE			Timber	Basin/Lake Level Maintenance	500	30
2012-1251		BEHREND	TOM	Pit	Sand/Gravel Pit Dewatering	To Be Determined	
2013-0096	ROUND LAKE VINEYARDS			Round	Orchard	To Be Determined	
1991-4154	MNDNR - WILDLIFE			Okabena Creek	Basin/Lake Level Maintenance	4000	175

Source: DNR Waters

**a. Restoring the natural hydrograph**

The state of the art on drainage management has changed substantially over the years. The traditional approach has sought to drain land as quickly and efficiently as possible. This has led to environmental issues that will take years to resolve. Modern, comprehensive drainage management can provide the private and public tools to stabilize the effects of both wet and dry weather cycles, reduce soil erosion, and improve water quality, while also providing additional benefits to plant and wildlife habitat.

Agricultural drainage is intended to remove standing or excess water from land which does not drain naturally. These systems use surface ditches and subsurface permeable pipes to direct water off the land. As explained by the UMN, “Until the 1970s, most subsurface drainage pipes were made from short, cylindrical sections of concrete or clay called ‘tile.’ That is why terms like tile, tile drainage, and tiling are still used, even though most drainage pipe today is perforated polyethylene tubing” (*Agricultural Issues and Answers*, <http://www.extension.umn.edu> ). Typically, private ‘tile’ systems then outflow into public ditches and streams.

Research continues on the optimal combination of strategies such as variable depth tilling, drainage structures and controlled intakes. As one example, the Minnesota Corn Growers Association has joined with the national Agricultural Drainage Management Coalition to

promote the wider use of comprehensive approaches to drainage. Locally, the SWCD and HLWD have been promoting Alternative Tile Intakes, also known as rock inlets. A long trench is excavated and backfilled with a 6"-12" bed of small rock. A perforated tile is placed and covered with pea gravel to about 1' above grade for settling. According to the HLWD, these systems have been demonstrated in Minnesota to deliver "adequate drainage capacity and a 50% reduction of sediment and phosphorus loading into subsurface tile lines."

Drainage systems have been constructed since settlement to move runoff and melt water from private tile lines to public waters. A county drainage system is authorized and established through action of the County Board of Commissioners. A Judicial drainage system is authorized and established by the Courts. Both drainage systems are supported financially through assessments based on benefits received by the landowner. According to the 1997 edition of the water plan, the majority of drain systems in Jackson County were established between 1905 and 1920, with 106 miles of open ditch and 590 miles of county underground tile existing at that time. All ditch systems (public and private) have the potential to affect water quality and quantity if not maintained properly or if used to receive polluted water. As the 1997 plan stated, an objective cost-benefit analysis needs to be completed on drainage systems which are the most costly to maintain.

Eventually runoff does reach public waters, over which Minnesota law gives authority to the MN DNR. As explained earlier, issues often arise because meandering streams eat away at stream banks, or as discussed below, streams leave their banks during flood events. At times, dams and larger scale water control structures have been relied upon to control flows on rivers and streams. Current research has questioned the benefits of these structures—fish and wildlife are isolated to smaller stretches of rivers, while siltation leads to eventual dredging or destruction of the improvements.

On the Des Moines River, the City of Jackson and MN DNR examined options to re-work the water control structure at Jackson Dam on the Des Moines River. Discussions focused on installing smaller naturalized structures that will provide some flood control and regularization of river levels while allowing fish passage and minimizing retention of impairments in the waters. This project was completed after several years of delays due to fall floods and high water. The new rock riffles allow for fish passage and provide a much safer place to recreate along the shores of the Des Moines River.

On Heron Lake, the MN DNR worked with the HLWD and other stakeholders to establish a Heron Lake Dam Management Plan. The goal of this plan is to take advantage of dry years to reestablish and strengthen wetland vegetation. To achieve this goal it is necessary to remove as much water as possible from the lake in the early summer period. Thereafter, it is important to maximize the habitat gained in that year for use by wetland wildlife, especially during fall migration. Maximizing habitat and habitat use can be done in low water years by stabilizing water levels or allowing them to fall slightly in late summer and allowing water levels to rise slightly in fall. To achieve the goal in wetter years, it is necessary to allow water levels to drop throughout summer. Water levels will be stabilized only if water is not held during the fall period before winter freeze.

Under Minnesota law, MN DNR is the only entity possessing the authority to remove a water level control structure. The MN DNR requires that a majority of affected riparian landowners agree as to any changes in water level. The failure to obtain majority approval from the

affected riparian landowners will result in the denial of any permit to modify the existing structure.

**b. Wetland restoration and management**

Southwestern Minnesota historically was part of a grass and wetland complex called the Prairie Pothole Region of the Northern Tallgrass Prairie. Jackson County’s remaining wetlands act as natural filters, holding water on the landscape, retaining flood waters, reducing erosion and allowing time for sediment to settle (**see attached map**). These interrelated prairie potholes and wetland complexes also provide habitat to a variety of plants and animals. Wetlands also reduce the size and scope of storm event and snowmelt flooding.

Wetlands need to be integrated into management of the larger drainage system to be of greatest benefit. However, active wetland restoration would be required to show substantial differences. State and federal funding sources such as WRP, CRP, RIM and now the RIM/WRP partnership have been somewhat effective in Jackson County in promoting wetland restoration. Wetland banking—restoring or creating a wetland as a “deposit” available for sale—has also shown some long-term potential with one site now containing banking credits available for sale within Jackson County. However, new drain tile installation will continue to accelerate water flow to the potential detriment of downstream users, unless new and/or replacement wetlands are created to balance flows within and between watersheds.

**c. Flooding**

Areas in the county are known to be at risk of seasonal and storm-event flooding. Statewide, the MN DNR Division of Waters administers the National Flood Insurance Program (NFIP). Jackson County administers a Flood Plain Ordinance based on Federal Emergency Management Agency (FEMA) maps dated January of 1981. A more detailed Flood Insurance Study was completed in potential development areas along the Des Moines River dated July of 1980. While this data has been digitized and provided online by FEMA, many of the benchmarks that are referenced in this document no longer exist and need to be re-established. Nationally, FEMA has embarked on five-year initiative to update local flood hazard maps with a digital, multi-hazard approach, depending on funding and community priority.

Development activity in flood-prone areas should be avoided. For example, high-risk areas could receive a permanent vegetative cover in order to help alleviate erosion and sedimentation caused by flooding. Some communities across the country have adopted a No Adverse Impact (NAI) floodplain management approach, which extends beyond the floodplain to manage development in the watersheds where flood waters originate. NAI requires new development to mitigate potential impacts before disaster strikes.

**Priority Concern 4. Protect Groundwater.**

Demand for water resources is expected to continue to grow for the foreseeable future. Groundwater is the primary source of drinking water in southwestern Minnesota. The original edition (1990) and first revision (1998) of the *Jackson County Comprehensive Water Plan* contain extensive information on the geology and aquifers of Jackson County.

In Jackson County, however, groundwater is not as reliable a source as in some other areas of the region. Surficial aquifers in glacial till have an average water yield of less than one gallon per minute, while glacial outwash may yield from 25 to 500 gallons per minute. Groundwater can be obtained from a deep Paleozoic bedrock unit, from the Cretaceous groundwater system, and from the hard

Precambrian basement rock's Sioux Quartzite. The Quartzite deposits are typically high in dissolved minerals (sulfate, iron, manganese). Even when these minerals are within EPA standards, they may give water an objectionable taste and stain laundry and dishes.

Jackson County also has a closed landfill located a mile and a half south of Lakefield on State Highway 86. The Jackson County Landfill was closed May 1, 1990. The MPCA Closed Landfill Program is responsible for monitoring the landfill and the waste contained in the landfill. Monitoring wells at the landfill are sampled three (3) times per year to assure that leachate from waste decomposition is not contaminating ground water.

**a. Wellhead protection and aquifer recharge**

There are a number of sources in the County which are considered public water suppliers by the Minnesota Department of Health (MDH), such as resorts, restaurants or churches . MDH has completed ground water assessments on 24 public water systems in the county, including 18 non-community systems. On this list, public water is now provided to the unincorporated community of Wilder by Red Rock Rural Water System.

The Wellhead Protection program of the MDH is designed to protect public water supply wells. As explained on the MDH website, "A capture zone for the well (called the wellhead protection area) is designated and a plan is developed and implemented for managing potential contamination sources within the wellhead protection area." A Drinking Water Supply Management Area (DWSMA) provides a geographic focus for securing the water supply.

While protection of drinking water sources is of utmost importance, MDH does not currently consider Jackson County a high priority for completion of Well Head Protection Plans, and none are in place yet. MDH recommends that all public water suppliers concentrate on accurately locating wells and monitoring potential sources of pollution. As Well Head Protection Plans are completed, DWSMAs will become priority areas for local water management.

**b. Abandoned Wells**

There are many potential sources of groundwater contamination outside of the immediate wellhead and near-term aquifer supply areas.

New wells drilled today have an established permitting process, which allows the public to track well locations and characteristics. However, there are an unknown number of wells put in place since settlement that continue to provide pathways for potential pollutants to reach the county's aquifers. Established farmstead sites are often abandoned as agricultural operations consolidate into larger units and rural residents choose different home locations. Each of these sites typically has a well that needs to be correctly sealed by a licensed contractor. Property owners who connect to rural water systems should decommission their existing wells if the wells will no longer be used, to prevent pollution from entering aquifers.

Sealed Wells		
Year	Number	Payments
2008	14	\$ 3,210
2009	22	\$ 5,185
2010	18	\$ 4,450
2011	21	\$ 5,250
2012	22	\$ 5,500
	<u>97</u>	<u>\$ 23,595</u>
Source-P & Z/SWCD		

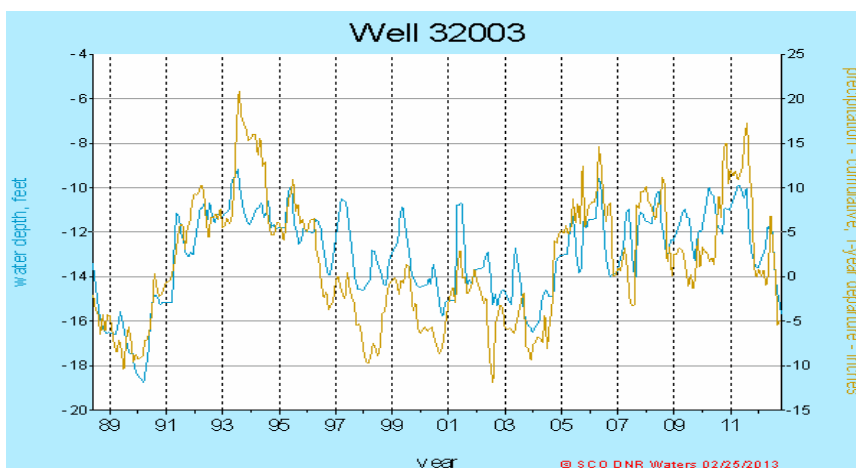
Jackson County offers a cost share program to financially assist landowners in the proper closure of unused wells (**see attached map**). Financial assistance of 50% of the project, not to exceed \$250 per well has been offered for the past several years. Public demand for this assistance is likely to continue into the future.

### c. Long-term water supply

There is growing concern in the region about the quantity and quality of available ground water. With the poor quality of groundwater outside the glacial drift aquifers, the rural water system will be an increasingly important asset for communities, livestock producers and rural residents. Iowa Lakes Rural Water System (ILRW) serves portions of Minneota, Middletown and Petersburg townships. RRRW System provides service in much of the rest of the county, and is expanding the quantity and extent of their residential and industrial services (see attached maps).



MN DNR Observation Well – Christiania Township, Section 19



MN DNR Observation Well – Hunter Township, Section 17

Recent growth of feedlots and ethanol facilities has begun to highlight the need for sustainable, long-term water supplies. An average rural resident may use about 100,000 gallons of potable water a year. An average feedlot may use 1,000,000 gallons of water a year. With current technology, corn-based ethanol refineries use water at an average rate of four-to-six gallons per gallon of fuel produced; therefore, a 100 million gallon plant will require at least 400,000,000 gallons of water each year. Moreover, where potable drinking water supplies must meet basic standards for public safety, ethanol plants require further pre-treatment to remove minerals and chemicals commonly found in groundwater in the region. Further growth in animal agriculture and renewable energy will require careful balancing of interests in economic development and residential water supply.

### B.3 Goals and Objectives to Address Priority Concerns

Goals and Objectives for local water management were selected by the Task Force based on the selected priority concerns. **Goals** are general statements that clearly communicate **what is to be accomplished** over the long-term to address the priority concerns. Goals are achievable in a reasonable period of time. **Objectives** state **how the goal will be accomplished** by breaking it down into smaller, more specific measures that will be taken. Objectives should be measurable. Goals and objectives listed below were reached by consensus and are not necessarily in rank order.

### **Priority Concern 1. Improve Surface Water Quality.**

*Goal 1: Prevent further degradation of stream and lake water quality, with a priority for highly-erodible land and shoreland areas, and TMDL-listed waters.*

Objective 1.a: Address TMDL Impaired Waters.

Objective 1.b: Prevent soil erosion

Objective 1.c: Encourage perennial cover, buffers and conservation tillage

Objective 1.d: Improve stream bank and lakeshore development practices.

### **Priority Concern 2. Feedlots & SSTS**

*Goal 2: Protect public waters and assist residents in meeting feedlot and septic standards, focusing on shoreland areas and un-sewered communities.*

Objective 2.a: Encourage best practices in nutrient management.

Objective 2.b: Assist feedlot owners to maintain compliance with MN Statute 7020 standards.

Objective 2.c: Encourage appropriate technology for SSTS and community sewer systems.

Objective 2.d: Continue to bring nonconforming SSTS into compliance with state standards.

### **Priority Concern 3. Drainage Management**

*Goal 3: Restore more natural flow in the drainage system, with a priority for the Heron Lake watershed and Des Moines River above Jackson Dam.*

Objective 3.a: Restore natural hydrograph flows.

Objective 3.b: Encourage wetland restoration and management

Objective 3.c: Reduce impacts of flooding.

### **Priority Concern 4. Protect Groundwater**

*Goal 4: Assure long-term quality and quantity of groundwater supplies, with a priority for wellhead protection areas and areas not currently served by public/community systems.*

Objective 4.a: Support Well Head Protection planning and implementation.

Objective 4.b: Prevent groundwater contamination from unused wells.

Objective 4.c: Protect long-term water supply.

### C. Implementation to Address Priority Concerns

This section establishes the implementation program for local water management to address priority concerns by watersheds. Action items describe specific measures that the County intends to implement, in cooperation with appropriate local, state and federal agencies and organizations. Action items listed below were reached by consensus and are not necessarily in rank order.

