

# Des Moines River – Headwaters Watershed: Water Plans

The Des Moines River – Headwaters Watershed encompasses Cottonwood, Jackson, Lyon, Murray, Nobles, and Pipestone 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:

Cottonwood County LWMP 2007-2017 amended 2012

Jackson County LWMP 2008-2017

Lyon County LWMP 2007-2017 amended 2011



Murray County LWMP 2007-2017 amended 2012

Nobles County LWMP 2009-2018

Pipestone County LWMP 2004-2014 amended 2009

# Water Plan Evaluation

Concern	Cottonwood	Jackson	Lyon	Murray	Nobles	Pipestone
Conservation BMPs						
Feedlot Compliance						
Groundwater						
SSTS/ISTS						
Technical/Financial Assistance						
Wetlands						
Coordination/Partnership						
Erosion Control						
Monitoring						
Shoreland Management						
Surface Water						
TMDL - Impaired Water						
Wellhead Protection						
Abandoned Wells						
Education						
Water Retention						
Drainage Management						
Nutrient Management						
Priority Pollutants						
Sediment						
Seek Funding						
Stormwater Management						
Watershed-based Approach						
Manure 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

# Cottonwood 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 the Des Moines and Watonwan watersheds**

Objective: Protect soil from erosion and prevent agricultural runoff.

Actions:

- Review zoning ordinances to insure minimal development impacts on surface waters
- Assist coordination of a multi-county yearly water festival that educates 850 children on environmental stewardship
- Help fund a multi-county yearly water festival that educates 850 children on environmental stewardship
- Help fund an annual environmental fair and conservation day which educates 500 children from southwest Minnesota
- Educate landowners on proper lakeshore and stream-bank stabilization practices
- Promote use of buffer strips along ditches and streams within the Des Moines and Watonwan watersheds
- Assist producers in applying for cost share opportunities for conservation practices; Promote conservation tillage, EQIP, and AgBMPs by contacting all County landowners through an informational bulletin sent by the SWCD
- Conduct conservation tillage transect survey for the County, and analyze data to determine residue cover
- Provide incentives for sign up of 80 acres of buffer strips along ditches and streams within the Des Moines, Heron Lake and Watonwan watersheds
- Enroll 500 acres of marginal land into CREP buffer strip program
- Reduce the amount of wind erosion by planting 12,500 feet of field windbreaks and living snow fences; also plant 25 acres of farmstead shelterbelts.

Objective: Address impacts of Drainage Management.

Actions:

- Administer the Floodplain Ordinance to assure adherence to water plan; Investigate developing a GIS layer of all public drainage systems

- Develop a GIS layer of all public drainage systems and include: system name, watershed size, outlets, date established, system type, repair history, improvement history, and other relevant data
- Assist with and install 25 grassed waterways
- Assist with and install 30 sediment control structures
- Work with Area II Representatives to identify areas in the Minnesota River basin watersheds for water retention structures
- Seek additional funding for water retention structures within the Des Moines River and Watonwan headwaters watersheds.

Objective: Wetland restoration and management.

Actions:

- Provide technical assistance to the Wetland Technical Evaluation Panel (TEP) to minimize the amount of wetland conversions
- Work with DNR and US Fish and Wildlife Service to maintain wetlands in existing wildlife areas
- Work with the Heron Lake Watershed District to educate landowners on the benefits of converting drained wetlands back to a vegetated state, using Wetland Reserve Program, Conservation Reserve Program and Continuous CRP
- Enroll 100 acres of marginal land into CREP/WRP wetland restoration program.

Objective: Address TMDL Impaired Waters.

Actions:

- Provide public information on water quality through a booth at the County Fair
- Provide public information on water quality through a booth at Windom Ag day
- Coordinate preparation of the Des Moines River TMDL study and plan
- Provide technical assistance for preparation of Greater Blue Earth Basin TMDL plans
- Provide technical assistance for preparation of the Little Cottonwood River TMDL plans
- Provide technical assistance for preparation of the Redwood/Cottonwood Rivers TMDL plans
- Coordinate implementation of the Des Moines River TMDL study and plans, through funding from Clean Water Legacy and other sources.

