

# Redwood River Watershed: Water Plans

The Redwood River Watershed encompasses Lincoln, Lyon, Murray, Pipestone, Redwood, and Yellow Medicine Counties. Each county has developed a 10-year rotating comprehensive local water management plan (LWMP) in order to improve water quality within Minnesota. The water plans are comprised of a set of concerns the counties have described as a priority, along with how they intend to effectively manage them.

This document contains two parts: (1) A comparison of management goals from each county (2) a summary of all county water plans in the watershed including priority concerns, goals and objectives, and actions related to nutrient management.

## Water Plans:

Lincoln County LWMP 2004-2014 amended 2009

Lyon County LWMP 2007-2017 amended 2011

Murray County LWMP 2007-2017 amended 2012

Pipestone County LWMP 2004-2014 amended 2009

Redwood County LWMP 2005-2015 amended 2010

Yellow Medicine County LWMP 2005-2015 amended 2010

# Water Plan Evaluation

Concern	Lincoln	Lyon	Murray	Pipestone	Redwood	Yellow Medicine
Conservation BMPs						
Education						
Feedlot Compliance						
Groundwater						
Erosion Control						
Sediment						
SSTS/ISTS						
Surface Water						
Technical/Financial Assistance						
TMDL - Impaired Water						
Wellhead Protection						
Wetlands						
Coordination/Partnership						
Monitoring						
Priority Pollutants						
Shoreland Management						
Watershed-based Approach						
Drainage Management						
Seek Funding						
Water Retention						
Abandoned Wells						
Development Concerns						
Nonpoint Source Pollution						
Nutrient Management						
Point Source Pollution						
Stormwater Management						
Lake Management Plan						
Municipal Wastewater						



Concerns addressed in County Water Plan associated with nutrient issues

Strong ongoing activities implemented in programs outside of the County Water Plan

# Lincoln County LWMP 2004-2014 amended 2009

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Priority Concern: Groundwater protection for the Verdi Well Field

**Goal: Protect the public water supply from potential contaminant sources due to land use activities; and establish and maintain a Wellhead Protection Plan (WHP) continuing public education and information program**

Objective: Encourage property owners to adopt tillage, chemical and nutrient BMPs for cropland within the Drinking Water Supply Management Area (DWSMA).

Actions:

- Continue to work with current feedlot owners/operators in the DWSMA area and contact any potential new operators to discuss feedlot operations. Develop an understanding of local drinking water issues and the benefits of implementing the wellhead protection plan.
- Encourage the development and adoption of tillage, pesticide and nutrient management plans on cropland within the DWSMA to reduce potential for contaminants entering the aquifer. LPRW will cost share with other local agencies for nutrient soil testing as a component of nutrient management plans. Through this process the application of commercial fertilizer will be applied at recommended agronomic rates and nitrogen management plans are implemented from cropland in the DWSMA.
- As a pilot project in the DWSMA, encourage a landowner to implement a drainage water management project (NRCS) using the new approach to controlled drainage to reduce the impacts of nitrate-nitrogen on both groundwater and surface waters and to reduce flooding potential.

Objective: Continue to upgrade septic systems in the DWSMA and encourage closing of abandoned wells.

Actions:

- Conduct inspections of septic systems in the DWSMA and implement full compliance with state and county SSTs requirements within the DWSMA to prevent the contamination of the water supply in the DWSMA by non-complying septic systems. Continue to upgrade 5 non-complying systems per year in the DWSMA.
- Provide cost-share assistance to landowners in the Verdi DWSMA and the entire Big Sioux Watershed to properly seal their abandoned wells. The Verdi DWSMA is a high priority for well sealing and sealing as funds allow.

Objective: Inventory and prioritize areas within the DWSMA for adoption of set-aside and buffer easement programs.

Actions:

- Continue to work with property owners in the DWSMA to encourage enrollment in easement and cost-share programs such as CRP/CCRP, RIM, WRP, WHIP and adoption of buffer strips. Increase the number of acres of easement programs by 10 acres per year. LPRW will offer a \$15/acre incentive for land enrolled in the CRP in those areas identified as “high priority” in the Verdi Wellhead Protection Area (WHP).
- Increase conservation tillage practices in the DWSMA, reducing sedimentation in the surface waters recharging the ground water. Promote Ag BMP Loans for upgrading conservation tillage equipment to reduce erosion and runoff by targeting one landowner per year or as loan funds permit.

Objective: Protect the groundwater and the drinking water sources for the Verdi Well Field.

Actions:

- Pursue grant funds through the Clean Water, Land and Legacy Amendment for protection of the Verdi Well Field groundwater and drinking water sources.
- Lincoln-Pipestone Rural Water will be in contact with DNR annually (February) to review water appropriations. The LPRW will be in continuous contact with the DNR to find other water sources and any other concerns they have throughout the year.
- Educate and provide information to land owners/operators on the importance of protecting groundwater from pesticides, nutrients, etc. by providing information on:
  - Proper usage and rates of pesticides/herbicides through the Minnesota Department of Ag (MDA) product use requirements;
  - Sealing abandoned wells and septic system upgrades;
  - Feedlot pollution reduction, and the importance of proper manure management;
  - CRP/CCRP, RIM, WRP, WHIP and adoption of buffer strips; and
  - Conservation tillage, pesticide and nutrient management plans.
- This will be done through the SWCD fair booth and web site, newsletters/releases, and individual contacts.

Priority Concern: Surface Water Quality Deterioration focusing on MPCAs list of TMDLs and Impaired waters. TMDL-South Branch, Yellow Medicine River for Fecal Coliform. Impaired waters include various river reaches listed on Pages 2-3 and the following Lakes: Dead Coon, Benton, Perch, Shaokatan and Hendricks. TMDLs underway: Lac qui Parle River-Yellow Bank-Bacteria,

Turbidity, and Low Dissolved Oxygen; Lake Shaotakan-Excess Nutrients; Redwood River-Fecal Coliform and Turbidity; and Minnesota River-Turbidity.

**Goal: To restore, protect and improve the deterioration of surface water quality entering Lincoln County's lakes, rivers, and streams**

Objective: Protect surface water quality from contamination caused by point and non-point source pollution and properly treat both human and animal waste.

Actions:

- Bring into compliance approximately 30-50 septic systems/year in the Yellow Medicine River Watershed, Redwood River Watershed, and Lac qui Parle Watershed.
- Work with 4-5 producers/year with high priority feedlots. Priority based on size of the operation and their proximity to water. Work with engineers to survey problem feedlots and supply the producer with 2-3 options to fix pollution problems (cost-estimate included). Work with the SWCD/NRCS on possible cost-share availability.
- Reduce feedlot pollution by working with 3-feedlot producers on developing nutrient management plans on 750 acres. Priority will be given to feedlot producers with 300+ animal units and producers who spread manure in sensitive areas.

Objective: Protect and improve existing surface water quality by addressing nutrient loading, bacteria issues, fecal coliform, and turbidity.

Actions:

- Assist in pursuing grants through the Clean Water, Land and Legacy and Clean Water Partnerships for watershed based activities for the following watersheds: Yellow Medicine, Lac qui Parle-Yellow Bank, Redwood and Big Sioux. This is for current projects, TMDLs underway and for new TMDLs/Impaired waters projects as they are updated through MPCA in 2010 and beyond. Address pollutants/stressors in each of the affected water bodies. This would be done through the technician work groups for the Yellow Medicine and Lac qui Parle, the RCRA joint powers and through neighboring SWCDs.