<b>Goals and Objectives</b>				
<b>Priority Concern 1. Improve Surface Water Quality</b>				
<b>Goal 1: Prevent further degradation of stream and lake water quality, with a priority for highly erodible land and shoreland areas and TMDL listed waters.</b>				
<b>Objective 1.a Address TMDL Impaired Waters.</b>				
<b>Watershed</b>	<b>Action</b>	<b>Responsibility</b>	<b>Time Frame</b>	<b>Total Units/Cost</b>
County Wide 1.a.1	Provide public information on water quality. Outreach – Booths and Displays at County Fair and Farm & Home Shows, Direct mailings, news releases, personal contacts Audience – 2,500 landowners, operators and residents /year; \$600/year	Soil and Water County P&Z Office	2013-2018	12,500 contacts \$3,000
1.a.2	Work with the TMDL Implementation Plans for the four priority watersheds and hiring technical staff to promote conservation efforts in those watersheds. Outreach – Technical Assistance, direct mailings, news releases, personal contacts. Audience – 1,000 landowners-operators and one FTE technical staff/year; \$50,000/year	Soil and Water County P&Z Office MPCA	2013-2018	5,000 contacts 1 staff-5 years \$250,000
1.a.3	Local Water Management Coordination-Program Coordination of all Water Plan Activities; Annually host meeting on Water Plan Activities and Expenditures including Budget Review and Approval by Task Force Committee; Coordination of the Amendment and Rewrite processes. Outreach-Required Public Notice, Coordination with other LGU's, Public Hearings, Task Force and Technical Meetings, Newsletters, News Releases, Personal Contacts Audience-10,000 Jackson County Residents and Adjacent LGU's/year Cost - \$22,000 per year	Soil and Water County P&Z Office, NRCS, BWSR, HLWD, DNR, MPCA, Other LGU's	2013-2018	50,000 Residents and LGU's \$110,000
Little Sioux River (Missouri River Watershed) 1.a.4	Provide technical and administrative assistance to MPCA on the scheduled watershed studies. Outreach – Provide Technical Assistance Target- Implementation Plan Development; \$10,000/year	Soil and Water County P&Z Office MPCA	2013-2018	\$50,000
1.a.5	Promote, assist and seek funding to implement BMPs including but not limited to grassed waterways, water and sediment control basins, side inlet structures to improve the water quality in the Rush Lake, Pearl Lake, Loon Lake and Little Spirit Lake Watersheds. Outreach – Direct mailings, news releases, personal contacts. Target-5 projects per year @ \$4000 each	Soil and Water County P&Z Office NRCS, BWSR	2013-2018	25 projects \$100,000
Des Moines River-West Fork and Lower 1.a.6	Provide technical and administrative assistance to MPCA on the scheduled intensive watershed studies. Outreach – Provide Technical Assistance. Target-Assist with water quality assessments; \$10000/year	Soil and Water County P&Z Office HLWD, MPCA	2013-2018	5 assessments \$50,000
1.a.7	Promote, assist and seek funding to implement BMPs towards improving the water quality of the Heron Lake Watershed. Outreach – Direct mailings, news releases, personal contacts and provide technical assistance. Target-7 projects per year @ \$4000 each	HLWD, Soil and Water, County P&Z Office, MPCA, NRCS, BWSR	2013-2018	35 projects \$140,000
1.a.8	Promote, assist and seek funding to implement BMPs towards improving the water quality of the Heron Lake Watershed. Outreach – Direct mailings, news releases, personal contacts and provide technical assistance. Target-7 projects per year @ \$4000 each	HLWD, Soil and Water, County P&Z Office, MPCA, NRCS, BWSR	2013-2018	35 projects \$140,000

<b>Goals and Objectives</b>				
<b>Priority Concern 1. Improve Surface Water Quality</b>				
<b>Goal 1: Prevent further degradation of stream and lake water quality, with a priority for highly erodible land and shoreland areas and TMDL listed waters.</b>				
<b>Objective 1.a Address TMDL Impaired Waters.</b>				
<b>Watershed</b>	<b>Objective</b>	<b>Responsibility</b>	<b>Time Frame</b>	<b>Total Units/Cost</b>
Des Moines East Fork 1.a.9	Provide technical and administrative assistance to MPCA on the scheduled intensive watershed management studies. Outreach – Provide Technical Assistance. Target-Assist with water quality assessments; \$10000/year	Soil and Water County P&Z Office MPCA	2013-2018	Multiple Assessments \$50,000
Watowan/ Blue Earth Rivers 1.a.10	Provide technical and administrative assistance to MPCA on the scheduled intensive watershed management studies. Outreach – Provide Technical Assistance. Target-Assist with water quality assessments; \$10000/year	Soil and Water County P&Z Office MPCA	2013-2018	Multiple Assessments \$50,000

<b>Goals and Objectives</b>				
<b>Priority Concern 1. Improve Surface Water Quality</b>				
<b>Goal 1: Prevent further degradation of stream and lake water quality, with a priority for highly erodible land and shoreland areas and TMDL listed waters.</b>				
<b>Objective 1.b Prevent soil erosion</b>				
<b>Watershed</b>	<b>Action</b>	<b>Responsibility</b>	<b>Time Frame</b>	<b>Total Units/Cost</b>
County Wide 1.b.1	Assist with coordination and funding of environmental education events for the students of Jackson County. These include (but not limited to) Environmental Fair, Fifth Grade Conservation Day, Earth Day Event. Target Audience - 2,500+ area students/year; \$2,000/year	County P&Z Office Soil & Water, NRCS, USF&WS, DNR, HLWD, PEBC	2013-2018	12,500 students \$10,000
1.b.2	Prairie Ecology Bus Center sponsorships for 12 days of programing with Jackson County Schools. Target Audience – 600 Students/year	County P&Z Office Soil and Water PEBC	2013-2018	3000 students \$25,000
1.b.3	Promote conservation practices and programs to landowners in Jackson County. These include State Cost-Share, RIM, RIM/WRP, CRP, EQIP, CSP and others. Outreach - Direct mailings, news releases, personal contacts. Target Audience – 2,500 landowners/year – 20 sign-ups/year; \$3,000/year	Soil and Water County P&Z Office NRCS, HLWD, BWSR	2013-2018	12,500 contacts 100 sign-ups \$15,000
Little Sioux River (Missouri River Watershed) 1.b.4	Promote, assist, seek funding and install field windbreaks, living snow fences and farmstead windbreaks to reduce the amount of wind erosion. Outreach – Direct mailings, news releases, personal contacts. Enrollment – 0.5 miles windbreaks and 2 acres shelterbelts/year; \$5,000/year	Soil and Water NRCS BWSR	2013-2018	2.5 miles 10 acres \$25,000
1.b.5	Promote, assist, seek funding and install Critical Area Plantings on meandered intermittent streams with less than 0.5% grade. Outreach – Direct mailings, news releases, personal contacts. Enrollment – 1000 feet/year; \$4,000/year	Soil and Water County P&Z Office NRCS, BWSR	2013-2018	5,000 feet \$20,000
1.b.6	Promote, assist, seek funding and install practices that reduce erosion on working lands, reduce gully erosion and decrease sediment loading to surface waters. Outreach – Direct mailings, news releases, personal contacts, provide technical assistance.. Enrollment –5 projects/year; \$6,000/project	Soil and Water County P&Z Office NRCS, BWSR	2013-2018	25 projects \$150,000
1.b.7	Promote and seek funding for the installation of alternative tile intakes. Outreach – Direct mailings, news releases, personal contacts. Enrollment – 10 intakes/year; \$3,500/year	Soil and Water County P&Z Office NRCS, BWSR, HLWD	2013-2018	50 contacts \$17,500

<b>Goals and Objectives</b>				
<b>Priority Concern 1. Improve Surface Water Quality</b>				
<b>Goal 1: Prevent further degradation of stream and lake water quality, with a priority for highly erodible land and shoreland areas and TMDL listed waters.</b>				
<b>Objective 1.b Prevent Soil Erosion</b>				
<b>Watershed</b>	<b>Action</b>	<b>Responsibility</b>	<b>Time Frame</b>	<b>Total Units/Cost</b>
Des Moines River-West Fork and Lower 1.b.8	Promote, assist, seek funding and install field windbreaks, living snow fences and farmstead windbreaks to reduce the amount of wind erosion. Outreach – Direct mailings, news releases, personal contacts. Enrollment – 0.5 miles windbreaks and 2 acres shelterbelts/year; \$5,000/year	Soil and Water NRCS, BWSR, HLWD	2013-2018	2.5 miles 10 acres \$25,000
1.b.9	Promote, assist, seek funding and install practices that reduce erosion in ravines, on working lands, reduce gully erosion, decrease sediment loading to surface waters as well as reduce flooding. Outreach – Direct mailings, news releases, personal contacts, provide technical assistance. Enrollment – 20 projects/year; \$6000/project	Soil and Water County P&Z Office NRCS, BWSR, HLWD	2013-2018	100 projects \$600,000
1.b.10	Promote and seek funding for the installation of alternative tile intakes. Outreach – Direct mailings, news releases, personal contacts, provide technical assistance. Enrollment – 5 intakes/year; \$1,750/year	Soil and Water County P&Z Office NRCS, HLWD, BWSR	2013-2018	25 intakes \$8,750
Des Moines East Fork 1.b.11	Promote, assist, seek funding and install field windbreaks, living snow fences and farmstead windbreaks to reduce the amount of wind erosion. Outreach – Direct mailings, news releases, personal contacts, provide technical assistance.. Enrollment – 0.5 miles windbreaks and 2 acres shelterbelts/year; \$5,000/year	Soil and Water NRCS, BWSR	2013-2018	2.5 miles 10 acre \$25,000
1.b.12	Promote, assist, seek funding and install Critical Area Plantings on meandered intermittent streams with less than 0.5% grade. Outreach – Direct mailings, news releases, personal contacts, provide technical assistance.. Enrollment – 800 feet/year; \$3200/year	Soil and Water County P&Z Office NRCS, BWSR	2013-2018	4,000 feet \$16,000
1.b.13	Promote, assist and seed funding for the installation of stream bank stabilization projects. Outreach-Direct mailings, news releases, personal contacts, provide technical assistance. Enrollment-100 feet/year; \$4000/year	Soil and Water County P&Z Office NRCS, BWSR	2013-2018	500 feet \$20,000
1.b.14	Promote and seek funding for the installation of alternative tile intakes. Outreach – Direct mailings, news releases, personal contacts, provide technical assistance.. Enrollment – 2 intakes/year; \$700/year	Soil and Water County P&Z Office NRCS, BWSR, HLWD	2013-2018	10 intakes \$3,500
Watowan/ Blue Earth Rivers 1.b.15	Promote, assist, seek funding and install field windbreaks, living snow fences and farmstead windbreaks to reduce the amount of wind erosion. Outreach – Direct mailings, news releases, personal contacts, provide technical assistance.. Enrollment – 0.5 miles windbreaks and 2 acres shelterbelts/year; \$5,000/year	Soil and Water NRCS, BWSR	2013-2018	1 mile 4 acres \$10,000
1.b.16	Promote, assist, seek funding and install practices that reduce erosion on working lands, reduce gully erosion and decrease sediment loading to surface waters. Outreach – Direct mailings, news releases, personal contacts, provide technical assistance.. Enrollment –5 projects/year; \$6,000/project	Soil and Water County P&Z Office NRCS, BWSR, GBERBA	2013-2018	25 projects \$150,000
1.b.17	Promote and seek funding for the installation of alternative tile intakes. Outreach – Direct mailings, news releases, personal contacts, provide technical assistance.. Enrollment – 5 intakes/year; \$1,750/year	Soil and Water County P&Z Office NRCS, HLWD, GBERBA, BWSR	2013-2018	25 intakes \$8,750

<b>Goals and Objectives</b>				
<b>Priority Concern 1. Improve Surface Water Quality</b>				
<b>Goal 1: Prevent further degradation of stream and lake water quality, with a priority for highly erodible land and shoreland areas and TMDL listed waters.</b>				
<b>Objective 1.c Encourage Perennial Cover, Buffers and Conservation Tillage</b>				
<b>Watershed</b>	<b>Action</b>	<b>Responsibility</b>	<b>Time Frame</b>	<b>Total Units/Cost</b>
County Wide  1.c.1	Promote buffer strips along ditches, streams and lakes within Jackson County utilizing available conservation programs and incentives. Technology – LiDAR, Stream Power Index, others Outreach - Direct mailings, news releases, personal contacts, provide technical assistance.. Target Audience – 300 landowners/year; \$1,000/year	Soil and Water NRCS County P&Z Office BWSR	2013-2018	\$5000
1.c.2	Assist, seek funding and install acres into a buffer strip program along ditches, streams and lakes. Outreach – Direct mailings, news releases, personal contacts, provide technical assistance.. Enrollment – Provide Incentive 20 acres/year; \$40,000/year	Soil and Water NRCS County P&Z Office BWSR	2013-2018	100 Acres \$40,000
1.c.3	Assist and seek funding to enroll riparian land into a perpetual buffer program. Outreach – Direct mailings, news releases, personal contacts, provide technical assistance.. Enrollment – 15 acres/year; \$6,000/acre	Soil and Water NRCS, BWSR	2013-2018	75 Acres \$450,000
1.c.4	Continue to implement and partner with the MN DNR Working Lands Initiative that promotes and provides incentives for buffers, harvestable buffers, planned grazing and haying. Outreach- Direct mailings to those in the target areas Enrollment – 100 acres/year	Soil and Water County P&Z Office NRCS, DNR, BWSR	2013-2018	500 acres
1.c.5	Conduct conservation tillage transect survey for the County and analyze data to determine tillage trends. Outreach-Newsletter and news release Target Audience - 2500 rural landowners 250 miles (\$140) and 24 hours(\$1680)	Soil and Water County P&Z Office NRCS	2013, 2015,2017	Three Transects \$5,469
1.c.6	Promote, assist and seek funding to establish cover crops. Outreach-Direct mailings, news releases, personal contacts Enrollment – 100 acres/year; \$25/ac	Extension Soil and Water NRCS, HLWD	2013-2018	500 acres \$12,500

<b>Goals and Objectives</b>				
<b>Priority Concern 1. Improve Surface Water Quality</b>				
<b>Goal 1: Prevent further degradation of stream and lake water quality, with a priority for highly erodible land and shoreland areas and TMDL listed waters.</b>				
<b>1.d – Improve Stream bank and lakeshore development practices</b>				
<b>Watershed</b>	<b>Action</b>	<b>Responsibility</b>	<b>Time Frame</b>	<b>Total Units/Cost</b>
County Wide 1.d.1	Educate landowners on lakeshore and stream bank stabilization practices. Outreach - Direct mailings, news releases, personal contacts. Target Audience – 500 landowners/year; \$1,500/year	Soil and Water NRCS County P&Z Office	2013-2018	2500 landowners \$7500
1.d.2	Promote, assist and seek funding to reduce erosion by installing stream bank and lakeshore stabilization projects. Outreach – Direct mailings, news releases, personal contacts. Enrollment – 400 feet/year; \$10,000/year	Soil and Water NRCS County P&Z Office, BWSR	2013-2018	2000 feet \$50,000
1.d.3	Administer Shoreland and Floodplain Regulations. Consider adopting process for conservation design in Local Planning and Zoning Ordinances Target Audience-Landowners, Jackson County Planning Commission; 12 meetings/year	County P&Z Office DNR	2013-2018	60 meeting In-kind
1.d.4	Establish Pilot and Public Demonstration of Lakeshore and Stream bank practices Audience-Lake Associations, Riparian Landowners Enrollment-One project-\$10,000 per project	Soil and Water County P&Z Office	2013-2018	One Project \$10,000