## Priority Concern: Protect Ground Water

**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: Support Well Head Protection planning and implementation.

Actions:

- Educate cities on importance of Wellhead Protection
- Assist cities with completing a Wellhead Protection Plan
- Educate landowners in DWSMAs on measures to protect groundwater
- Protect DWSMA and surficial aquifer areas from agricultural and industrial contamination through conditional use hearings
- Maintain a GIS layer of wellhead protection areas throughout the County
- Assess effectiveness of existing ordinances to ensure that they protect and do not negatively impact Well Head Protection Areas
- Continue to cooperate with Red Rock Rural Water on the expansion of the rural water systems and advise the public about County programs that will help manage potential contamination sources
- Promote use of CREP in Well Head Protection Areas.

Objective: Prevent nitrate and pesticide infiltration of shallow groundwater.

Actions:

- Promote proper application of fertilizers and pesticides
- Promote use of grassed waterways and buffer strips along ditches and streams in surficial aquifer areas
- Conduct bi-yearly free clinics for testing nitrate levels in well water
- Seek additional funding for nitrate and pesticide education and outreach
- Assist 3 producers a year with nutrient management plans.

Objective: Prevent groundwater contamination from unused wells.

Actions:

- Work with well contractors to promote proper well protection and sealing
- Provide information to rural water system members about proper well protection and sealing programs
- Prevent contamination of groundwater aquifers through the sealing of 30 unused wells per year.

Objective: Protect long-term water supply.

Actions:

- Assist public water suppliers with water exploration within the County
- Promote water conservation by using existing materials and resources
- Protect long-term water supply through conditional use hearings for municipal, industrial, irrigation, or public water supply wells.

## Priority Concern: Feedlots & ISTS

**Goal: Protect public waters and assist residents in meeting feedlot and septic standards, focusing on immediate health and safety situations.**

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

Actions:

- Conduct yearly meetings with township officials and promote Ag BMP's
- Inspect 10% of all registered feedlots per year to verify they are in compliance with MN Statute 7020
- Provide technical assistance for feedlot improvements to 150 projects over 5 years;
- Provide implementation funding through EQIP and state cost-share to 75 projects over 5 years
- Maintain a GIS layer of all registered feedlots compatible with E-link
- Provide manure sample kits to 12 producers a year
- Assist 10 producers a year with registered feedlots over 300 animal units to develop and maintain a manure management plan for proper manure application
- Assist 3 producers a year with nutrient management plans.

Objective: Continue to bring nonconforming ISTS into compliance with state standards.

Actions:

- Work through GBERBA to develop a basin-wide (Greater Blue Earth watershed) plan to accelerate upgrades to septic systems
- Upgrade 40 non-compliant septic systems per year
- Seek additional funding from USDA and other sources for ISTS construction
- Update County ISTS ordinance to achieve compliance with State rules
- Provide an informational packet regarding septic system maintenance to every landowner who installs a new ISTS
- Maintain a GIS layer of all septic system installations throughout the County
- Work with Cities to hook households and businesses with non-compliant ISTS onto municipal services
- Provide public information on state sewer rules and educate property owners about the imminent public health threats and environmental harm posed by non-complying systems.

# Jackson County LWMP 2008-2017

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## Priority Concern: Improve Surface Water Quality

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

Objective: Address TMDL Impaired Waters.

Actions:

- Review plans and zoning ordinances to insure minimal development impacts on surface waters
- Provide public information on protecting stream and lake water quality
- Monitor streams and lakes for baseline water quality data
- Work with MPCA to improve quality of water entering Heron lake
- Provide technical assistance for the Des Moines River TMDL study and plan
- Provide technical assistance for the Little Spirit TMDL study
- Provide technical assistance for preparation of other TMDL plans as necessary
- Participate in implementation of the Des Moines River TMDL study and plans, through funding from Clean Water Legacy and other sources.

Objective: Prevent Soil Erosion.