Objective: Educate property owners, land owners/operators on the importance of protecting our surface waters from deterioration.

Actions:

- Educate and provide BMP information to land owners/operators on water impairments and the importance of reducing nutrients and bacteria in surface water quality through newsletters, releases, SWCD web site, fair booth, and individual contacts for:
  - Feedlot pollution reduction, and the importance of proper manure management;
  - Upgraded SSTs; and

- Implementation of BMPs in order to reduce the nutrients and bacteria in surface water.
- Educate land owners/operators in the Lake Shaokatan Watershed and the South Branch of the Yellow Medicine River on the TMDL Study and implementation programs through newsletters and one on one contact.

Priority Concern: Erosion and Sediment Control on agricultural land primarily gully erosion and concentrated flow with several priority areas throughout Lincoln County including: TMDL-South Branch, Yellow Medicine River for Fecal Coliform. Impaired waters including various river reaches listed on Pages 2-3, and lakes including: Dead Coon, Benton, Perch, Shaokatan and Hendricks. TMDL/s underway: Lac qui Parle River-Yellow Bank-Bacteria, Turbidity and Low Dissolved Oxygen; Lake Shaotakan-Excess Nutrients; Redwood River-Fecal Coliform and Turbidity and Minnesota River-Turbidity.

**Goal: To protect and preserve Lincoln County’s long-term valuable soil and water resources**

Objective: Protect and improve existing surface and ground water quality by addressing and reducing soil erosion, sedimentation and potential attached pollutants.

Actions:

- Reduce water erosion to 5-ton or less soil loss per acre on cropland. Implement BMPs such as but not limited to (approximate footage/year):
  - Terraces-2,000 feet,
  - Water & Sediment Control Basin’s (WSCB’S)-70 each,
  - Waterways-6 acres,
  - Conservation Tillage, and,
  - Increase acres of buffers, filter strips and Critical Area Plantings by 20 new sites (125 acres) per year through CCRP. The entire county is a concern with priority given to areas deemed necessary by the Technical Groups in each of the watersheds.
- Reduce sediment loads to waters of the state throughout Lincoln County by replacing open tile intakes with alternative tile intakes. Depending on available funding approximately 25-50+ alternative tile intakes could be replaced per year.
- Reduce wind erosion to 5-ton or less soil loss per acre on cropland selling 35,000 trees per year by implementing the following (approximately footage – per year): 1 mile-Field Windbreaks/Living Snow Fences, 10 acres-Farmstead Shelterbelts, and 20 acres-Wildlife Tree Plantings, depending on programs available.
- Make the following contacts: 10-contacts in areas where MN-DOT and the County have identified for the Living Snow Fence Program/Field Windbreaks; 30-contacts to promote the

tree program. Follow-up contacts on all tree projects and keep townships informed on the available tree programs.

- Provide a Conserving Use Acres Contract to six landowners where the Water Management Task Force pays \$599.00 for planting 10 acres or more of small grain for earthwork construction from August 10 to September 30. Providing funding is available.
- Provide cost-share to 5-15 landowners per year for sealing their abandoned well(s). Additional funding could provide for more wells to be sealed.

Objective: Reduce the volume of sedimentation reaching County lakes, streams, rivers and wetlands.

Actions:

- Increase conservation tillage on 1,500 acres with high residue and encourage landowners to plant 500 high residue acres with a No-Till Drill. Funding for conservation tillage equipment is available through the Ag BMP Loan Program, but is dependent on available funds. No-till drills are available at the Lincoln SWCD.
- Assist in pursuing grants/funding for implementation of conservation practices for watershed based activities through the Clean Water, Land and Legacy, Clean Water Partnership, Ag BMP, Watersheds, and BWSR. Funding based on current projects, TMDLs underway and for new TMDLs/Impaired waters projects as they are updated through MPCA in 2010 and beyond in the following watersheds: Yellow Medicine, Lac qui Parle, Redwood River and the Big Sioux. Address pollutants/stressors in each of the affected water bodies and areas deemed as high priority through the watershed project areas. This would be done through the technician work groups for the Yellow Medicine and Lac qui Parle, the RCRC joint powers and through neighboring SWCDs.

Objective: Implement Best Management Practices in the Yellow Medicine Watershed project area.

Future projects will be implemented based on future funding.

Actions:

- Implement BMPs such as sediment basins, waterways, alternative intakes, feedlots, etc. in the South Branch of the Yellow Medicine River located in Lincoln and Lyon Counties to help reduce Phosphorus loading. Funding is strictly through the Yellow Medicine River Watershed District 2007-South Branch TMDL Implementation Plan. Funding shows the remaining dollars currently available.
- Through the Lower Minnesota River TMDL; the 2006 Yellow Medicine River Dissolved Oxygen Project was approved. This project will implement WSCBs and encourage enrollment in the CRP/CCRP. CRP incentive payments are 35% of the eligible CRP/CCRP payment on 20 acres of 120 foot buffer strips which will provide additional water quality benefits. The project is through the Lincoln, Lyon and Yellow Medicine SWCDs with the Lyon SWCD administering the project. Amount of funding is for the entire Yellow Medicine River Watershed (3-counties). Dollars

include: WSCBs-\$21,000; buffer incentives-\$10,150. Grant period: February 1, 2007 thru June 30, 2011.

- Through the Lower Minnesota River TMDL, implementation of the 2009 Clean Water Legacy Grant funded for the Yellow Medicine Watershed will begin. This grant is through the Lincoln, Lyon and Yellow Medicine SWCDs with the Lyon SWCD administering the grant. Amount of funding is for the entire watershed (3-counties) which includes: \$88,000-Structure practices; \$12,000-Alternative Intakes.
- Implement alternative intakes and other projects deemed necessary through the Shaokatan Sportsmen Club dollars in the Lake Shaokatan Watershed. The amount of funding is dependent on the Sportsmen Club. Funding in 2009 consists of \$30,000.
- Participate in the Yellow Medicine River Watershed technical team meetings to develop monitoring and implementation plans the team deems a priority in the watershed based on the TMDLs/impaired waters.
- In the entire Yellow Medicine Watershed accelerate the implementation of BMPs such as sediment basins, waterways, filter strip incentive program, alternative intakes, etc. Funding is dependent on future grants specific for current and future TMDL/impaired water projects.

Objective: Implement Best Management Practices in the Redwood River Watershed project area. Future projects will be implemented based on future funding.

Actions:

- Implement WSCBs and encourage enrollment of acres in the CRP/CCRP to reduce external loading from surface water runoff. Funding is for the Redwood/Cottonwood watersheds. Implementation of the CWL portion is administered through the Redwood SWCD and the 319 portion through RCRCA. Funding includes the current 2007 and 2008 CWL Grants.
- Participate in the RCRCA joint powers meetings and technical team meetings through the SWCDs for the Redwood River Watershed to develop monitoring and implementation plans the team deems a priority in the watershed based on the TMDLs/impaired waters.
- In the Redwood River Watershed accelerate the implementation of BMPs such as sediment basins, waterways, filter strips, etc. Funding is dependent on future grants specific current and future TMDL/impaired water projects in the watershed.
- Monitor sites to evaluate progress on Lake Benton, Coon Creek and its effect on the Redwood River. Monitoring depends on future grants.