<b>Goals and Objectives</b>				
<b>Priority Concern 2. Feedlots and SSTS (Subsurface Sewage Treatment Systems)</b>				
<b>Goal 2: Protect public waters and assist residents in meeting feedlot and septic standards, focusing on shoreland areas and un-sewered communities.</b>				
<b>Objective 2.a Encourage Best Management Practices in Nutrient Management</b>				
<b>Watershed</b>	<b>Action</b>	<b>Responsibility</b>	<b>Time Frame</b>	<b>Total Units/Cost</b>
County Wide 2.a.1	Promote proper application of manure, fertilizers and pesticides and partner with local crop consultants to provide an informational field day. Also utilize the GBERBA Nutrient Management Specialist throughout the county. Outreach – Producer Workshop, direct mailings, news releases, personal contacts. Audience –25 landowners	Water Resources Technician County P&Z Office Soil and Water HLWD,NRCS, GBERBA	2013-2018	125 contacts \$500
2.a.2	Provide manure sample kits to livestock producers. Outreach - Direct mailings, news releases, personal contacts Kits –30 kits/year; \$3,000/year	Water Resources Technician Soil and Water County P&Z Office	2013-2018	150 kits \$15,000

<b>Goals and Objectives</b>				
<b>Priority Concern 2. Feedlots and SSTS (Subsurface Sewage Treatment Systems)</b>				
<b>Goal 2: Protect public waters and assist residents in meeting feedlot and septic standards, focusing on shoreland areas and un-sewered communities.</b>				
<b>Objective 2.b Assist Feedlot Owners to Maintain Compliance with MN Statute 7020 Standards.</b>				
<b>Watershed</b>	<b>Action</b>	<b>Responsibility</b>	<b>Time Frame</b>	<b>Total Units/Cost</b>
County Wide  2.b.1	Conduct annual meetings with Township Officials to promote AgBMPs for livestock producers. Outreach – Direct mailings and personal contacts Audience – 100 township officials/year	County P&Z Office Soil and Water Water Resources Technician	2013-2018	500 contacts In-kind
2.b.2	Inspect minimum of 7% of all registered feedlots per year to verify compliance with MN Statute 7020. Outreach – Direct mailings and personal contacts Audience – Feedlot Owners and Operators 30 inspections/year; \$6,000/year	Water Resources Technician Soil and Water County P&Z Office	2013-2018	150 inspections \$30,000
2.b.3	Continue Delta reporting for registered feedlots in Jackson County. Outreach - Personal contacts Audience – Feedlot Owners and Operators Target - 80 records/year; \$4000/year	Water Resources Technician Soil and Water County P&Z Office	2013-2018	400 records \$20,000
2.b.4	Promote, assist and seek implementation funding through EQIP, CSP, State Cost-Share and Clean Water fund for livestock waste management BMPs. Outreach - Direct mailings, news releases, personal contacts Enrollment – 1 BMPs/year; \$100,000/year	Water Resources Technician Soil and Water NRCS, TSA, HLWD, BWSR	2013-2018	5 BMPs \$500,000
2.b.5	Promote, assist and seek funding for livestock producers with feedlots containing 300-999 animal units to develop and maintain a compliant manure management plan. Outreach - Direct mailings, news releases, personal contacts Plans – 20 plans/year; \$12,000/year	Water Resources Technician Soil and Water County P&Z Office, NRCS	2013-2018	100 plans \$60,000
Des Moines River Headwaters/Lower  2.b.6	Assist the HLWD with a Level III Inventory and onsite inspection for the West Fork Des Moines River TMDL Implementation Plan. Outreach - Direct mailings, news releases, personal contacts Audience – Livestock producers Sites – 32 sites/year; \$6400/year	Water Resources Technician Soil and Water County P&Z Office HLWD, NRCS, MPCA	2013-2015	160 sites \$32,000
2.b.7	Promote, assist and seek funding to help livestock producers in the watershed that need waste management upgrades as found with the Level III Inventory. Outreach - Direct mailings, news releases, personal contacts Audience – Livestock producers Sites – 25% of those inventories – 8 BMPs/year; \$252,000/year	Water Resources Technician Soil and Water County P&Z Office HLWD, NRCS, MPCA, BWSR	2013-2018	40 BMPs \$1,260,000

<b>Goals and Objectives</b>				
<b>Priority Concern 2. Feedlots and SSTS (Subsurface Sewage Treatment Systems)</b>				
<b>Goal 2: Protect public waters and assist residents in meeting feedlot and septic standards, focusing on shoreland areas and un-sewered communities.</b>				
<b>Objective 2.c Encourage appropriate technology for SSTS and Community Sewer Systems</b>				
<b>Watershed</b>	<b>Action</b>	<b>Responsibility</b>	<b>Time Frame</b>	<b>Total Units/Cost</b>
County Wide  2.c.1	Provide an informational packet (owner’s manual) regarding septic system maintenance to every landowner who installs a new SSTS. Outreach-Personal Contacts Target-25 New and Replacement SSTS Homeowners; \$125/year	Water Resources Technician Soil and Water County P&Z Office, MPCA	2013-2018	125 Homeowners \$625
2.c.2	Maintain an existing GIS-compatible database for all new and replaced individual sewage systems in Jackson County. Technology-GIS Target-25 New and Replacement SSTS Homeowners; \$100/year	Water Resources Technician Soil and Water County P&Z Office, MPCA	2013-2018	125 Homeowners \$500
2.c.3	Work with cities to connect households and businesses with SSTS onto municipal services or cluster systems. Audience-All Cities in Jackson County	Water Resources Technician Soil and Water County P&Z Office, MPCA	2013-2018	Five Cities
2.c.4	Implement appropriate sewer infrastructure at Loon Lake and provide technical assistance with sewer needs on lakes with development pressure. Audience-50 Landowners; Loon Lake, Clear Lake, Round Lake, Pearl Lake Target- 5 Systems/year; Cost-\$10,000/system	Water Resources Technician Soil and Water County P&Z Office, MPCA	2013-2018	25 Systems \$250,000

<b>Goals and Objectives</b>				
<b>Priority Concern 2. Feedlots and SSTS (Subsurface Sewage Treatment Systems)</b>				
<b>Goal 2: Protect public waters and assist residents in meeting feedlot and septic standards, focusing on shoreland areas and un-sewered communities.</b>				
<b>Objective 2.d Continue to bring Nonconforming Subsurface Sewage Treatment Systems into Compliance with State Standards.</b>				
<b>Watershed</b>	<b>Action</b>	<b>Responsibility</b>	<b>Time Frame</b>	<b>Total Units/Cost</b>
County Wide 2.d.1	Promote, assist and seek funding to upgrade non-compliant systems through qualifying loan programs. Outreach - Direct mailings, news releases, personal contacts Enrollment – 20 systems/ year; \$200,000/year	Water Resources Technician Soil and Water County P&Z Office, MPCA, HLWD	2013-2018	100 systems \$1,000,000
2.d.2	Promote, assist and seek additional funding for SSTS construction with an emphasis on Low or Very Low Income and/or imminent health threat. Outreach - Direct mailings and personal contacts Enrollment – up to 10 systems/year; \$100,000/year	Water Resources Technician Soil and Water County P&Z Office, MPCA, BWSR	2013-2018	50 systems \$500,000
2.d.3	Provide information on state SSTS rules and educate property owners about the public health threats and environmental harm posed by non-complying systems. Outreach – Farm and Home Show, County Fair, Direct mailings, news releases, personal contacts Audience – 300 homeowners/year; \$400.00/year	Water Resources Technician Soil and Water County P&Z Office MPCA	2013-2018	1,500 contacts \$2,000
2.d.4	Provide contractor and realtor meetings annually to inform of changes and invite feedback. Coordinate with adjacent Counties. Outreach - Direct mailings and personal contacts Attendance – 20 realtor-contractors contacts/year; \$200.00/year	Water Resources Technician Soil and Water County P&Z Office MPCA	2013-2018	Contractors and Realtors \$1000
2.d.5	Keep public informed on the Jackson County SSTS Ordinance and Ordinance changes. Outreach - Direct mailings, news releases, personal contacts Audience – 2500 county residents/year; \$500.00/year	Water Resources Technician Soil and Water County P&Z Office MPCA	2013-2018	12,500 contacts \$2500



<b>Goals and Objectives</b>				
<b>Priority Concern 3. Drainage Management</b>				
<b>Goal 3: Restore more natural flow in the drainage system, with a priority for the Heron Lake watershed and Des Moines River above Jackson Dam.</b>				
<b>Objective 3.b Encourage Wetland Restoration and Management</b>				
<b>Watershed</b>	<b>Action</b>	<b>Responsibility</b>	<b>Time Frame</b>	<b>Total Units/Cost</b>
County Wide 3.b.1	Administer the Wetland Conservation Act and assemble Technical Evaluation Panel (TEP) to minimize the amount of wetland acres lost county wide. Outreach – Direct mailings, news releases, personal contacts. Audience – 2000 landowner and operators/year	Soil and Water NRCS County P&Z Office DNR, BWSR	2013-2018	10,000 contacts \$45,000
3.b.2	Work with DNR and USF&WS to expand or enhance wetland in existing wildlife areas. Educate landowners on the benefits of converting drained wetlands back to a permanent native vegetated state, using RIM/WRP and CRP or other long term conservation program. Outreach – Direct mailings, news releases, personal contacts. Audience – 2000 landowners and operators/year	Soil and Water NRCS DNR USF&WS BWSR	2013-2018	10,000 contacts In-kind
3.b.3	Promote, assist and seek funding to enroll marginal land into available wetland restoration programs including RIM/WRP and CRP or other long term conservation program. Outreach – Direct mailings, news releases, personal contacts. Audience – 2000 landowners and operators/year Enrollment – 2 contract /year; 100 acres/year; \$600,000/year	Soil and Water County P&Z Office NRCS, BWSR, USFWS	2013-2018	10 contracts \$3,000,000

<b>Goals and Objectives</b>				
<b>Priority Concern 3. Drainage Management</b>				
<b>Goal 3: Restore more natural flow in the drainage system, with a priority for the Heron Lake watershed and Des Moines River above Jackson Dam.</b>				
<b>Objective 3.c Reduce Impacts of Flooding</b>				
<b>Watershed</b>	<b>Action</b>	<b>Responsibility</b>	<b>Time Frame</b>	<b>Total Cost/Units</b>
County Wide 3.c.1	Administer the Floodplain Ordinance to protect public health, safety and welfare. Outreach-Direct mailings and personal contacts Audience-500/year; Floodplain landowners	County P&Z Office	2013-2018	2500 Landowners In-kind
3.c.2	Review plans and zoning ordinances against updated floodplain maps to limit development in areas prone to flooding. Outreach-personal contacts Audience- 500/year; Floodplain landowners	County P&Z Office DNR, HLWD, MPCA	2013-2018	2500 Landowners In-kind
3.c.3	Inform the public on dangers of flooding and benefits of floodplain preservation. Outreach-Newsletters, news releases, personal contacts Audience- 500/year; Floodplain landowners	County P&Z Office Soil and Water MPCA, HLWD	2013-2018	2500 Landowners In-kind
3.c.4	Promote, assist, and seek funding for the installation of on-site stormwater retention and rain gardens to reduce peak storm-event flows. Outreach-Newsletters, news releases, personal contacts Audience-2000 landowners/year	Soil and Water County P&Z Office HLWD BWSR	2013-2018	10,000 Contacts In-kind
3.c.5	Promote, assist, and seek funding for the installation of Ag BMP's that hold flood waters on the land and slowly discharge after a storm event including but not limited to Water and Sediment Control Basins. Outreach-Direct mailings, newsletter, news release, personal contacts Audience- Target-2 Structures/year \$30,000 each	Soil and Water County P&Z Office HLWD, NRCS BWSR	2013-2018	10 structures \$300,000
3.c.6	Review and comment on all Petition to Improve a Judicial Ditch System. Install a two stage ditch, innovative side inlet controls, storage of storm water within the system, drainage water management. Outreach-Personal contacts, Jackson County Drainage Authority Target – 2 systems over 5 years; each \$300,000	Soil and Water HLWD, DNR NRCS, BWSR	2013-2018	Two Judicial Ditch Systems \$600,000

<b>Goals and Objectives</b>				
<b>Priority Concern 4. Protect Groundwater</b>				
<b>Goal 4: Assure long-term quality and quantity of groundwater supplies, with a priority for Drinking Water Supply Management Areas (DWSMA) and surficial aquifer areas.</b>				
<b>Objective 4.a Support Wellhead Protection Planning and Implementation.</b>				
<b>Watershed</b>	<b>Action</b>	<b>Responsibility</b>	<b>Time Frame</b>	<b>Total Units/Cost</b>
County Wide 4.a.1	Assist cities with completing and implementing their Wellhead Protection Plan. Outreach – Direct mailings and personal contacts. Audience – Contact City Department heads each year	Soil and Water County P&Z Office Cities MDH	2013-2018	City Department Heads
4.a.2	Educate landowners and residents on DWSMAs and measures to protect the groundwater. Emphasis on City of Lakefield DWSMA Outreach – Direct mailings, news releases, personal contacts. Audience – 100 landowners-residents/year; \$100/year	Soil and Water County P&Z Office Cities, MDH	2013-2018	500 contacts \$500
4.a.3	Protect DWSMA and surficial aquifer areas from agricultural and industrial contamination through zoning ordinances. Manure management plans to be completed and followed in DWSMA and surficial aquifers. Outreach – Direct mailings and personal contacts. Audience – 10 landowners/year; \$1000/year	Soil and Water County P&Z Office MDH Water Resources Technician	2013-2018	50 contacts \$5000
4.a.4	Make available to the public the MDH wellhead protection areas through the county web site and/or GIS. Outreach – Direct mailings, news releases, personal contacts, web site. Audience –20 landowners-residents/year	Soil and Water County P&Z Office MDH	2013-2018	100 contacts In-kind
4.a.5	Promote, assist and seek funding to enroll eligible acres (highly vulnerable wellhead areas) into the RIM Wellhead Protection Program and Continuous Conservation Reserve Program. Outreach – Direct mailings, news releases, personal contacts. Enroll – 20 acres/year; \$120,000/year	Soil and Water NRCS BWSR	2013-2018	100 acres \$600,000
4.a.6	Support water conservation by using existing educational materials. Outreach – Direct mailings, news releases, personal contacts, farm and home show, and county fair Audience – 2,000 county residents/year; \$500/year	Soil and Water County P&Z Office Cities, MDH	2013-2018	10,000 contacts \$2,500
4.a.7	Protect long-term water supply by enforcing zoning ordinances through Conditional Use Hearings for municipal, industrial, irrigation and public water supply wells. Outreach – Permitting and public hearings, Direct mailings and personal contacts Audience – Planning Commission, Cities, Water Suppliers, landowners; \$50/year	County P&Z Office DNR	2013-2018	County Residents, Planning Commission \$250
4.a.8	Monitor water level elevations in MN DNR Observation Wells as part of a state wide effort to measure depth to aquifer. Target – Three wells- 10 readings each/year	Soil and Water DNR	2013-2018	150 readings
Des Moines River – Headwaters and Lower 4.a.9	Continue to cooperate with Rural Water Systems on the expansion of the rural water systems and advise the public about County programs that will help manage potential contamination sources. Outreach – Direct mailings, news releases, personal contacts. Audience –25 landowners-residents/year	Soil and Water County P&Z Office Rural Water Suppliers	2013-2018	125 contacts In-kind
Little Sioux River (Missouri River Watershed) 4.a.10	Continue to cooperate with Rural Water Systems on the expansion of the rural water systems and advise the public about County programs that will help manage potential contamination sources. Outreach – Direct mailings, news releases, personal contacts. Audience –25 landowners-residents/year	Soil and Water County P&Z Office Rural Water Suppliers	2013-2018	125 contacts In-kind