Actions:

- Provide Support for Prairie Ecology Bus Center to enhance programs in local schools
- Provide technical assistance for environmental education and conservation days that educate children on environmental stewardship; provide support for environmental education and conservation days
- Complete LIDAR 2' contour GIS coverage for county
- Promote use of buffer strips along ditches and streams within the Des Moines watersheds and areas with high priority erosion problem
- Assist with and install 30 grassed waterways with EQIP, Continuous CRP and State cost-share
- Assist with and install 15 sediment control structures.

Objective: Encourage perennial cover, buffers and conservation tillage.

Actions:

- Assist producers in applying for cost share opportunities for conservation practices; promote conservation tillage, EQIP, and AgBMPs by contacting all County landowners through an informational bulletin sent by the SWCD

- Conduct conservation tillage transect survey for the County, and analyze data to determine residue cover
- Provide incentives for sign up of 100 acres of buffer strips along ditches and streams within the Des Moines watersheds
- Enroll 500 acres or marginal land into RIM easement and other appropriate programs.

Objective: Improve stream bank and lakeshore development practices.

Actions:

- Administer Shoreland and Floodplain regulations
- Meet with 250 landowners and provide best practices information on proper lakeshore and streambank stabilization
- Provide educational material on the proper application of fertilizer, minimizing impervious surfaces, fire pit placement, and rain gardens
- Consider adopting provisions for Conservation Design in local plans and zoning ordinances
- Develop ordinances which encourage soil erosion mitigation during construction.

## Priority Concern: Feedlots & ISTS

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

Objective: Encourage best practices in nutrient management.

Actions:

- Conduct yearly meetings with township officials to discuss nutrient management
- Assist 3 producers a year with nutrient management plans; provide manure sample kits as requested
- Assist 10 producers a year with registered feedlots over 300 animal units to develop and maintain a manure management plan for proper manure application
- Review current and ongoing water quality sample results and promote BMPs appropriate for specific conditions in Jackson County.

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

Actions:

- Conduct yearly meetings with township officials to promote AgBMP's
- Inspect 10% of all registered feedlots per year to verify they are in compliance with MN Statute 7020
- Provide technical assistance for feedlot improvements to 15 projects
- Provide implementation funding through EQIP and state cost-share to 10 projects



- Maintain GIS layer of all registered feedlots and manured acres compatible with E-link
- Conduct a Level Three Feedlot Inventory.

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

Actions:

- Provide an informational packet regarding septic system maintenance to every landowner who installs a new SSTS
- Inventory all individual sewage systems in Jackson County in a GIS-compatible database
- Work with cities to hook households and businesses with SSTS onto municipal services
- Provide technical assistance with sewer needs on lakes with development pressure
- Implement appropriate sewer infrastructure at Loon Lake and Fish Lake.

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

Actions:

- Work through GBERBA to develop a basin-wide (Greater Blue Earth watershed) plan to accelerate upgrades to septic systems
- Upgrade 50 non-compliant septic systems per year
- Seek additional funding from USDA and other sources for SSTS construction
- Maintain a GIS layer of all septic system installations throughout the County
- Update County SSTS ordinance to achieve compliance with State rules
- Consider ordinance changes to accelerate requirements for SSTS updates
- Provide public information on state sewer rules and educate property owners about the imminent public health threats and environmental harm posed by non-complying systems.

## Priority Concern: Drainage Management

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

Objective: Restore natural hydrograph flows.

Actions:

- Investigate modernizing information systems for public drainage system management
- Develop a GIS later of all public drainage systems and include: system name, watershed size, outlets, data established, system type, repair history, improvement history, and other relevant data
- Develop management information systems for public drainage systems, including hardware & software for remote access to geographic information
- Inventory status of all ditch buffers

- Contract for a systematic cost-benefit analysis of high-maintenance county ditches
- Enforce filter strips according to Minnesota Statutes; Facilitate a controlled drainage demonstration project
- Promote installation of ponds, traps and proper upland conservation practices
- Seek additional funding for water retention structures within the Des Moines River watersheds
- Cooperate with DNR and HLWD to implement and monitor the Heron Lake Dam Management Plan
- Cooperate with DNR and City of Jackson on Jackson Dam project.

Objective: Encourage wetland restoration and management.