Objective: Implement Best Management Practices in the Lac qui Parle Watershed project area. Future projects will be implemented based on future funding.

Actions:

- In the Lac qui Parle River implement BMPs from the headwaters, Lake Hendricks to Lazarus Creek through a 2006 TMDL grant addressing turbidity.



- Implementation includes: 20 WSCBs for \$60,000; 50 acres of filter/buffer strips at \$50/acre per year (15-years) for \$37,500 and septic system upgrades through the SSTS low interest loan program for \$100,000. Funding is for three counties with the grant period extending through 2011. Funding for this TMDL project is through the Lac qui Parle River Watershed-CWP.
- Participate in the Lac qui Parle River Watershed technical team meetings to develop monitoring and implementation plans the team deems a priority in the watershed based on the TMDLs/impaired waters.
- In the Lac qui Parle River Watershed, accelerate the implementation of BMPs such as sediment basins, waterways, filter strips, etc. Funding is dependent on future grants specific current and future TMDL/or impaired water projects in the watershed.
- In the Lac qui Parle River headwaters, Lake Hendricks 41-0110-00 to Lazarus Creek/Canby Creek #07020003-505, with the Aquatic Recreation being the impaired use and Fecal Coliform being the pollutant. Start/completion dates of 2012/2016 (sooner if funds permit). Accelerate the implementation of WSCBs, waterways, filter strips, etc. in the impaired area. Funding is dependent on future grants specific for TMDLs/impaired waters in the watershed. Impairment of Aquatic Life with Turbidity being the pollutant has a start/completion date from MPCA of 2014/2018.

**Priority Concern: Surface Water Runoff and Drainage addressing runoff volume and water quality through drainage management.**

**Goal: Improve surface water management by decreasing runoff, flooding and erosion while maintaining the drainage systems already in place to sustain agricultural productivity.**

Objective: Apply watershed-based principles in properly managing drainage systems and wetlands and repair small dams in the county.

Actions:

- Reduce flooding potential by restoring wetlands by 50 acres over five years and increasing the number of filter strips through CCRP, etc.
- Seek funding for establishing a list of dams throughout the County and their status as far as needing repairs.
- Repair existing small dams used for flood control and water storage that are located in the county (repair one dam every three years-or as funds are available).
- Administer the Wetland Conservation Act (WCA). Administration will come from the Local Governmental Unit-Lincoln Soil and Water Conservation District. Technical panel consists of a representative from BWSR, NRCS, and SWCD.

Objective: Educate landowners/operators about erosion and sediment control, the importance of installing conservation practices and encourage conservation programs that help protect wildlife and recreational benefits in Lincoln County.

Actions:

- Provide BMP information and cost-share assistance to land owners/operators to reduce sediment and nutrient loading of surface and ground water and to enhance wildlife and recreation opportunities. BMPs include:
  - WSCB's, terraces, waterways, conservation tillage, restored wetlands,
  - Feedlots, nutrient/pesticide management;
  - Replacement of open tile intakes with alternative tile intakes;
  - Enhance and protect remnant native prairies, and wildlife habitat management areas;
  - Buffer programs: CCRP, RIM/WRP, Working Lands Initiative, critical area plantings, filter strips; and
  - Field windbreaks, living snow fences, farmstead shelterbelts, wildlife tree plantings.
- This will be done through newsletters, news releases, individual contacts, SWCD website, workshops, and SWCD fair booth.

**Priority Concern: Lake Management Improvement (water quality) and Recreational Opportunities targeting Lake Benton, Lake Shaokatan and Lake Hendricks.**

**Goal: Increase recreational opportunities by improving the water quality and quantity of Lincoln County's lakes**

Objective: Reduce the blue-green algae in Lake Shaokatan to improve the economic and recreational activities in the lake.

Action:

- Strive to reduce the blue-green algae in Lake Shaokatan by implement BMPs in the watershed above the lake. Promote landowner awareness around the lake in the watershed on the importance of protecting the lake.

Objective: Improve the Drainage Ditch systems in Lincoln County through proper management and implementation of buffers.

Actions:

- Enroll landowners in the CCRP in which the landowner would receive a CRP payment for the one-rod buffer required and the additional buffer required for CRP. Approximately 1,000 acres of cropland are enrolled in various conservation land programs. Increase the number of cropland acres into CCRP by 1% per year.
- In 2008, the County Commissioners serving as the Lincoln County Ditch Authority directed the Environmental Office to issue administrative orders directing property owners to restore 16 ½

foot permanent grass buffers along open ditches where they are required. Landowners have one-year to get them restored or the County Commissioners may order the work done.

Objective: Educate landowners/operators in Lincoln County on the Drainage programs/issues.

Actions:

- Educate landowners/operators of the importance of keeping buffers in place to protect drainage ditch systems and all waters of the state. Educate landowners/operators of the negative environmental impacts associated with farming right next to ditch systems in Lincoln County.
- Educate land users on the Wetland Conservation Act (WCA) regulations, USDA Swampbuster and Army Corp. of Engineers wetland regulations. Accomplish this through newsletters, the SWCD web site and one-on-one contacts.

# Lyon County LWMP 2007-2017 amended 2011

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## Priority Concern: Impaired waters reclamation (IWR)

Objective: Work with two (2) animal feedlot operators (less than 500 animal units) per year to correct existing fecal coliform problems.

Objective: Support the development of fifteen (15) nutrient management plans.

Objective: Identify critical nutrient input points, and install protective grass buffers for sixty (60) total landowners in four (4) years.

Objective: Provide low-interest loan dollars to assist up to thirty landowners with the upgrade of subsurface septic treatment systems (SSTS)

Objective: Conduct four informational sessions to encourage participation in activities aimed at reducing TMDL impairment

Objective: Work with thirty landowner per year to establish BMPs on highly erodible row cropland

Objective: Provide low interest loan dollars for conservation tillage BMPs, and equipment

## Priority Concern: Hydrologic System Management (HSM)

**Goal: Work toward long-term hydrology sustainability**

**Goal: Protect and preserve East and West Twin Lakes sub-watershed area**

Objective: Restore natural hydrologic systems and protect and preserve existing systems

Objective: Identify opportunities for additional controls and BMPs in the East and West Twin Lakes sub-watershed area

Objective: Provide additional flood control measures, evaluate existing structures, and prioritize a maintenance schedule for flood control structures

Objective: Inform and educate landowners on opportunities for wetland reclamation

Objective: Establish long-term partnerships with entities that can leverage additional hydrologic system recovery and protection

Actions:

- Repair and/or install six (6) impoundment structures
- Add 160 acres of native grass, and 40 acres of wetland.
- Inspect 8 small dams per year

- Host wetland reclamation workshop
- Model existing flood control structure benefits, and identify additional flood control opportunities
- Develop priority list of potential wetland reclamation areas, and contact landowners to assess level of interest
- Identify target areas for riparian buffers, and surface water protection
- Plan and implement several (2-3) conservation drainage pilot projects (i.e. wood chip bioreactor; controlled drainage infrastructure, etc. with willing landowners)

## Priority Concern: Nutrient Load Reduction (NLR)

### **Goal: Limit nutrients from entering water resources**

Objective: Reduce erosion, sedimentation and potential attached pollutants

Objective: Bring non-conforming septic systems into compliance

Objective: Install barriers and buffers that facilitate percolation, ponding, and retention of water