<b>Goals and Objectives</b>				
<b>Priority Concern 4. Protect Groundwater</b>				
<b>Goal 4: Assure long-term quality and quantity of groundwater supplies, with a priority for Drinking Water Supply Management Areas (DWSMA) and surficial aquifer areas.</b>				
<b>Objective 4.b Prevent Nitrate and Pesticide Infiltration of Groundwater with Emphasis on Shallow Groundwater areas.</b>				
<b>Watershed</b>	<b>Action</b>	<b>Responsibility</b>	<b>Time Frame</b>	<b>Total Units/Cost</b>
County Wide 4.b.1	Promote proper application of fertilizers and pesticides and partner with local crop consultants. Outreach –Producer Workshop, Direct mailings, news releases, personal contacts. Audience – 25 landowners/year; \$100/year	Soil and Water County P&Z Office Water Resources Technician NRCS	2013-2018	125 contacts \$500
4.b.2	Promote AgBMPs along ditches, rivers, lakes and streams. Outreach – Direct mailings, news releases, personal contacts. Audience – 100 landowners/year; \$400/year	Soil and Water County P&Z Office MPCA, NRCS	2013-2018	500 contacts \$2,000
4.b.3	Conduct annual free clinics for testing nitrate levels in well water. Outreach – Farm and Home Show, County Fair, Direct mailings, news releases, personal contacts. Audience – 2,000 county residents/year; \$800/year	Soil and Water County Environmental Office MDH, MDA	2013-2018	10,000 contacts \$4,000
4.b.4	Promote, assist and seek funding to assist landowners and operators with nutrient management plans. Outreach – Crop Consultants, Direct mailings, news releases, personal contacts. Plans – 12 plans/year; \$9,600/year	Soil and Water County P&Z Office NRCS, MPCA	2013-2018	60 plans \$48,000

<b>Goals and Objectives</b>				
<b>Priority Concern 4. Protect Groundwater</b>				
<b>Goal 4: Assure long-term quality and quantity of groundwater supplies, with a priority for Drinking Water Supply Management Areas (DWSMA) and surficial aquifer areas.</b>				
<b>Objective 4.c Prevent Groundwater Contamination from Unused Wells</b>				
<b>Watershed</b>	<b>Action</b>	<b>Responsibility</b>	<b>Time Frame</b>	<b>Total Units/Cost</b>
County Wide 4.c.1	Work with well contractors to promote proper well protection and sealing. Outreach – Direct mailings and personal contacts. Audience – Well Contractors (Jackson and surrounding counties) \$50/year	Soil and Water County P&Z Office Rural Water System, Cities, Water Resources Technician	2013-2018	Well Contractors \$250
4.c.2	Provide information to County residents concerning proper well protection and sealing programs. Outreach – Direct mailings, news releases, personal contacts. Audience – Well Contractors (Jackson and surrounding counties) \$500/year	Soil and Water County P&Z Office Cities Water Resources Technician	2013-2018	Well Contractors \$2,000
4.c.3	Promote, assist and seek funding to prevent contamination of groundwater by providing cost-share for the sealing of unused wells. Outreach – Direct mailings, news releases, personal contacts. Enrollment – 20 wells/year; \$10,500/year	Soil and Water County P&Z Office	2013-2018	100 wells \$52,500

## **D. Implementation Schedule of Ongoing Activities**

This section identifies other local activities and programs of the County Planning and Zoning Office and cooperators which contribute towards the goals and objectives of local water management, in addition to those under the scope of the local water management plan. There are also many other public and private efforts at the regional, state and federal levels which serve to promote the regulatory and informational goals of sound water management. These particular ongoing activities typically encompass all watersheds in the county, reaching a broad cross-section of local residents and businesses.

### **D.1 Priority Concern 1. Improve Surface Water Quality.**

- Administer and provide assistance for the State Revolving Fund for Agricultural BMP's.
- Assist with testing and providing services for commercial pesticide applicators.
- Promote the SWCD tree program.
- Provide technical assistance for conservation programs.
- Promote and help facilitate the RIM program.
- Administer Shoreland management program.
- Administer base-line water quality testing program.

### **D.2 Priority Concern 2. Feedlots and SSTS**

- Continue to be a delegated County in the MPCA Feedlot Program and provide data to state databases.
- Inspect and assist producers in maintaining compliance with State rules.
- Promote and provide assistance for manure management plans and practices.
- Inspect and assist producers in maintaining compliance with County and State feedlot rules.
- Administer regulations, permit, and inspect individual sewage treatment systems.

### **D.3 Priority Concern 3. Drainage Management**

- Assist the County Board of Commissioners with drainage matters.
- Continue to administer Wetland Conservation Act.
- Administer Floodplain management program

### **D.4 Priority Concern 4. Protect Groundwater.**

- Continue to promote and provide Household Hazardous Waste (HHW) Program to correctly dispose of HHW.
- Provide a collection program for waste pesticides and empty containers.
- Promote recycling and solid waste management.
- Provide electronics and appliance disposal.
- Provide cost-share assistance for well sealing.

## E. Appendix

### E.1 Acronyms Used

Ag BMPs – Agricultural Best Management Practices  
BWSR – Board of Water and Soil Resources  
CDP – Census Designated Place  
CRP – Conservation Reserve Program  
CREP – Conservation Reserve Enhancement Program  
CWP – Clean Water Partnership  
MN DNR – Minnesota Department of Natural Resources  
DWSMA – Drinking Water Supply Management Area  
Env – County Planning & Environmental Services Office  
EPA – Environmental Protection Agency  
EQIP – Environmental Quality Incentives Program  
EXT – Extension Service  
FEMA – Federal Emergency Management Agency  
FWS – U.S. Fish and Wildlife Service  
GIS – Geographic Information Systems  
GRP – Grassland Reserve Program  
GBERBA – Greater Blue Earth River Basin Alliance  
HLWD – Heron Lake Watershed District  
HHW – Household Hazardous Waste  
ISTS – Individual Septic Treatment System (see SSTS)  
ILRW – Iowa Lake Regional Water System  
LCCMR – Legislative-Citizen Commission on Minnesota Resources  
LGU – Local Government Unit  
LID – Low Impact Development  
LiDAR – Light Detection and Ranging  
MDA – Minnesota Department of Agriculture  
MDH – Minnesota Department of Health  
MPCA – Minnesota Pollution Control Agency  
MinnFARM – Minnesota Feedlot Annualized Runoff Model  
MOA – Memorandum of Agreement  
NRCS – Natural Resources Conservation Service  
NAI – No Adverse Impact  
NFIP – National Flood Insurance Program  
NWI – National Wetlands Inventory  
PEBC – Prairie Ecology Bus Center  
PCSD – Priority Concerns Scoping Document  
RIM – Reinvest in Minnesota program  
RRRW – Red Rock Rural Water System  
SSTS –Subsurface Sewage Treatment Systems  
SWCD – Soil and Water Conservation District  
TMDL – Total Maximum Daily Load

TSS – Total Suspended Solids  
USCOE – United States Corp of Army Engineers  
USDA – United States Department of Agriculture  
USFW – United States Fish and Wildlife  
UMN – University of Minnesota  
USFWS – U.S. Fish and Wildlife Service  
WFDNR – West Fork Des Moines River  
WRP – Wetland Reserve Program

**E.2 Priority Concerns Scoping Document**  
(follows)

# JACKSON COUNTY LOCAL WATER MANAGEMENT PLAN PRIORITY CONCERNS SCOPING DOCUMENT

April 2007

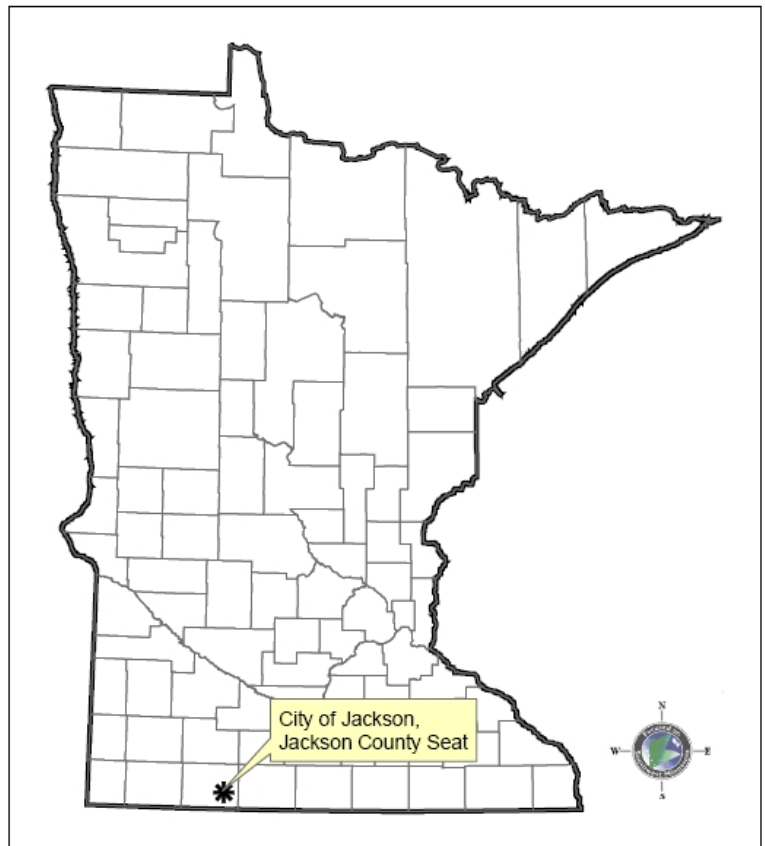
Prepared for the Jackson County Local Water Management Plan Task Force  
By Jackson County Planning & Environmental Services and Southwest Regional Development Commission

## A. INTRODUCTION

### A.1 County Primer

Jackson County is located in the southwestern corner of Minnesota, adjacent to Martin, Watonwan, Cottonwood, Murray, and Nobles counties. The City of Jackson is the county seat. Jackson County's population in the 2000 U.S. Census was 11,268, with a density of 16 persons per square mile. The Minnesota State Demographic Center estimates the current population (2005) is 11,175. The Demographic Center projects total population of 11,470 by 2030.

Jackson County is typical prairie environment, with average annual precipitation between 26" and 28". The eastern part of the county is an essentially nearly flat to gently rolling landscape. In the center, the West Fork of the Des Moines River flows along the east side of the Altamont moraine; with a valley floor about 100 feet lower than the surrounding landscape. The Heron Lake system gives evidence of an ancient glacial lake that once covered much of the northwest part of the county. The southwestern part of the county is characterized by hills and small bodies of water. Six major watershed areas cover the County: the Watonwan and Blue Earth flowing easterly to the Minnesota River; the East Fork Des Moines, and Upper and Lower portions of the West Fork Des Moines River which flows through Iowa to the Mississippi River; and the Little Sioux River which flows through Iowa to the Missouri River.



The City of Jackson (pop. 3,501) and Lakefield (pop. 1,721) are the largest cities in the county. The dominant land use in the county is agriculture. University of Minnesota Remote Sensing analysis has found 82% of land under cultivation, 5.6% in grassland or wetlands, 3% forested, 2% water, and approximately 7.5% developed. The 2002 U.S. Census of Agriculture reports 989 farms on 398,068 acres in Jackson County. Of these, 372,634 acres were in cropland. There were 203 farms with cattle, 144 with hogs, and 44 with sheep.

The City of Jackson (pop. 3,501) and Lakefield (pop. 1,721) are the largest cities in the county. The dominant land use in the county is agriculture. University of Minnesota Remote Sensing analysis has found 82% of land under cultivation, 5.6% in grassland or wetlands, 3% forested, 2% water, and approximately 7.5% developed. The 2002 U.S. Census of Agriculture reports 989 farms on 398,068 acres in Jackson County. Of these, 372,634 acres were in cropland. There were 203 farms with cattle, 144 with hogs, and 44 with sheep.

## A.2 Plan Information

The Jackson County Board of Commissioners adopted a resolution in August 1987 to enter into a Joint Powers Agreement with twelve other counties, to develop a county comprehensive water plan according to Minnesota Statutes in effect at that time. Following two public meetings to explain the process, a survey was sent to 1100 county residents. A workshop in July 1988 reviewed results of the survey and developed 25 issues, which were then discussed by the Water Planning Committee during 11 work sessions in 1989. The first water plan was approved by the Minnesota Board of Water and Soil Resources (BWSR) on 28 November 1990, and adopted by the County Board on 10 December 1990.

The second edition of Jackson County's water plan, now in effect, was approved by BWSR on 7 January 1998, and adopted by the County Board on 9 March 1998. This plan expires on 31 December 2007. The Jackson County Board of Commissioners adopted a resolution on 26 September 2006 to revise the current plan, according to Minnesota Statutes now in effect.

Jackson County Planning and Environmental Services is responsible for local water management in Jackson County, including facilitation of public input and convening the Jackson County Local Water Management Task Force. Jackson County has retained the Southwest Regional Development Commission to assist with writing the Plan update. Task Force membership currently includes:

### **Local Water Management Task Force Members**

---

- Steve Anderson, Dickinson (Iowa) Clean Water Alliance
- Steve Beckel, Water Superintendent, City of Jackson
- Karen Boysen, Des Moines River Clean Water Partnership
- Ed Eigenberg, Mayor, City of Wilder
- Jason Espenson, Co-Chair, Fish Lake Association
- Robert Ferguson, Jackson County Commissioner
- Larry G. Hansen, Board Member, Jackson County SWCD
- Larry Liepold, Jackson County Pork Producers
- Joel Poppe, Jackson County NRCS
- David Pribyl, Jackson County Conservation League
- Kelly Rasche, City Administrator, City of Lakefield
- Craig Rubis, Jackson County Commissioner
- Tom Timko, Jackson County Planning Commission
- Jan Voit, Administrator, Heron Lake Watershed District
- Ben Crowell, Jackson County Planning and Environmental Services
- Brian Nyborg, Manager, Jackson SWCD
- Gordon Olson, Director, Jackson County Planning and Environmental Services

## B. LIST OF PRIORITY CONCERNS

The *Jackson County Local Water Management Plan* to be developed in 2007 will cover ten years, with a 5-year implementation schedule. The Plan will address the following priority concerns.