Actions:

- Administer the Wetland Conservation Act
- Work with DNR and U.S. Fish and Wildlife Service to maintain wetlands in existing wildlife areas
- Educate landowners on the benefits of converting drained wetlands back to a vegetated state, using Wetland Reserve Program, Conservation Reserve Program and Continuous CRP
- Enroll 100 acres of marginal land into wetland restoration programs.

Objective: Reduce impacts of flooding.

Actions:

- Administer the Floodplain Ordinance to protect public health, safety and welfare
- Work with FEMA to update floodplain maps
- Review plans and zoning ordinances against updated floodplain maps to limit development in areas prone to flooding
- Inform the public on dangers of flooding and benefits of floodplain preservation
- Promote installation of on-site stormwater retention and rain gardens to reduce peak storm-event flows.

## Priority Concern: Protect Ground Water

**Goal: 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: Support Well Head Protection planning and implementation.

Actions:

- Educate cities on importance of wellhead protection
- Assist cities with completing a Wellhead Protection Plan as MDH established local priority areas; Work with cities and to educate landowners near public supply wells on measures to protect groundwater

- Conduct testing of nitrate levels in well water, as requested
- Protect public supply well aquifer areas from agricultural and industrial contamination through conditional use hearings
- Maintain GIS layer of public supply wells throughout the County
- Assess effectiveness of existing ordinances to protect wellhead areas
- Review monitoring data and information regarding pesticides in groundwater and promotion of pesticide water quality BMPs, such as use of grassed waterways and buffers strips along ditches and streams near public supply wells
- Promote use of RIM near public supply wells.

Objective: Prevent groundwater contamination from unused wells.

Actions:

- Work with well contractors to promote proper well protection and sealing
- Provide information to rural water system members about proper well protection and sealing programs
- Utilize Count Fair exhibits and semi-annual newspaper advertisements to promote the proper well protection/abandonment
- Prevent contamination of groundwater aquifers through the sealing of 30 unused wells per year.

Objective: Protect long-term water supply.

Actions:

- Support efforts of public water suppliers to secure additional sources of water
- Promote water conservation.

# 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

# 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

# Nobles County LWMP 2009-2018

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## Priority Concern: Surface Water Quality

**Goal: Prevent further degradation of stream and lake water quality, with a priority for shoreland, TMDL-listed waters, and unsewered communities**

Objective: Address TMDL Impaired Waters

### Actions:

- Review land use plans and ordinances to insure minimal development impacts on surface waters.
- Provide public information on protecting stream and lake water quality.
- Conduct water monitoring for water quality data.
- Work with MPCA to improve quality of waters entering Heron Lake.
- Work with MPCA and private wildlife and sportsmen's organizations to improve quality of waters entering Okabena, Ocheda and Bella lakes.
- Provide technical assistance for the Des Moines River TMDL.
- Provide technical assistance for preparation of other TMDL plans as necessary.
- Participate in implementation of the Rock River TMDL study and plans, through funding from Clean Water Legacy and other sources.
- Participate in implementation of the Des Moines River TMDL study and plans, through funding from Clean Water Legacy and other sources.
- Participate in implementation of other TMDL plans as necessary.

Objective: Prevent soil erosion.

### Actions:

- Promote environmental education and conservation.
- Help fund an annual environmental fair and conservation day which educates 1,400 students from southwest Minnesota, and the local/state Envirothon event.
- Assist tours of Prairie Wetland Learning Area in Worthington and Prairie Learning Area in Adrian that educate over 500 students about wildlife, wetlands and native prairie.
- Promote use of natural cover and windbreaks.
- Inventory status of all ditch buffers in GIS
- Enforce filter strips according to Minnesota Statutes.
- Assist with and install 200 grassed waterways, critical area plantings and terraces with EQIP, Continuous CRP and State cost-share.
- Assist with and install 15 sediment control structures.

Objective: Promote Ag Best Management Practices (AgBMPs).

Actions:

- Assist producers in applying for cost share opportunities for conservation practices.
- Conduct yearly meetings with township officials to promote Ag BMP's.
- Promote conservation tillage, EQIP, and AgBMPs by contacting all County landowners through an informational bulletin sent by the SWCD
- Conduct conservation tillage transect survey for the county and analyze data to determine residue cover.
- Provide incentives for sign up of 100 acres of buffer strips along ditches and streams within the Des Moines watersheds.
- Provide incentives for 300 acres of filters trips in Okabena-Ocheda watershed.
- Fund Watershed District cost-share programs.