Objective: Provide assistance for land and nutrient BMPs

Actions:

- Install 1 rain garden
- Replace 12 tile surface intakes per year with subsurface tile intakes
- Assist two livestock producers per year with facility improvements
- Assist 15 livestock producers to develop Nutrient Management plans
- Offer low interest loan dollars to provide the funding needed to complete livestock waste management projects
- Assist with 2 grazing management plans per year to protect water sources from livestock access to surface waters
- Work with incorporated Municipalities to implement shoreland BMPs
- Provide low-interest loan dollars for 6 livestock facility/equipment upgrades per year
- Improve upland vegetation at 1 wetland complex

## Priority Concern: Groundwater Protection (GWP)

### **Goal: Protect groundwater resources**

Objective: Implement BMPs in Wellhead Protection Areas

Objective: Remove potential aquifer contamination sources

Objective: Monitor groundwater quality

Objective: Promote groundwater conservation practices

Actions:

- Provide cost-share to in the seal 30 abandoned wells per year
- Review land use controls in areas identified as Wellhead Protection Zones, and place
- Assist and support water conservation education efforts; especially for residents who receive their water from municipal systems
- Provide information and encourage participation in water conservation practices
- Provide low-interest loan funding for 20 SSTS upgrades
- Distribute groundwater BMP information to landowners residing in groundwater vulnerability areas
- Support municipal drinking water systems with wellhead protection

# Murray County LWMP 2007-2017 amended 2012

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## Priority Concern: Improve Surface Water Quality

### **Goal: Prevent further degradation of stream and lake water quality, with a priority for Des Moines River and Rock River watersheds**

Objective: Promote land use practices that protect surface water quality

#### Actions:

- Review and update Comprehensive Land Use Plan to incorporate goals and objectives to the Local Water Management Plan
- Update zoning ordinances to minimize development impacts on surface waters
- Administer the Floodplain Ordinance to assure adherence to zoning regulations
- Provide funding for a yearly seminar that educates 50 children on environmental stewardship
- Help fund an annual environmental fair which educates 1,200 children from southwest, Minnesota
- Fund the Prairie Ecology Bus to allow them to provide a yearly educational seminar for each school in Murray County as well as an educational seminar at the County
- Provide 3 educational information classes per year to the area high schools regarding surface water quality

Objective: Promote AgBMPs; complete level 3 feedlot inventory

#### Actions:

- Conduct yearly meetings with township officials and promote AgBMPs
- Promote the Feedlot Registration program on a yearly basis through a booth at the County fair
- Inspect 7% of all registered feedlots per year to verify they are in compliance with MN Statute 7020
- Provide technical assistance in distributing EQIP funds and state cost-share to 100 projects over 5 years
- Conduct a level three feedlot inventory within the Des Moines River Watershed, and then proceed with the rest of the County when time allows
- Conduct bi-yearly pit tile testing on all animal confinement units to verify pit water tightness. 31 pits are tested on the even years, 19 pits are tested on the odd years. Parameters tested are NO<sub>3</sub>-N, fecal coliform, chloride, total dissolved solids, and NH<sub>3</sub>
- Assist 25 producers with registered feedlots over 300 animal units to achieve a manure management plan for the proper manure application
- Assist producers with 25 nutrient management plans

Objective: Address TMDL impaired waters

Actions:

- Monitor lakes in July on a three year schedule within county with public accesses to get baseline data. The lakes that would be monitored in 2012 include: Currant Lake, Lake Wilson, Summit Lake, Round Lake, and Iron Lake. The lakes that would be monitored in 2014 include: Fulda Lake, Lime Lake, Lake Louisa, Buffalo Lake, and Corabelle, Lake. Parameters tested are nitrate-nitrite, ammonia nitrogen, total phosphorus, soluble reactive phosphorus. Kjeldahl nitrogen, total suspended solid, dissolved oxygen, temperature, and conductivity.
- Provide technical assistance for the West Fork Des Moines River and Heron Lake TMDL Implementation Plan
- Provide technical assistance for the Rock River Fecal Coliform and Turbidity TMDL Implementation Plan by providing input and help with their long-term, effectiveness, yearly, and milestone water sampling
- Provide technical assistance to help develop the Redwood River Fecal Coliform/E. coli TMDL Implementation Plan

Objective: Encourage SSTS compliance; Continue septic loan program and seek additional funding

Actions:

- Upgrade 40 non-compliant septic systems per year. This will be done through complaints and building permit upgrades
- Provide the Murray County Loan Program loan funds for 15 non-compliant septic systems per year in watersheds that do not have low-interest loan funds
- Seek additional loan funding or low income grants for SSTS construction with a prioritization for the Rock River and Redwood River watersheds
- Provide technical assistance to the Shetek Area Water and Sewer Commission to sewer the remaining unsewered areas in the Shetek Area Water and Sewer District
- Create a GIS layer of all septic system installations throughout the County

Priority Concern: Protect groundwater

**Goal: Assure long-term quality and quantity of groundwater supplies, with a priority for Drinking Water Supply Management Areas (DWSMA) and surficial aquifer areas**

Objective: Encourage Well Head Protection planning

Actions:

- Educate cities on importance of Wellhead Protection through a news bulletin sent to all cities within Murray County every three years



- Assist the cities of Lake Wilson, Slayton, and Currie with completing their Wellhead Protection Plan
- Conduct yearly free clinics for testing nitrate levels in well water. This event is held at the Murray County Fair and advertised in the newspaper and on the radio
- Protect DWSMA and surficial aquifer areas from agricultural and industrial contamination through conditional use hearings
- Monitor 71 wells throughout the County for nutrient and bacteria levels. On even numbered years, 41 wells are tested. On odd numbers years, 31 wells are tested. These wells vary in depth as to get a representative sample of different aquifers within the County
- Create a GIS layer of wellhead protection areas throughout the County
- Continue to cooperate with Lincoln-Pipestone and Red Rock Rural Water on the expansion of the rural water systems and advise them about County programs that will help manage potential contamination sources
- Work with cities that have vulnerable areas within their drinking water supply management areas to sign up land into permanent buffer easements

Objective: Work to expand access to public water supplies

Actions:

- Assist Rural Water suppliers with water exploration within the County
- Promote water conservation yearly at the Murray County Fair by using existing materials and resources

Objective: Continue assistance to seal unused wells

Actions:

- Utilize County Fair exhibits and semi-annual newspaper advertisements to promote the proper well protection/abandonment
- Prevent contamination of groundwater aquifers through the sealing of 25 unused wells per year
- Assist 15 landowners over 5 years with proper farm site abandonment and demolition by making sure all storage tanks are removed, wells are sealed, and hazardous waste is disposed of prior to demolition

**Priority Concern: Stormwater retention**

**Goal: Prevent soil erosion through comprehensive drainage management, with a priority for the Des Moines River and Rock River watersheds**

Objective: Slow runoff to keep soil, pesticide and fertilizer on the land

Actions:

- Improve the GIS layer of all public drainage systems and include: system name, watershed size, outlets, date established, system type, repair history, and improvement history
- Assist producers in applying for cost share opportunities for conservation practices by sending out yearly SWCD newsletters describing the State Cost Share programs. Advertisements area also place in the Tri-County News
- Seek additional funding for water retention structures within the Beaver Creek watershed
- Seek additional funding for stabilization practices for the streambanks of Beaver Creek