### B.1 Summary of Priority Concerns:

These concerns were considered to be priorities for local water management in Jackson County. A general concern for intergovernmental and inter-basin cooperation was prevalent throughout the discussion.

#### 1. Prevent Soil Erosion

- Hold water on the landscape
- Perennial cover, buffers and conservation tillage
- Construction impacts  
⇒ *Highly-erodible land and shoreland areas*

#### 2. Feedlots & ISTS (Individual Septic Treatment Systems)

- Nutrient management
- Feedlot inventory and registration
- Appropriate technology for ISTS and community sewer systems
- ISTS compliance with regulations  
⇒ *Shoreland and un-sewered communities*

#### 3. Drainage Management

- Restoring natural hydrograph (flows)
- Structures and technology
- Wetland restoration
- Quantity and quality of water in the drainage system  
⇒ *Heron Lake watershed and Des Moines River above Jackson Dam*

#### 4. Improve Surface Water Quality

- Stream bank and lakeshore development
- Impervious surface areas
- Flooding
- Impaired Waters  
⇒ *Shoreland areas and TMDL-listed waters*

#### 5. Protect Groundwater

- Wellhead protection and aquifer recharge
- Abandoned wells
- Long-term water supply  
⇒ *DWSMAs and areas not currently served by public/community systems*

## C. PRIORITY CONCERN IDENTIFICATION

### C.1 Public and Internal Forums

- 4/11/2006 Jackson County Board of Commissioners contracts with Southwest Regional Development Commission (SRDC) for technical assistance to update the Jackson County Water Plan.
- 9/26/2006 Jackson County Board of Commissioners approves resolution of intent to revise and update the local water management plan.
- 11/08/2006 Notice of Decision to Revise and Update the Local Water Management Plan provided by email and/or postal service to local units of government, organizations and responsible agencies as suggested and required.
- 11/14/2006 Jackson County Water Planner and SRDC Development Planner meet with BWSR field rep to discuss PCSD work plan.
- 12/15/2006 Requested date for priority concerns, comments and information to be returned to Jackson County Planning & Environmental Services Office.
- 1/18/2007 Meeting Notice published as display ad in *Jackson County Pilot*.
- 1/25/2007 Local Water Management Plan Update Information Meeting held in the evening with Task Force as public hearing on priority water management concerns for Jackson County, at the Jackson County Resource Center in Jackson, Minnesota. 17 in attendance (see below).
- 2/16/2007 KDOM-AM/FM interview with Southwest Regional Development Commission Development Planner, discussing water plan updates.
- 3/05/2007 Continuation of Local Water Management Plan Update Information Meeting with Task Force and staff held at Jackson Pizza Ranch. 20 in attendance (see below).

### C.2 Summary of Comments Received

The Jackson Soil and Water Conservation District provided their annual workplan to inform the water planning process. The Heron Lake Watershed District also provided their Rules and Regulations (2005). No other plans or controls were received from any state or local agencies. Jackson County Planning & Environmental Services administers the *Jackson County Development Code* (zoning ordinances), and has found no conflicts with other plans currently in place.

The following comments were received prior to the initial Task Force meeting:

Board of Water and Soil Resources (BWSR)-

- Erosion / Nutrient Management
- Lake protection from development and agricultural land use
  - ⇒ Heron, Fish, Loon, Iowa Great Lakes
- Feedlot Management / Nonconforming ISTS (Individual Septic Treatment Systems)
- Drainage Management / Wetland Enhancement and Restoration.

MDA-

- Conservation Tillage and Drainage – soil erosion, TMDLs
- Manure Management and ISTS
  - ⇒ Lakeshore and unincorporated communities
- Pesticide and nutrient impacts to shallow groundwater in sensitive areas
  - ⇒ alluvial or outwash sand along rivers / areas adjacent to Des Moines River

- Pesticide and nutrient impacts to surface water

#### DNR-

- Holding Water on the Landscape – hydrograph restoration
- Buffers on Ditches, Streams and Rivers
  - ⇒ Native vegetation in riparian corridors
- Fish Passage
- River and Stream Channel Restoration
- Ag BMPs — Agricultural Best Management Practices
- Ethanol Plant Impacts — groundwater consumption

#### EQB-

- Ground Water Contamination Susceptibility
- TMDL Impaired Waters
- Population growth
- Ground Water Availability

#### MDH-

- Proper sealing of unused or abandoned wells
- Ground Water Protection
- Inventory of Wells
  - ⇒ Areas close to a public water supply well

#### MPCA-

- Impaired Waters / Total Maximum Daily Loads (TMDLS)
- Feedlots
  - ⇒ Sensitive groundwater areas, shoreland, county ditches, DWSMAs
- Nonconforming ISTS (Individual Septic Treatment Systems)
- Stormwater

#### City of Alpha

- Drainage north on Main/CR #45
- South end of Alpha – drainage ditch

#### Hunter Township

- No concerns

#### Round Lake Township

- Hog Confinement Buildings
  - ⇒ >3 confinement buildings per 160 acres

#### West Heron Lake Township

- Watershed’s Control of Water Level

- Tile replacement
- Rural Septic
- Water from outside the county

#### Jackson SWCD

- Water Quantity
- Water Quality

#### Martin SWCD

- Impaired Waters / Total Maximum Daily Loads (TMDLS)
- Wetland Protection / Restoration
- Low Impact Development (LID)
- Drainage System Management
  - ⇒ East and West Fork Des Moines River

#### Nobles County

- ISTS (Individual Septic Treatment Systems)
- Feedlots
- Community ISTS
- Wellhead Protection

### C.3 Summary of Task Force Proceedings.

January 25, 2007  
Water Plan Update Information Meeting

#### Attendees

Name	Organization
Deloris Kruger	Round Lake Township
Clifford Hamann	Round Lake Township
John Shepard	SRDC
Loren Tusa	County Commissioner
Steve Beckel	City of Jackson
Brian Nyborg	Jackson SWCD
Chris Bauer	Heron Lake Watershed/SWCD
Larry Liepold	Pork/Ag Producers
Tabor Hoek	BWSR
David Fisher	Sioux Valley Township
Gordon Fisher	Sioux Valley Township
Don Majerus	Sioux Valley
Roger Ringkob	County Commissioner/City of Jackson
Craig Rubis	County Commissioner
Ben Crowell	Jackson County Environmental Services Officer
Gordon Olson	Director, Jackson Co. Planning & Env. Serv.
Karen Pressley	Jackson County, Adm. Secretary

Gordon Olson explained to the audience the purpose of this meeting is to plan for updating the current Water Plan which was developed in 1987, revised in 1997 and is now ready for the 3<sup>rd</sup> revision.

John Shepard stated that the old plan has a lot of good background information, but we should narrow down the priorities and come back with approximately five good priorities and stick with them. John stated the plan should be focused on achievable goals and measurable results.

John then went over the priority concerns that Jackson County received back. The summary of those concerns was provided.

Each member present then stated what their individual concern was:

Chris Bauer – HLWSD/SWCD

- Water quantity – too much water - more soil loss issues
- Working land – work on erosion issues; keep soil where it belongs
- Land retirement – CRP, CREP & RIM
- Tools are not as effective
- Landowners are not wanting to retire crop land
- SWCD saw a 70% re-enrollment in CRP

Steve Bekcel – City of Jackson

- Wastewater & infrastructure; causing problems with discharge
- Inter-connect with Red Rock Rural Water
- Aging infrastructures

Gordon Olson asked Steve if he knew how many septic systems were in the City limits and Steve responded that quite a few have been eliminated or redone and some are still in the planning stage.

Loren Tusa – County Commissioner

- TMDL
- Economic development
- Jackson dam
- Ag processing – water quality & quantity
- Buffer strips – concentrate on phosphorus and potash

Larry Liepold – Pork producers/Ag producers

- Balance between industry/agriculture/residential
- Conservation so livestock production can grow
- West Heron Lake township is constantly wet
- Age of tile system – modernizing ag tile (flow rate)

Clifford Hamann – Round Lake Township

- Saturation of feedlots

Gordon Fisher – Sioux Valley Township

- Manure management
- Streams
- Erosion
- DNR/FWS need to explain their restoration projects
- Protected waters
- Public land use; golf course/residential fertilizer applications

Craig Rubis – Commissioner

- Surface water
- Erosion

Roger Ringkob – Commissioner

- Des Moines River quality

Ben Crowell – Jackson County Feedlot Officer

- Open lot runoff
- Feedlot runoff
- Nutrient management
- Proceed with feedlot inventory from Level II to III (check for pollution hazards and prioritize and receive cost share dollars).

Gordon Olson – Director, Jackson County Planning & Env. Services

- Seeing trends
- Pattern tile drainage
- Change of hydrograph
- Control drainage
- Age of tiles and ditches
- Ditch mapping
- TMDL
- Water quantity

After this discussion, John Shepard suggested that we review these concerns and come back with a clarified list. It was agreed that this committee will meet again on March 5, 2007, at 10:00 a.m.

March 5, 2007  
Water Plan Update Meeting  
Minutes

Attendees

Name	Representing
Joel Poppe	Jackson County NRCS
Ed Eigenberg	City of Wilder
Jason Espenson	Fish Lake
Craig Rubis	Commissioners
Ben Crowell	Jackson Co. Planning & Env. Services
Robert Nielson	Middletown Township
Bill Roder	Middletown Township
Ken Lucht	Middletown Township
Dave Pribyl	Jackson County Conservation League
Stephen Beckel	City of Jackson
Steve Anderson	Dickinson County Clean Water Alliance
Cliff Hamann	Round Lake Township
Joel Wiese	Round Lake Township
Delores Kruger	Round Lake Township
Jan Voit	Heron Lake Watershed District
Larry Liepold	Ag – Jackson County Pork Producers
John Shepard	SRDC
Brian Nybord	Jackson County SWCD
Gordon Olson	Director, Jackson Co. Planning & Env. Ser.
Karen Pressley	Jackson County, Adm. Secretary

Gordon Olson gave a brief background of the current water plan: We currently work from the second water plan that was written in 1997 and will expire at the end of 2007. The new plan will focus on items that can be accomplished, therefore it will be a much smaller document.

Gordon also covered some the funding that is covered through the current water plan from the Natural Resources Block Grant: ISTS loan program; Abandoned well cost share program; AgBMP program; surface water sampling and other miscellaneous education programs.

John Shepard gave a brief synopsis on how the process started. Jackson County has asked the SRDC to be the technical writer of the plan. This new process will develop an achievable plan that will have three to five priority concerns. After the last meeting we ended with nine categories and they need to be narrowed down. Each of the categories were presented and discussed. A summary of those categories is below.

Each category was discussed, with opportunity for those in attendance to comment. Issues were grouped into five broad categories. No obvious areas for geographic focus were determined. Each issue had area where work most needed to be done. John and Gordy would work on the language and revise the five categories to draft the Priority Concerns document for BWSR.

Jackson County Local Water Management Plan Update -- Summary of Priority Concerns submitted through February 2007

	BWSR	MDA	DNR	EQB	MDH	MPCA	SWCD	Martin Co. SWCD	Nobles County	Alpha	Round Lake Twp	West Heron Lake Twp
<b>SOIL EROSION</b>	Soil Erosion and Nutrient Management. Residue Mgmt. Transect Surveys Buffers Nutrient Mgmt.	Conservation Tillage	Create & Promote buffers on ditches, streams and rivers.  Promote Ag BMP's				Water Quantity as it relates to erosion control and drainage.  Perennial Covers.	Wetland Protection and Restoration.				Water coming from outside the county, i.e. Lewis and Clark will add to the problem of excess water.
<b>DEVELOPMENT</b>	Development of Lakeshore Priority Lakes Ordinance Update ISTS, Feedlots, Buffers							Low Impact Development through a Land Use Ordinance.				
<b>FEEDLOTS/ISTS</b>	Feedlot Program and ISTS Program Non-Compliance Prioritize	Manure Mgmt. and ISTS Non- Compliance. Nutrient and Manure Management Plans.				Feedlots, Manure Management  ISTS and Unsewered Areas		ISTS & Feedlot Issues.  Unsewered Area's  Cost Share Needed.			Swine Confinements and the proper handling of waste.  Density Issues.	Rural Septic Systems need to be upgraded.
<b>AG DRAINAGE SYSTEM</b>	Drainage Mgmt.  Update drainage maps etc. Utilize the drained wetland inventory.	Drainage Mgmt.  Protection of Shallow Ground Water.  Monitor existing groundwater.	Wetland Restoration to slow water movement. Mitigate drainage impacts.					Drainage System Management.  Controlled Drainage and BMP's.		Drainage Issues.  Flooded Basements.		Drainage System.  Aging Public Drainage System.
<b>GROUNDWATER QUALITY</b>				Groundwater Contamination.  Reduce Risks	Groundwater Protection  Seal Abandoned Wells. Groundwater protection through land use. Well inventory.				Wellhead Protection.  Protection of Source Water.			
<b>SURFACE WATER ISSUES</b>		Surface Water impacted by pesticides and nutrients. Sample those waters.	Impaired Waters Issues.			Impaired Water Issues	Surface Water Quality.	Impaired Waters.				Control of Surface Water Levels.
<b>AQUATIC LIFE</b>			Fish Passage- eliminate unnentional barriers.									
<b>RIVER AND STREAM CHANNELS</b>			River and Stream Channel Restoration.									
<b>GROUNDWATER QUANTITY</b>			Groundwater Quantity- Relates to ag processing plants such as ethanol.	Groundwater Availability Issues.								