Objective: Promote conservation tillage and buffer strips; seek additional funding

Actions:

- Promote conservation tillage EQIP, and AgBMP's by contacting all County landowners through an information bulletin sent by the SWCD. This bulletin is sent out on a yearly basis
- Enroll 100 acres of marginal land into CREP buffer strip program in 5 years
- Enforce the 1 rod buffer strip on all ditches that are improved within the County

Objective: Move from no net loss of wetlands to active wetland restoration

Actions:

- Provide technical assistance to the Wetland Technician Evaluation Panel (TEP) on approximately 15 sites in 5 years to minimize the amount of wetland conversions
- Work with the Des Moines River TMDL project to assist in converting 100 acres of drained wetlands over 5 years back to a vegetated state, using WRP, CRP, and CCRP

Objective: Promote the construction of water retention structures

Action:

- Work with local landowners, State, and Federal agencies to secure funding for retention structures with a priority for projects in the Beaver Creek watershed

## Priority Concern: Potential County Projects

**Goal: Seek funding and implement potential County projects throughout Murray County, with a priority for the Beaver Creek watershed**

Actions:

- Find additional locations and funding for water retention projects, with a priority for the Beaver Creek watershed
- Contact landowners regarding possible retention area

- Secure additional funding
- Secure funding for feedlot corrections

# Pipestone County LWMP 2004-2014 amended 2009

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## Priority Concern: Natural Resources

**Goal: To protect, preserve and enhance the area's natural resources, including agricultural land, wooded areas, water (both surface and groundwater), native vegetation, native prairie, scenic areas and significant historic sites.**

Objective: Create standards for environmental protection.

### Actions:

- Land use activities should not greatly impact the area's unique or sensitive natural resources.
- Land use plans and ordinances should encourage the preservation of prime agricultural land, wetlands, wooded areas, native prairie areas and other unique natural resources.
- The County should make land use decisions that help to protect aggregate resources with an emphasis on minimizing residential and environmental conflicts.
- The disturbance or removal of natural resources, such as mining, should be performed in a manner that will minimize the impact on the environment and efforts should be made to return those disturbed areas back to an original or environmentally beneficial state that is compatible with the surrounding landscape.
- All gravel pits should have closure requirements and reclamation plans that are closely monitored and enforced by the County.
- Care should be taken to minimize the disturbance of fragile eco-systems.

Objective: Reduce priority pollutants to acceptable levels (i.e., soil erosion, storm water, wastewater, etc.).

### Actions:

- Point and non-point pollution sources should be identified and abated, especially in wellhead protection areas.
- The County should support the proper location, design, installation and maintenance of septic systems.
- Managed/cooperative wastewater treatment systems should be encouraged in rural areas with high-density housing.
- Work cooperatively with cities to develop and implement storm water management plans.
- Recycling programs should be encouraged, supported, and altered to meet the public needs and increase recycling rates.
- Voluntary septic inspections should be promoted to determine eminent health threats.

- The County should assist with developing manure application plans.
- The County should help promote programs that can help minimize soil Erosion.
- Construction sites should be protected with temporary and permanent erosion control measures.
- A Residue Management Transect Survey should be completed annually in order to log tillage trends and estimate erosion rates.
- Erosive areas should be protected with appropriate conservation measures.
- All projects should be held accountable for minimizing water runoff and soil erosion.
- Land use practices should be implemented that minimizes runoff (SWCD).
- The County should provide incentives to landowners to plant native trees and shrub species that will provide protection from blowing and drifting snow.
- Landowners should be given incentives to plant buffer strips (SWCD).
- State cost-share programs should be used to assist in the installation of conservation practices.
- The County should apply for grant dollars and utilize the Agriculture Best Management Practices (BMP) Loan Program to assist in BMP Implementation.
- The County should proactively participate in getting waters off the MPCA's Total Maximum Daily Load (TMDL) listing of impaired waters.
- Current listings include the Redwood River, Pipestone Creek, Split Rock Creek and Rock River. Assistance should also be provided to complete a TMDL study and implementation plan for the Redwood River and Split Rock Creek.
- The County should actively pursue implementation dollars to complete goals, objectives, and actions identified within TMDL implementation plans. Currently plans are approved for Pipestone Creek and Rock River. The County should continue pursuing the development of a Household Hazardous Waste Facility with improved and more economical methods of collection, processing and disposal of Hazardous Waste and recyclable materials.
- The County should cooperate to inventory and prioritize potential contaminant sources, such as conducting a buffer study, Level III Feedlot Inventory, SSTS inventory, etc. (P&Z, SWCD, ongoing, \$10,000). Feedlot compliance inspections should be conducted annually on 10% of all feedlots or approximately 50 per year.
- The County will pursue funds to complete four high priority feedlot runoff plans annually (SWCD, P&Z; \$20,000 for staff and \$80,000 for projects annually). It is estimated that approximately 30 feedlots need assistance.
- The County should work with unsewered communities (City of Trosky) and other unsewered cluster developments to bring them into compliance with 7080 rules.

Objective: Enhance the quantity and quality of surface water resources.

Actions:

- Ordinances should be implemented that regulate land use near surface water, wellhead protection areas, wetlands, and floodplains.

- Water retarding and flood control structures and practices should be encouraged and implemented.
- Conservation programs, such as conservation tillage, pest and nutrient management, buffer strips, pasture management, and wetland restorations, should be promoted county wide, especially in sensitive areas.
- The County should work closely with watershed organizations and Clean Water Partnerships in an effort to protect water resources.
- Integrated watershed management activities should be encouraged.
- The County should work with willing landowners on restoring natural water management resources, where appropriate.
- Wetland preservation activities should be encouraged in response to a demonstrated need and as a part of a complete natural resource management effort which considers water conservation, recreation and preservation of wildlife habitat. Increased emphasis should be placed upon shoreland, flood plain and watershed plans and regulations in an effort to preserve these environmentally sensitive areas.
- Encourage temporary retention and settling basins to enhance surface water quality.
- Encourage the restoration of drained wetlands by willing landowners.
- The entire County should be designated as a high priority wetland area for the consideration of grants and the implementation of various programs.
- The Wetland Conservation Act should be enforced county wide to ensure a no net-loss of wetlands.
- Surface water monitoring should be conducted on all waters to determine compliance with clean water standards. The county will submit any monitoring data to MPCA to help address impaired waters.

Objective: Enhance the quantity and quality of groundwater resources.

Actions:

- Groundwater quality and quantity should be closely monitored.
- The County should examine developing a drought contingency plan.
- The County should continue to assist with the development and implementation of wellhead protection plans for Lincoln Pipestone Rural Water and the cities of Edgerton, Ruthton and Pipestone.
- The County should promote wellhead protection on all private wells and assist with implementation for those who are interested.
- The County should cost-share the proper sealing of abandoned wells at 50% with a maximum payment of \$250.
- Water testing should be promoted and problems should be analyzed.
- Sensitive groundwater recharge areas should be identified and proactively protected.
- Raise public awareness on a number of key natural resource issues.
- Priority Concern: Public Investment

**Goal: To account for the full environmental, social and economic costs of public investments while making the best use of existing infrastructure to minimize costs.**

Objective: Continue and support the maintenance of a countywide ditch system.

Actions:

- The ditch system should be maintained so that it effectively manages the movement of water using best management practices to minimize pollution and sediment.
- The installation of filter strips should be enforced where appropriate and encouraged elsewhere.
- The replacement of needed ditch tile should be evaluated and planned accordingly.
- The County should appoint a task force to examine the development of a drainage ordinance.

**Priority Concern: Public Awareness**

**Goal: To support research and provide information on the County's important fiscal, environmental and social issues.**

Objective: Increase public awareness on the County's key environmental and water planning issues

Actions:

- The County should develop and use radio advertisements on a number Best Management Practices.
- The County should continue to maintain and improve a countywide youth (and adult) curriculum on important environmental education.
- Water conservation should be emphasized countywide and a K-12 education program should be developed.
- An educational program on how land use activities affect water quality (both groundwater and surface water) should be developed.
- The many benefits of wetland protection and restoration should be promoted.
- Phase II storm water construction requirements (on projects over one acre in size) and general runoff education should be promoted.
- Proper septic system design, operation and benefits to the environment should be promoted.
- The importance of recycling should be promoted.
- Education efforts should be promoted regarding manure management, nutrient management and residue management plans, along with the application of other potential pollutants.
- Water conservation education should be developed that focuses on reducing water usage through countywide water conservation plan.
- Existing wetland restoration programs should be promoted.
- Educational programs that promote soil conservation should be offered.

- The County should promote existing conservation programs and work with landowners on enrollment. Efforts should be initially focused on the County's environmentally sensitive areas.
- The County should work with the DNR and other agencies on projects related to learning more about or providing public education on the County's threatened or endangered habitats and species.
- Producer informational meeting should be held annually to educate and update producers on programs and requirements. Trainings may include nutrient management, manure economics, etc.
- Host an annual conservation tour.



# Redwood County LWMP 2005-2015 amended 2010

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Priority Concern: Groundwater protection that will focus on wellhead protection for public water supply

**Goal: Work with cities and groups to ensure groundwater supply for public water suppliers are protected from contamination**

**Goal: Prevent public drinking supplies from becoming polluted by working with suppliers to manage possible sources of contamination**

**Goal: Protect public water supplies from possible sources of contamination due to land use activities**

Objective: The cities of Belview, Vesta, Morgan and Redwood Falls have completed Phase I of the Wellhead Protection Plan. Make contact with officials in the remaining 11 cities to encourage the delineation of wellhead protection areas and drinking water supply management areas and to conduct the vulnerability assessments of the public water supply wells and drinking water supply management areas.

Action:

- Send letters to two cities each year outlining the importance of completing Phase I, the delineation of wellhead protection areas.

Objective: Identify landowners who own and operate land in the delineated wellhead protection areas and encourage them to use practices that will aid in the protection of groundwater.

Action:

- Identify landowners, using tract numbers, and provide them with brochure on the importance of wise land use in these delineated areas.

Objective: Provide well sealing funds to individuals who have abandoned wells in the wellhead protection areas of each city.

Action:

- Send letter to identified individuals who may have abandoned wells in protection area, giving them highest priority for well sealing funds.

Objective: Develop a program for private well users to identify concerns for contamination.

Action:

- Develop a brochure identifying potential groundwater contaminants for private well users and distribute.

Objective: Educate county residents of all ages on the importance of groundwater protection.

Actions:

- Make 10 presentations utilizing the groundwater model and other educational tools to illustrate the importance of groundwater protection
- Priority Concern: Drainage management focusing on wetland restorations and floodwater retention opportunities

**Goal: Provide protection to the drainage management system in place in the county**

Objective: Apply watershed-based principles to properly manage drainage systems and wetland restorations.

Actions:

- Enroll 10 people in the Farmable Wetland Program and CP-23 program to reduce flood potential by restoring wetlands.
- Implement the State Wetland Conservation Act. Redwood SWCD has been identified as the Local Governmental Unit in charge of implementation:

Objective: Incorporate flood control benefits into future road and bridge replacements.

Action:

- Replace a bridge with a floodwater retention project whenever possible

Objective: Improve the drainage ditch system in the county through proper management and the implementation of filters trips.

Actions:

- Assess the percentage of drainage ways in the county protected by filters trips.
- Utilizing CRP, promote filters trips until 50% of the watercourses in the county have filter strips at least 33 feet wide.
- Maintain the 72.5 acres of filters trips enrolled through Redwood County Water Management Plan.

Objective: Educate landowners in the county on the drainage issues

Actions:

- Through news releases and direct contact inform landowners of the importance of not farming right up to a watercourse and the importance of leaving a filter strip to protect the drainage system.
- Write a newsletter and newspaper article at least once each year to promote awareness of drainage regulations that affect citizens in the county.

**Priority Concern: Surface water quality addressing the following priority pollutants: phosphorus, nitrogen, and fecal coliform bacteria**

**Goal: To improve, restore and protect the surface water quality of the lakes, rivers and streams in Redwood County**

Objective: Promote and encourage the use of University of Minnesota Recommendations for nutrient management

Actions:

- Work with five producers each year to develop nutrient management plans that follow University of Minnesota recommendations.
- Work with commercial fertilizer applicators to ensure that the maximum yield is obtained while applying and utilizing the least amount of fertilizer.

Objective: Work with landowners who utilize manure to educate them on the importance of testing and correct application

Action:

- Each year, work with two livestock producers who utilize manure to ensure they are testing before application and taking proper credits.

Objective: Provide technical assistance to feedlot operators who have a positive FLEval rating

Action:

- Each year, provide assistance to one feedlot operator who has a pollution problem utilizing funds through the EQIP or State Cost Share programs.

Objective: Target all identified Total Maximum Daily Load (TMDL) water bodies for implementation of practices to reduce pollutants

Action:

- Promote the installation of best management practices that will aid in the reduction of pollutant loading.

Objective: Identify failing septic systems in the Redwood and Cottonwood River Watersheds

Action:

- Upgrade 50 failing septic systems each year, utilizing low-interest loan programs for 25 of the upgrades.

Objective: Educate county citizens on the importance of runoff control and surface water protection

Actions:

- Make presentations to five groups utilizing the Enviroscape, Mobile Environmental Education Transport (MEET) and other educational tools.
- Provide funds to sponsor presentations by the Prairie Ecology Bus Center to two schools in the county each year.
- Priority Concern: Erosion and sediment control focusing on residue management county wide and gully and concentrated flow areas in the southwest portion of Redwood County

**Goal: To protect and preserve the resource value of soil on agricultural producing land in Redwood County**

Objective: Educate and encourage land operators on the importance of installing structural conservation practices to reduce erosion and sedimentation

Actions:

- Develop brochure promoting Best Management Practices (BMPs)
- Write 10 news releases promoting importance of installing BMPs
- Publish at least two newsletters jointly with other agencies
- Hold one public information gathering meeting each year

Objective: Continue to promote residue management

Actions:

- Write news releases promoting conservation tillage practices
- Make three presentations utilizing the rainfall simulator
- Enroll five producers to improve residue levels through EQIP

- Continue to promote residue management

Objective: Protect and increase wildlife habitat

Actions:

- Work with five RIM contract holders to improve existing cover.
- Enroll 50 acres in general CRP sign-up.
- Establish two acres per year of tree plantings to include field windbreaks, farmstead shelterbelt and wildlife plantings

# Yellow Medicine County LWMP 2005-2015 amended 2010

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Priority Concern: Groundwater Protection – protect drinking water resources by providing assistance to help manage vulnerable area from potential contamination sources

**Goal: Protect and improve the quality of groundwater in the County**

Objective: Support the needs of public water suppliers and wellhead protection planning.