# Jackson County Water Plan 5 Year Scoping Document Review Survey-RESULTS

Check (X) up to four in each Priority Concern

**Priority Concern 1. Improve Surface Water Quality**

- TMDL Impaired Waters
- 3 Water quantity – too much water - more soil loss issues
- Land retirement – CRP, CREP & RIM
- 4 Buffer strips – concentrate on phosphorus and potash
- Streams
- Lakes
- 2 Water Quality
- 1 Working land – work on erosion issues; keep soil where it belongs
- Pesticide and nutrient impacts to surface water

**Priority Concern 2. Feedlots and Septics**

- 1 Feedlot runoff
- 3 Nutrient management
- Proceed with feedlot inventory from Level II to III
- Conservation so livestock production can grow
- Saturation of feedlots
- 1 Manure management
- Rural Septic
- 4 ISTS (Individual Septic Treatment Systems)
- Community ISTS

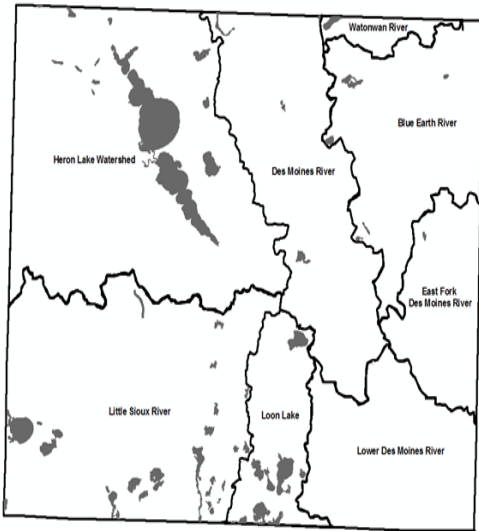
**Priority Concern 3. Drainage Management**

- Pattern tile drainage
- Change of hydrograph
- Ditch mapping
- 1 Water quantity
- 2 Age of tile system – modernizing ag tile (flow rate)
- 3 Wetland Protection / Restoration
- Drainage System Management
- 3 Holding Water on the Landscape – hydrograph restoration

**Priority Concern 4. Ground Water**

- Ag processing – water quality & quantity
- 4 Proper sealing of unused or abandoned wells
- 1 Ground Water Protection
- Inventory of Wells
- Areas close to a public water supply well
- 3 Ground Water Availability
- 2 Ground Water Contamination Susceptibility

**Other- Not Listed**



Priority Watersheds-Rank in order of priority (1-Highest Priority-8-Lowest Priority)

- 2 Heron Lake Watershed
- 1 Des Moines River
- 8 Watwan River
- 7 Blue Earth River
- 4 East Fork Des Moines River
- 3 Lower Des Moines
- 5 Loon Lake
- 6 Little Sioux River

RETURN TO: JACKSON SWCD – THANK YOU!

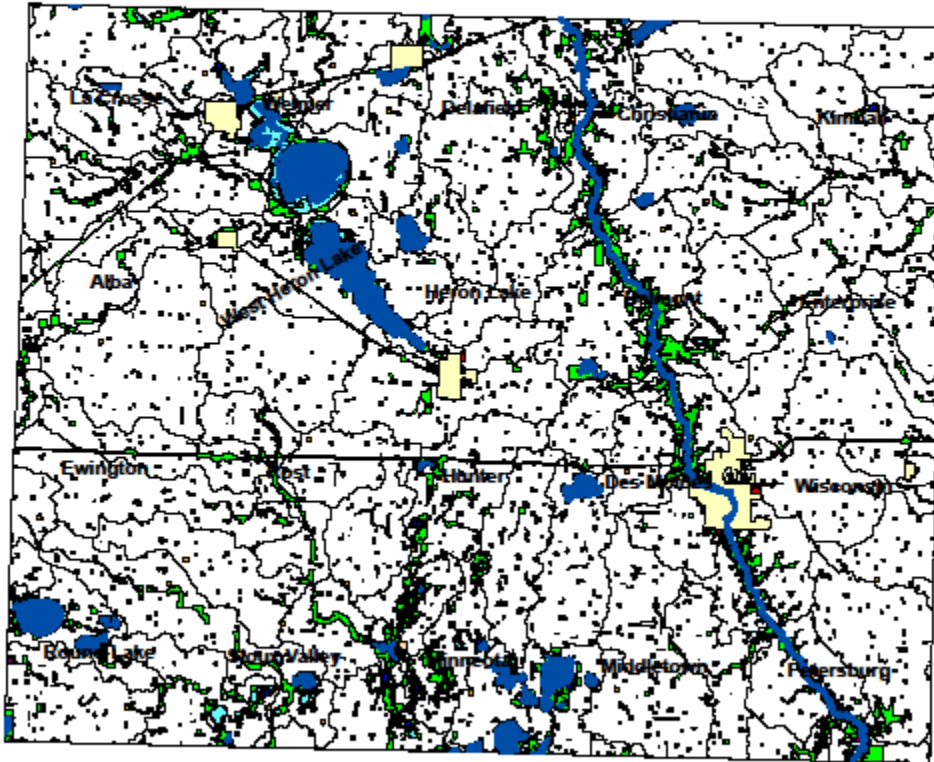
#### **D. PRIORITY CONCERN SELECTION**

The Priority Concerns listed above (Section B) were selected by the Local Water Management Plan Task Force members after reviewing the concerns submitted by state and local agencies and the public. Letters were presented at the public input meeting and discussed. Staff then reviewed and refined focused Priority Concerns for Task Force consideration. After further discussion, the Task Force members selected the Priority Concerns by consensus.

#### **E. PRIORITY CONCERNS NOT ADDRESSED BY THE PLAN**

The Jackson County Local Water Management Plan Task Force carefully considered all concerns submitted, as well as concerns of individual members representing a diverse constituency in the County. Concerns beyond the specific focus of the Priority Concerns listed above are typically beyond the scope of local water management, or are currently or potentially being addressed by other entities which work closely with the Jackson County Planning & Environmental Services Office.

# Jackson County Landuse 2000



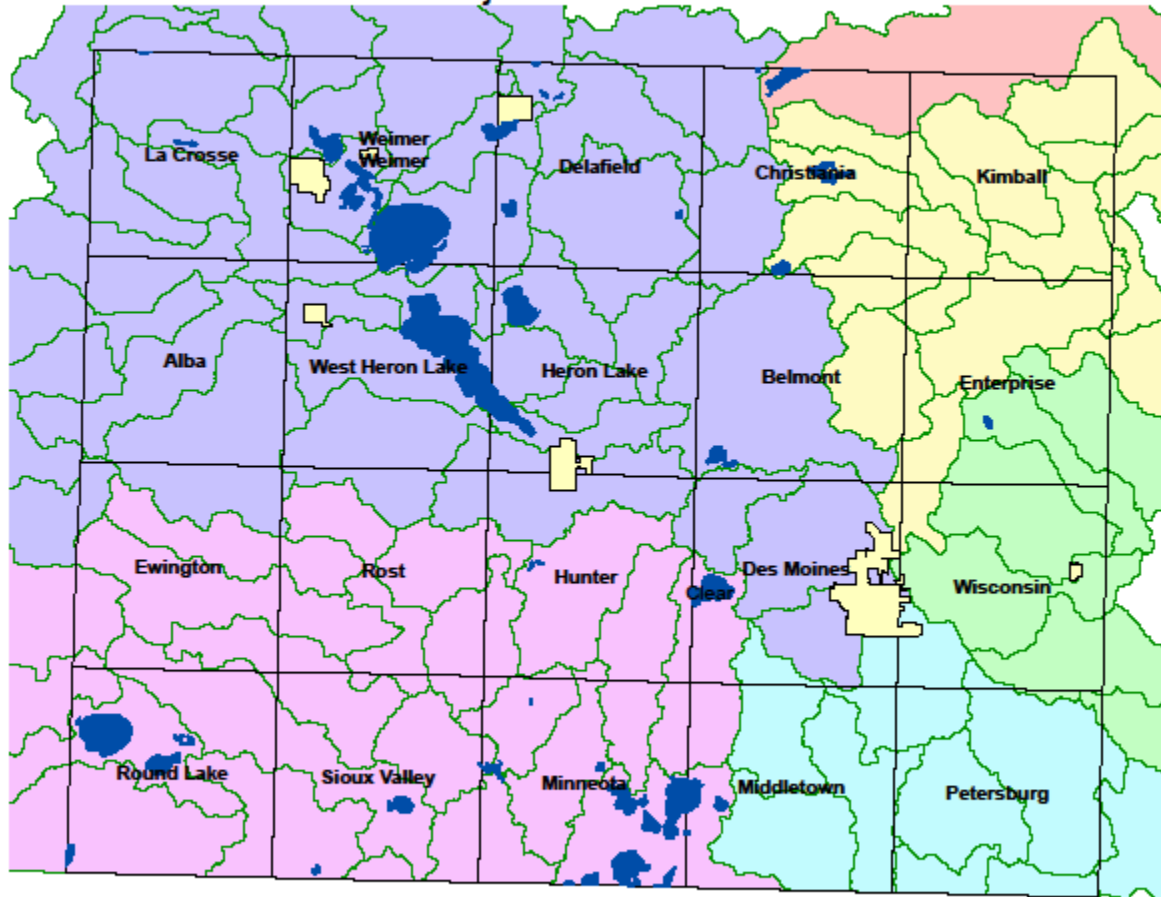
- Legend**
- Clinch River
  - County Lakes
  - Cities
  - Landuse**
  - Coniferous Forest
  - Cultivated Land
  - Deciduous Forest
  - Exposed Soil, Sandbars and Sand Dunes
  - Farmlands and Rural Residences
  - Grassland
  - Grassland-Strub-Twe (Sedulous)
  - Gravel Pits and Open Mines
  - Other Rural Developments
  - Outside state or outside county
  - Rural Residential Development Complex
  - Transitional Agricultural Land
  - Urban and Industrial
  - Water
  - Wetlands
  - Township

Data UMN

10/16/07



## Jackson County Major and Minor Watersheds



### Legend

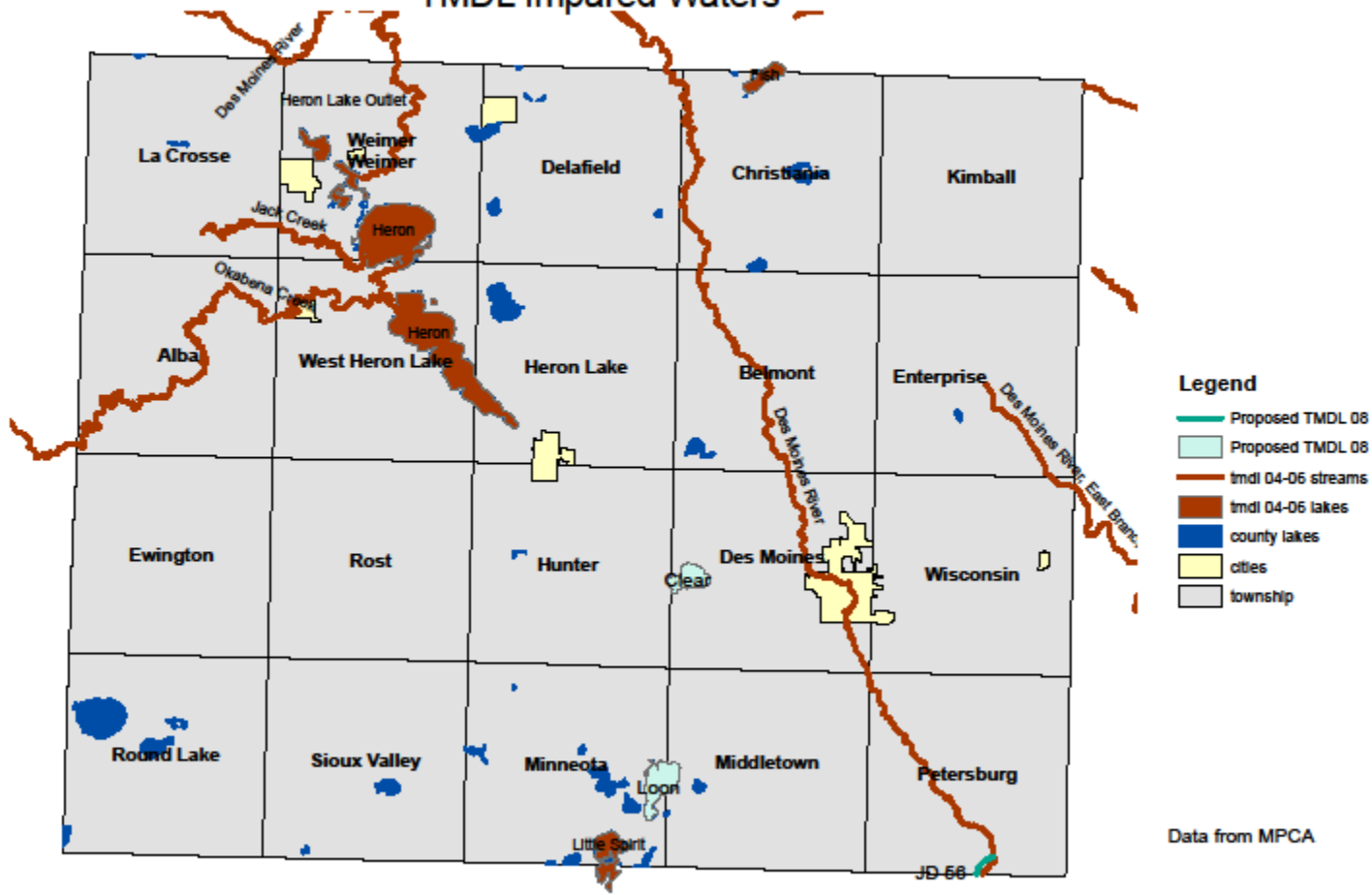
- county lakes
- cities
- township
- Blue Earth River
- East Fork Des Moines River
- Little Sioux River
- Lower W Fork Des Moines River
- Watonwan River
- West Fork Des Moines River
- msheda

Data from MSU

10/16/07



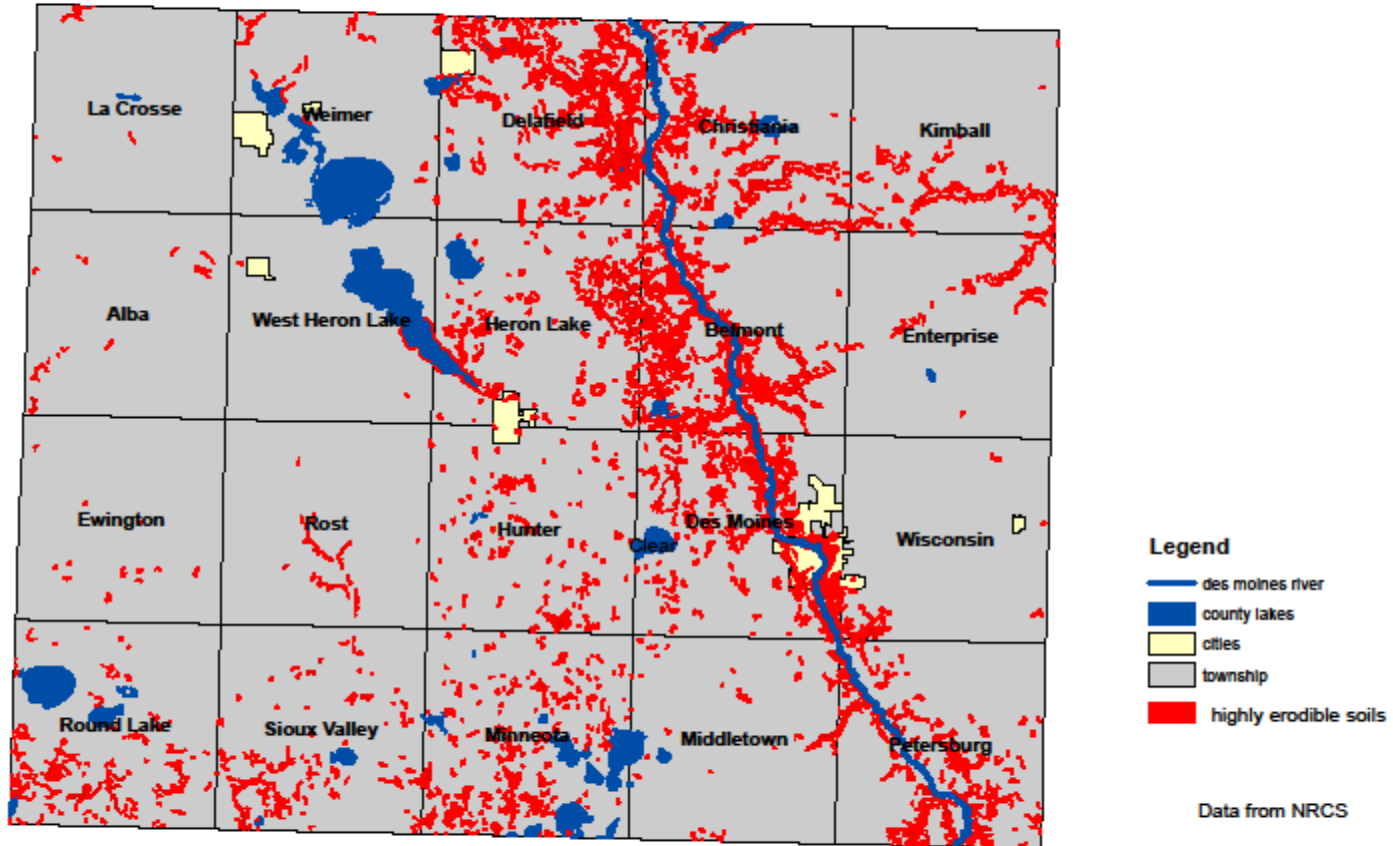
# Jackson County TMDL Impaired Waters



10/16/07



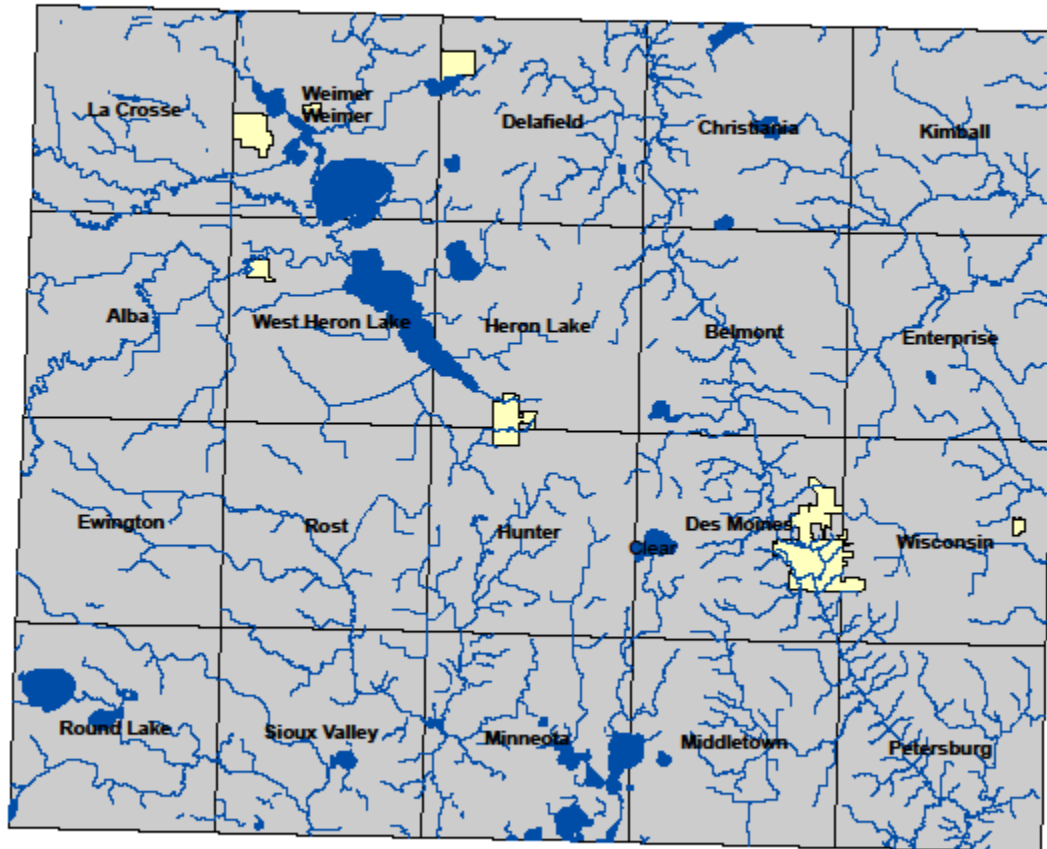
# Jackson County Highly Erodible Soils



10/16/07



# Jackson County Shoreland, Lakes & Streams



**Legend**

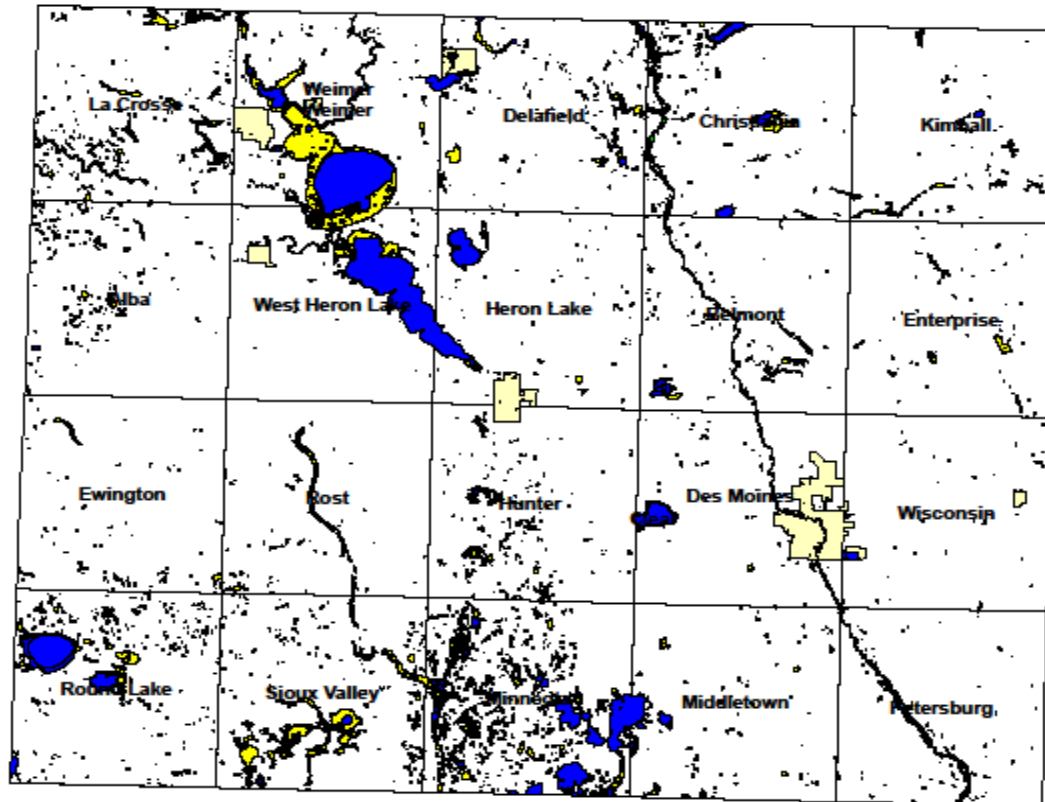
- county lakes
- cities
- township

Data from MSU

10/16/07



# Jackson County National Wetland Inventory



- Legend**
- cities
  - township
  - EMERGENT
  - FORESTED
  - OPEN WATER
  - RIVERINE
  - SCRUB-SHRUB
  - UPLAND

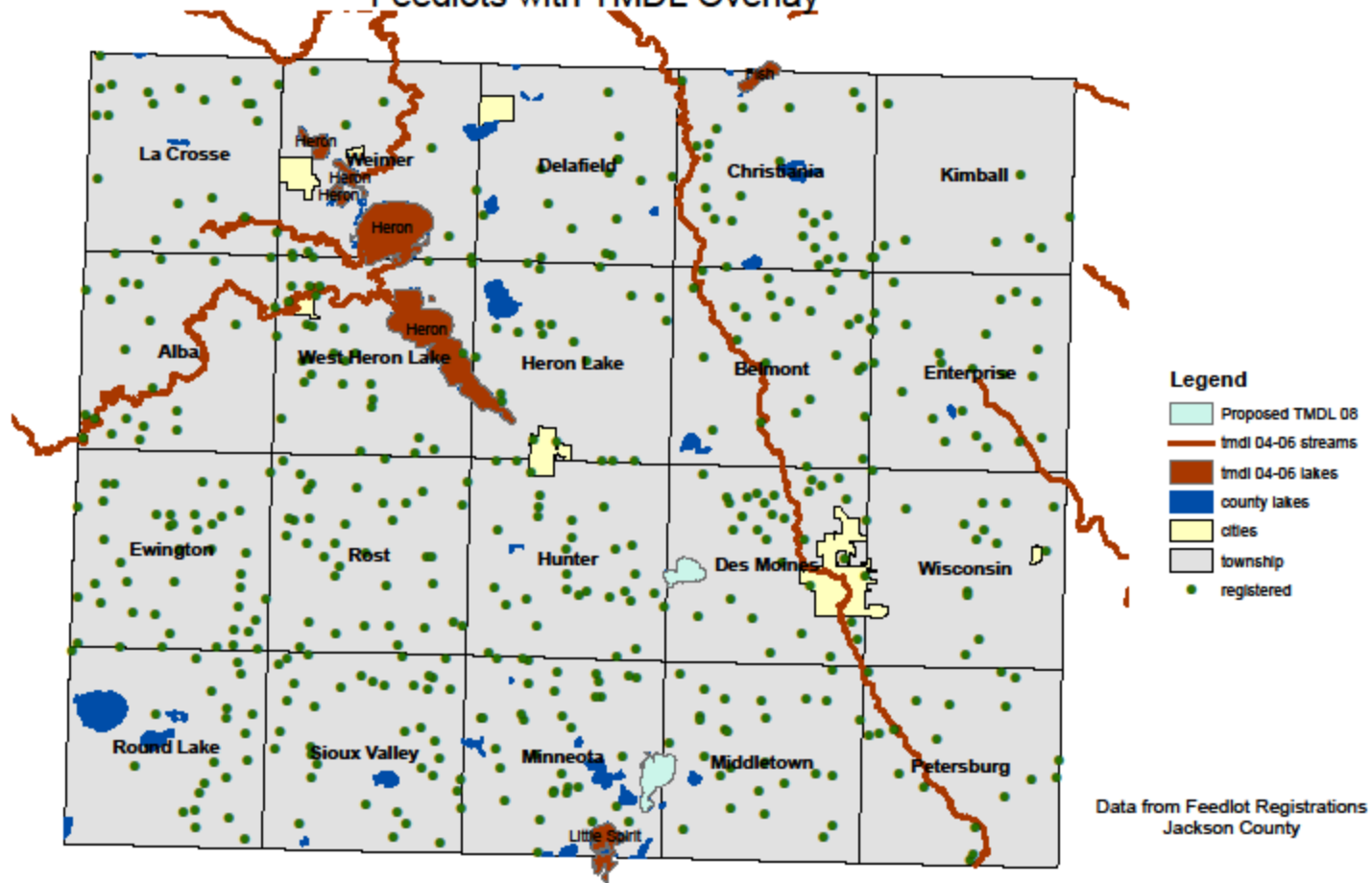
Data from MSU

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## Jackson County Feedlots with TMDL Overlay

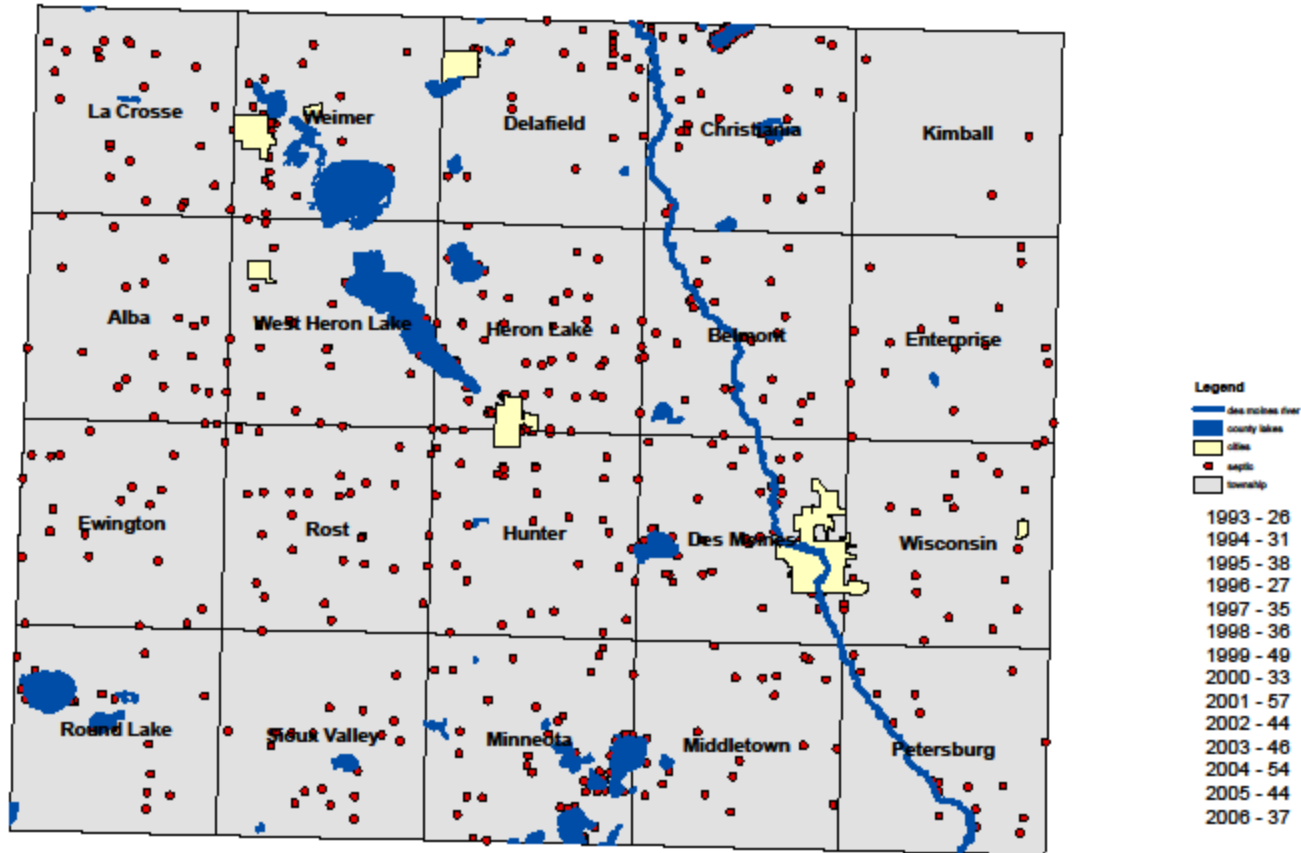


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## Jackson County New Septic Systems 1993-2006