Actions:

- Participate in the preparation and implementation of wellhead protection plans for public water suppliers.
- Consider wellhead protection areas when making land use decisions, such as the permitting of feedlot, land use and sewer systems.
- Contact cities and the rural water system with available assistance. Advise and assist public water suppliers with technical land use information and planning assistance when wellhead protection plans are developed. The City of Canby is currently working on their wellhead protection plan and in the near future Lincoln Pipestone Rural Water's Burr well field will be working on a wellhead protection plan.
- Identify and contact landowners who own and operate land in the delineated wellhead protection areas and/or source water protection areas and encourage them to use practices that will aid in the protection of groundwater.
- Work with the City of Canby, and any other cities to encourage landowners in the Drinking Water Supply Management Area to use appropriate land use practices to protect the public water supply from potential contamination.
- Continue to have Wellhead Protection Areas as priority areas for cost-share and other land use incentive programs (i.e. sealing abandoned wells, upgrading septic systems, feedlot management, nutrient management, CRP, RIM, etc.) The Local Work Group, which is used for setting priorities in Yellow Medicine County for the Federal Environmental Quality Incentive Program, identified vulnerable well areas in Canby, Echo and Wood Lake as a high priority when ranking applications for funding.
- Continue to cooperate with Lincoln Pipestone Rural Water on the expansion of the rural water system and advise them about County programs that will help manage potential contamination sources.

Objective: Encourage good land use decisions to protect groundwater resources from contamination sources.

Actions:

- Annually educate landowners, both rural and urban on the proper applications and disposal of agriculture and lawn chemical /fertilizers.
- Provide financial assistance as available to seal 20 abandoned wells per year.
- Annually develop and distribute educational materials for homeowners and realtors on the importance of disclosing and sealing wells.
- Work with state agencies to assist the County with learning how to interpret data and identify sensitive areas needing additional management and protection. Use the Upper Minnesota River Basin Regional Hydrogeologic Assessment and other groundwater information as informational sources.
- Annually provide a variety of education on both public wellhead protection areas and the protection and management of private wells (and well areas) to city residents, rural 15 residents and businesses regarding specific actions they can take to protect drinking water.
- Create a map of the water testing data received from the free water testing program.
- Encourage well owners to get private wells tested on a regular basis and provide an incentive to homeowners to have their wells tested.
- Educate homeowners on the proper disposal of household hazardous waste and promote the use of the Household Hazardous Waste Facility in Clarkfield and any mobile collections held in the County.
- Develop an education program to promote water conservation.

Objective: Expand groundwater monitoring.

Actions:

- Monitor five (5) groundwater observation wells designated by DNR.
- Comment on DNR water permits.
- Participate in the state rainfall monitoring program with 15 rural rainfall monitors and city monitors to record daily precipitation.

**Priority Concern: Erosion and sediment control – soil erosion and sedimentation on agricultural lands**

**Goal: To protect and improve surface and groundwater quality by addressing and reducing soil erosion and sedimentation**

Objective: Reduce erosion and sediment problems to sustainable levels by promoting the use of Best Management Practices (BMPs).

## Actions:

- Promote Best Management Practices in the County. Concentration will be on the following designated high priority areas as identified through the Stakeholder and Local
- Work Group Process:
  - Yellow Medicine Watershed – specifically the monitoring sites #4 (1 mile west of Hanley Falls, the outlet of Cottonwood Lake) and #12 (Mud Creek) having a high nitrate problem.
    - Sandnes – Sections 9-11, 13-17, 19 and 36
    - Norman – Sections 13-14, 22-24, 26-28 and 33-36
    - Wergeland – Sections 16-21 and 18-33
  - Yellow Medicine River to Spring Creek as listed as impaired waters (turbidity). This is the area from Hanley Falls to the Minnesota River.
  - Lac qui Parle Watershed – specifically the following areas:
    - Norman – Sections 1, 2, 11, 12 and 14
    - Omro – Sections 1-16, 22-24, 26-28 and 34
    - Oshkosh – Sections 1-12, 14-23 and 28-33
    - Tyro – Section 4-9, 16-19 and 30
    - Wergeland – Section 4-7
  - Canby Creek Watershed – specifically the following areas above Del Clark Lake:
    - Fortier – Sections 11, 13-16 and 20-34
    - Norman – Section 8, 9, 16-18, 19-20 and 30
  - Main channel of the Yellow Medicine River, Lac qui Parle River, Florida Creek and Lazarus Creek (1 mile on each side).
  - Vulnerable well areas (Canby, Echo, Wood Lake and the Burr well field)
  - Land adjacent to the lake of Wood Lake
  - Judicial Ditch #10 Watershed – HUC Code 702004560
- Reduce the amount of wind erosion to 5 ton or less soil loss per acre on the most severely erodible acres by designing and planting 15,000 feet of field windbreaks and/or living snow fences, 100 acres of farmstead windbreaks and 25 acres of wildlife habitat. Continue to promote the installation of plastic mulch for better weed control and/or soil moisture.
- Promote enrollment of 10,000 acres into the residue management practice incentive program offered through the Environmental Quality Incentive Program (EQIP) or any other funding sources.
- Reduce the amount of water erosion to 5-ton or less soil loss per acre on severely eroded acres by the installation of BMPs such as but not limited to:
  - Terraces and/or water & sediment control basins 25,000 feet
  - Grass waterways 40 acres following conservation practices.

Funding will be obtained through various agencies and/or programs, such as Federal, Clean Water Funds, State Cost Share Program, etc. The Ag BMP Loan Program could be used to supplement cost share dollars or to fund projects. If successful in obtaining funds through the Clean Water Fund, the SWCD will be able to substantially increase the number of practices



established in this five year period. The district will be meeting with the adjacent SWCDs in the Yellow Medicine River Watershed, Lac qui Parle-Yellow Bank Watershed and the Redwood Watershed setting goals and objectives for the perspective watersheds.

- Continue to manage CREP, RIM, and CRP easements, monitor sites to see that conservation practices are installed and conduct approximately 100 status reviews each year.
- Establish 1,500 acres of filter strips/buffers along ditches and streams to capture sediment as it leaves the fields. Assist the FSA in promoting and processing the Continuous Conservation Reserve Program. Determine if buffer strips exist along the watercourses in the county. If not, make personal phone calls and/or personal visits with landowners promoting the CRP Program and/or any other easement programs. Maintain the minimum one-rod grassed areas as it applies to drainage policy. Continue to promote and work in the Yellow Medicine River Watershed, the Lac qui Parle River Watershed, and the Redwood River Watershed to accelerate the implementation of filter strips/buffers in these areas and promote filter strip incentive programs.
- Enroll 1,500 acres of cropland subject to severe erosion into existing programs (i.e. CRP, RIM, etc.)
- Enroll 500 acres of pasture into prescribed grazing systems.
- Conduct an annual meeting of stakeholders and/or Local Work Group to discuss resource concerns and set priority areas for the Environmental Quality Incentive Program (EQIP). Promote installation of best management practices utilizing the EQIP and/or the State Cost Share Program, and the Ag BMP Loan Program for financial support. Convene Local Work Group Meetings for EQIP to discuss priority practices and priority areas. Assist with taking applications and planning for EQIP contracts.
- Educate landowners/operators about erosion and sediment control, the importance of installing conservation practices and encourage enrollment into conservation programs by providing information and options about BMP's through newsletters, news releases and individual contacts.
- Restore 150 acres of wetlands into conservation programs.
- Encourage landowners to utilize the Minnesota Department of Agriculture's on-line tool, "Minnesota Conservation Guide" which is a one-stop resource for information about agricultural and natural resource conservation practices, programs and payments.