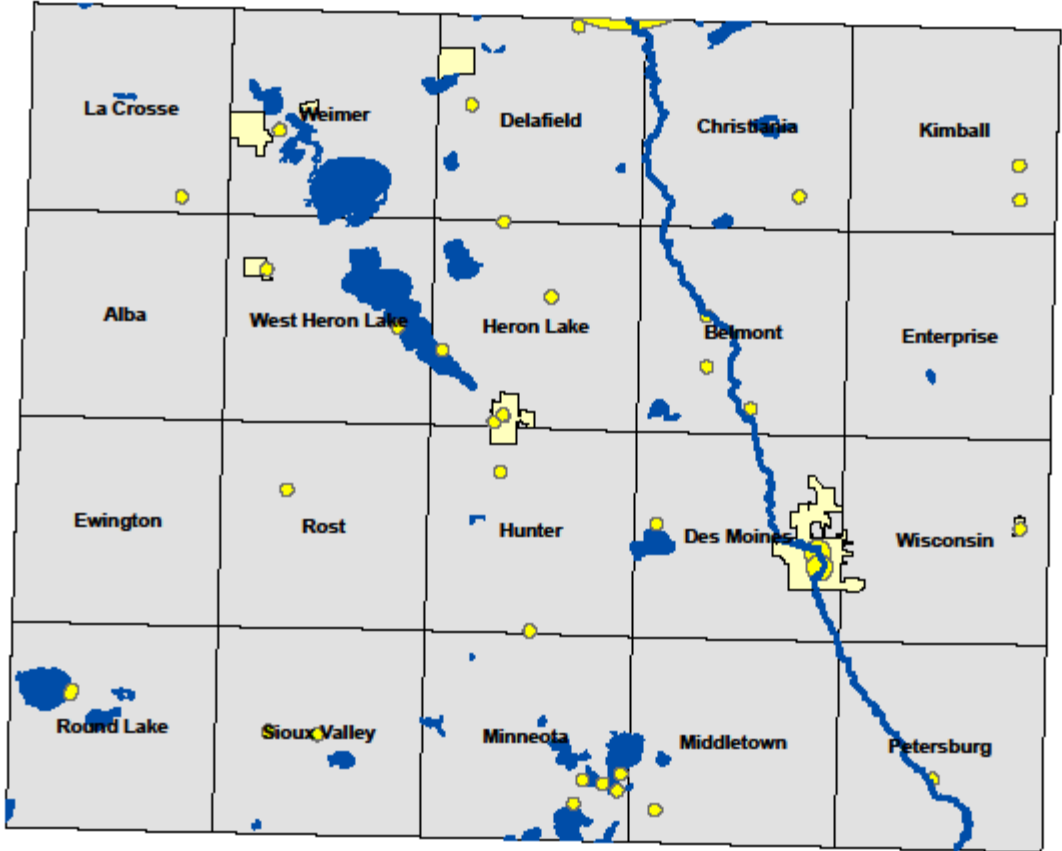


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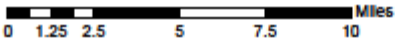
# Jackson County Public Water Supply Wells



- Legend**
- Des Moines River
  - Public Water Supplies
  - county lakes
  - cities
  - township
  - 2,500' buffer
  - 1000' buffer

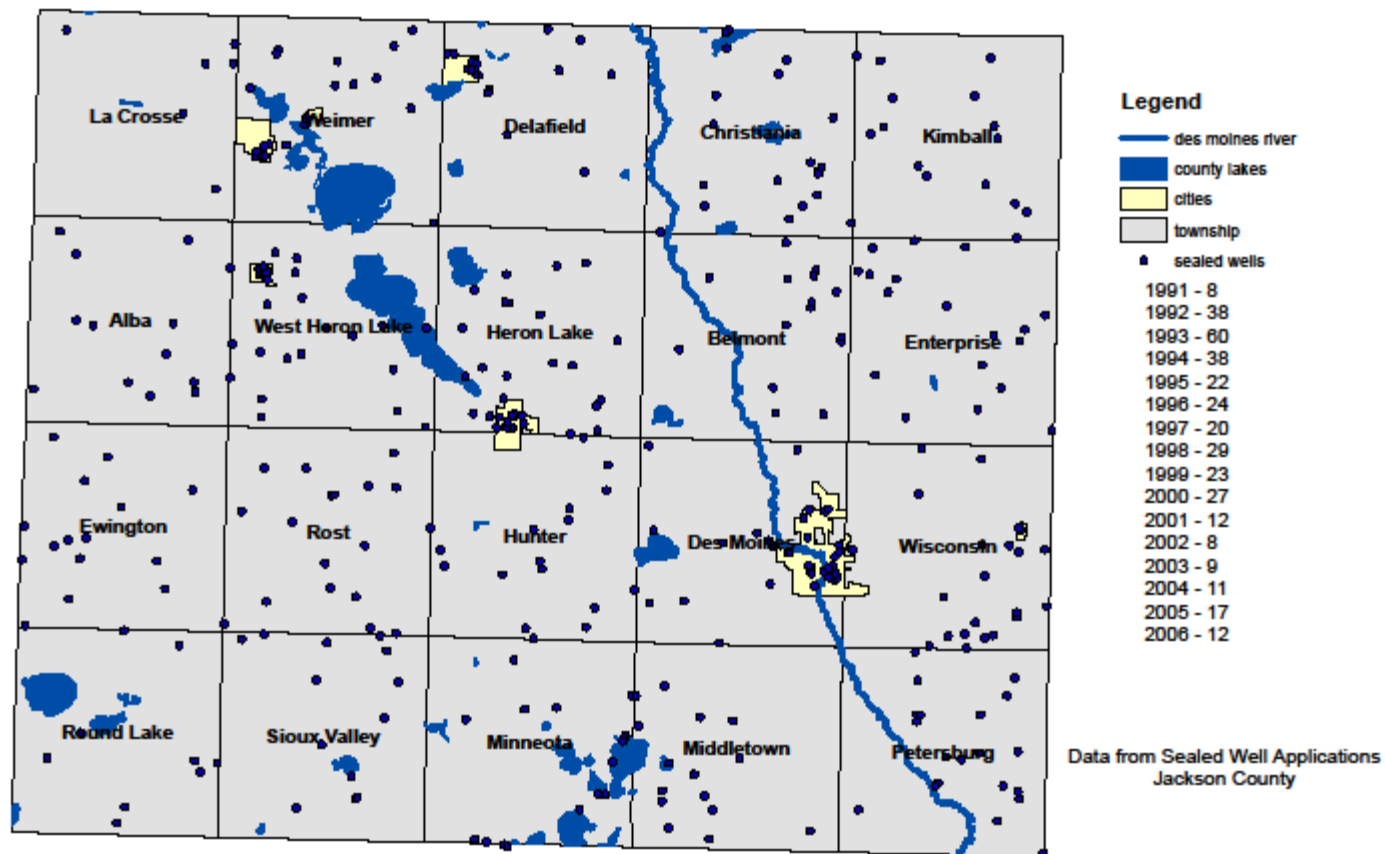
Data MDH

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## Jackson County Sealed Wells 1991-2006

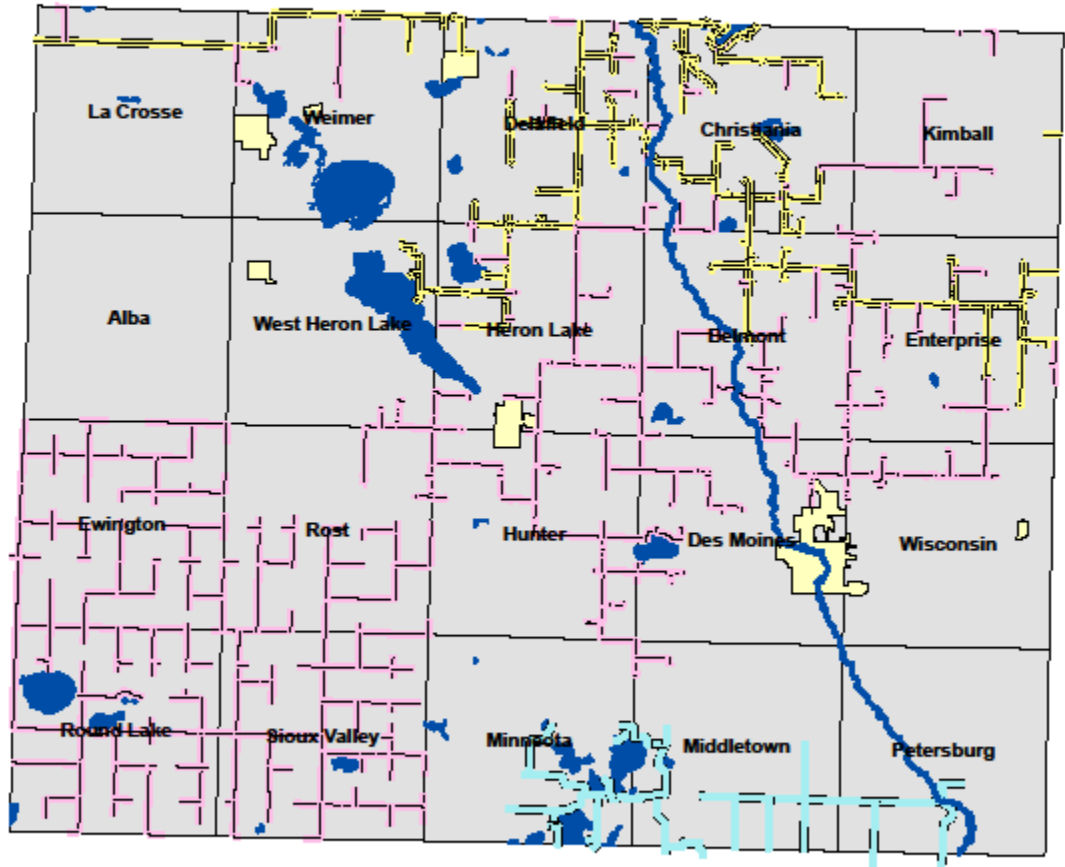


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# Jackson County Rural Water Lines



- Legend**
- Des Moines River
  - Iowa Lakes Regional Water
  - Red Rock Rural Water Status as of 2006
  - Existing
  - Proposed
  - county lakes
  - cities
  - township

Data MDH

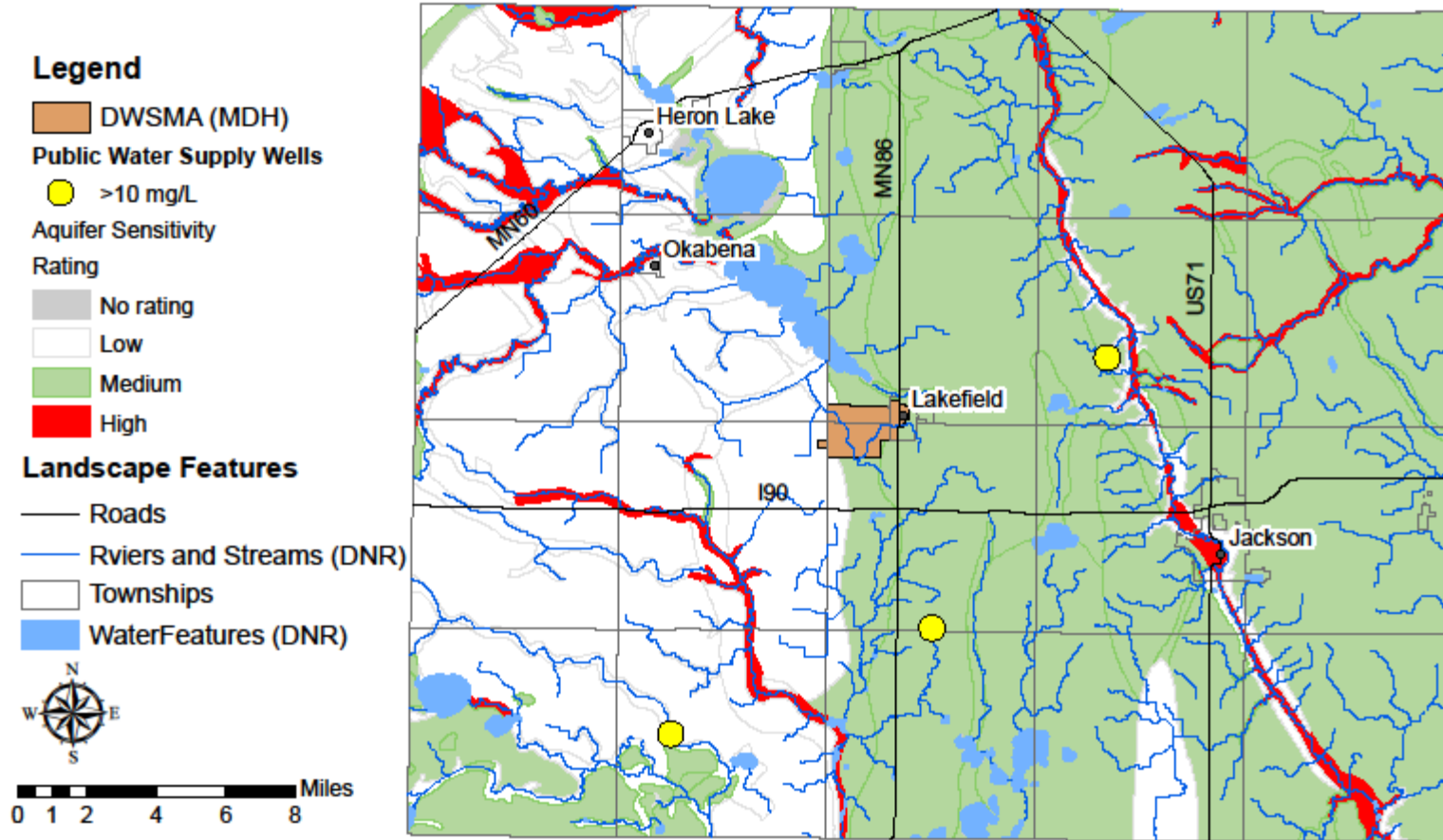
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# JACKSON COUNTY WATER TABLE AQUIFER SENSITIVITY

Surficial Aquifer Vulnerability based on Sediment Association of Minnesota Geomorphology, (DNR 1997)



Prepared by the Minnesota Department of Agriculture October 2012



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