**Priority Concern: Reducing Priority Pollutants – priority pollutants, nutrients and bacteria, related to feedlots, non-conforming individual sewage treatment systems and other surface runoff**

**Goal: Reduce impairments by limiting nutrients and sediment from reaching the County's surface waters**

**Objective: Protect surface and ground water quality from contamination caused by point and non-point source pollution by reducing priority pollutants to sustainable levels.**

#### Actions:

- Promote the timing, rate and placement of synthetic and/or organic fertilizers and pesticides using incentives (such as EQIP and others). Develop nutrient and pesticide management plans, targeting 12,000 acres countywide. Provide continual information and education to landowners regarding the need to follow the University of Minnesota's nutrient management recommendations.
- Upgrade 50 Subsurface Sewage Treatment Systems (SSTS) per year. Continue to seek funding, and administer the Ag BMP Loan program and Clean Water Partnership Low Interest Loan programs offering landowners a low interest loan to fix their nonconforming SSTS.
- Protect and enhance Del Clark Lake by encouraging landowners to install Best Management Practices. Seal two abandoned wells, bring two non-conforming sewer systems and one feedlot into compliance in the Canby Creek Watershed annually.
- Assist five feedlot operators per year with completing MPCA permits. Assist feedlot operators in seeking financial assistance through EQIP, State Cost-Share and/or the Ag BMP Low Interest Loan Program.
- Create a GIS layer of all septic systems installed in the County.
- Implement the following strategies to address feedlot compliance:
  - Continue to develop a GIS layer of feedlots registered under MPCA registration guidelines.
  - Inspect 10% of the County's feedlots annually.
  - Develop an informational packet for feedlot owners requesting to expand or modify their operation to assist them with permitting and operational questions.
- Work with 3-4 livestock producers per year in the Lac qui Parle River Watershed's high priority areas to fix pollution problems.
- Provide educational and technical assistance to homeowners on proper SSTS maintenance.
- Continue to provide inspection services as part of the County's SSTS program.
- Map cropland fields that have been identified as needed for manure application through manure management plans.
- Work with the residents of the City of Hazel Run to upgrade their non-conforming SSTS.
- Upgrade the camping and wastewater facilities at Timm Park, which is located on Wood Lake.

Objective: Target identified impaired (Total Maximum Daily Load (TMDL)) water bodies for implementation of practices to reduce pollutants.

#### Actions:

- Work with the Minnesota Pollution Control Agency and the watersheds to develop TMDL plans that will help meet the goal of getting the waters off the TMDL 303D list of impaired waters. The 2008 list of impaired waters in the County includes the waters listed at the beginning of this section.

- Cooperate with the Lac qui Parle-Yellow Bank Watershed District in completing the TMDL study and participate in the development of the TMDL implementation plan by serving on the Technical Advisory Committee and in other roles as necessary.
  - Assist in the development of the implementation plan for the fecal coliform and turbidity impairments in the Lac qui Parle River, Lazarus Creek and Florida Creek.
- The County should actively pursue grants and implementation dollars through the Clean Water Fund and other funding sources, for current projects, TMDL's underway and for new TMDL's/Impaired waters projects and work with State and local partners on addressing impaired waters.
- Educate landowners who own land around the County's surface waters about the importance of protecting our surface waters from deterioration.
- Update the County's Shoreland Ordinance to reflect changes made to the statewide program.
- Cooperate with the Yellow Medicine River Watershed District and participate in the development of TMDL Implementation plans by serving on the Technical Advisory Committee and in other roles as necessary.
- Cooperate with the Redwood Cottonwood Rivers Control Area (RCRCA) and participate in the development of TMDL studies and implementation plans for the impairments turbidity and fecal coliform.
- Cooperate with the Yellow Medicine River Watershed District in the monitoring and assessment of sites identified in the Surface Water Assessment Grant Program.

**Priority Concern: Surface Water, Drainage Management and Flooding – managing flooding and its' effects minimizing losses associated with the flooding of agricultural lands. Address runoff volume and water quality deterioration through surface water and drainage management**

**Goal: To implement sound surface water and drainage management strategies**

Objective: Minimize losses associated with the flooding of agricultural lands.

Actions:

- Address the smaller flood events such as 2 year and 5 year events by restoring 150 acres of wetlands through various conservation programs and increasing the number of filter strips through CCRP, etc. Target sites within the watershed to achieve strategic flood storage in conjunction with water quality and wildlife benefits
- Take flood prone land along rivers, streams and waterways out of crop production by encouraging enrollment into land retirement programs, such as CRP, RIM, WRP, etc., and applying best management practices to those areas (also see Priority Issue #2, Actions 6 and 7).

- Work with Area II, RCRC, watershed, surrounding counties and the East Dakota Water Development District to assess, prioritize and pursue funding through various agencies for water storage opportunities.
- Use the FEMA Floodplain maps to assess agricultural flooding problems and promote local, state and federal BMP programs.
- Update the County Floodplain Ordinance to reflect changes made to the program and the official maps.
- Cooperate with the Lac qui Parle-Yellow Bank Watershed District and the Yellow Medicine River Watershed District on the construction of flood control structures and other structures that benefit water quality.

Objective: Apply watershed-based principles in properly managing drainage systems.

Actions:

- Promote the use of alternative intakes, such as blind intakes, that promote efficient trapping of sediments and nutrients that enter drainage systems. Through various sources of funding, the SWCD hopes to install 25 intakes per year.
- Seek funding for establishing a list of small dams/ponds throughout the County and their status as far as needing repair.
- Seek funds to repair two or three small dams in the county that were previously constructed by landowners (Area II, SWCD, NRCS).
- Promote upland treatment (encouraging landowners to install best management practices, seal abandoned wells and bringing non-conforming sewer systems and feedlots into compliance in the Lazarus Creek Watershed), protecting the Lazarus Creek Project.
- Encourage completion and utilize the US Fish and Wildlife Service Drained Wetland Basin Inventory, to help address current and future water quality and surface water management goals and issues.
- Yellow Medicine SWCD will provide information to the public and administer the Wetland Conservation Act (WCA).

Objective: Manage drainage systems to provide both conveyance and ecological benefits.

Actions:

- Work with contractors and others to educate the public on ditch and streambank management – buffers, side inlets, stabilizations and cause/effect of erosion.
- Increase awareness of homeowners/businesses concerning the impact of stormwater runoff on water quality. Assist Yellow Medicine County communities in reducing storm water runoff and decreasing movement of sediment and nutrients through bio-retention and rain garden BMPs. Seek funds to assist with the installation of rain gardens.
- On targeted sites reduce turbidity using natural channel management in the Yellow Medicine River and its tributaries.

- Provide educational, technical and financial assistance, as available, to landowners for pilot conservation drainage projects.
- Target watersheds of priority county ditch systems for soil saving BMPs, buffer strips, side inlets, and water control structures.