Objective: Facilitate compliance of nutrient management, feedlots & SSTS with state and federal requirements.

Actions:

- Conduct yearly meetings with township officials to discuss nutrient management.
- Assist 5 producers a year with nutrient management plans.
- Inspect 10% of all registered feedlots per year to verify they are in compliance with MN Statute 7020.
- Provide technical assistance for feedlot improvements to 30 projects.
- Provide implementation funding through EQIP and state cost-share to 10 projects.
- Maintain a GIS layer of all registered feedlots and manured acres compatible with eLINK.
- Provide an informational packet regarding septic system maintenance to every landowner who installs a new SSTS.
- Inventory all individual sewage systems in Nobles County in a GIS-compatible database.
- Upgrade 15 non-compliant septic systems per year.
- Seek additional funding from USDA and other sources for SSTS improvements.
- Work with cities to assure appropriate sewage treatment is available.
- Revise SSTS ordinance for compliance with new state rules.
- Update ordinance to require SSTS compliance on property transfer.
- Proactively inspect SSTS and enforce compliance.

## Priority Concern: Drainage Management

**Goal: Restore more natural flow in the drainage system, with a priority for shoreland**

Objective: Improve shoreland and impervious surface areas.

Actions:

- Administer Shoreland zoning regulations.
- Administer Watershed District rules.
- Meet with 50 landowners and provide best practices information on proper lakeshore and streambank stabilization.
- Provide educational material on the proper application of fertilizer, minimizing impervious surfaces, fire pit placement, and rain gardens.
- Implement the Worthington Storm Water Pollution Prevention Plan.
- Consider adopting provisions for Conservation Design and Low Impact Development in local plans and zoning ordinances.
- Participate in state Shoreland Rules Update Project.
- Revise Shoreland ordinances for compliance with new state rules if necessary
- Enforce construction site erosion control rules.
- Consider County ordinance provisions encouraging soil erosion mitigation during construction.

Objective: Improve flood control, drainage systems and stormwater retention.

Actions:

- Administer a Floodplain Ordinance to protect public health, safety and welfare.
- Inform the public on dangers of flooding and benefits of floodplain preservation.
- Work with FEMA to create updated digital floodplain maps.
- Cooperate with City of Rushmore efforts to improve storm water drainage.
- Implement City of Worthington flood control measures on CD12.
- Facilitate City of Adrian efforts to improve storm water drainage.
- Develop a GIS layer of all public drainage systems and include: system name, watershed size, outlets, date established, system type, repair history, improvement history, and other relevant data.
- Promote and cost-share installation of on-site stormwater retention and rain gardens to reduce peak storm-event flows.
- Facilitate a drainage retention demonstration project.
- Seek additional funding for water retention structures within the Jack Creek and Elk Creek (Des Moines), and Elk Creek (Rock River) watersheds.
- Seek additional funding for water retention structures within the Okabena-Ocheda watershed.

Objective: Encourage wetland restoration and protection of natural habitat.

Actions:

- Administer the Wetland Conservation Act.
- Utilize USFWS drained wetland inventory and identify high priority areas for wetland restoration and enhancement.

- Work with DNR and US Fish and Wildlife Service to maintain wetlands in existing wildlife areas.
- Educate landowners on the benefits of restoring wetlands, using Wetland Reserve Program, Conservation Reserve Program and Continuous CRP.
- Enroll 100 acres of marginal land into wetland restoration programs.
- Provide information to landowners on benefits of appropriate natural cover on habitat for threatened and endangered species.
- Consider benefits of wildlife habitat in project prioritization

## Priority Concern: Public Water Supply

**Goal: Assure long-term quality and quantity of public water supplies, with a priority for DWSMAs and areas not currently served by public/community systems**

Objective: Support Wellhead Protection planning and implementation.

Actions:

- Assist with completing Wellhead Protection Plans as MDH establishes local priority areas.
- Work with water suppliers to implement Wellhead Protection Plans.
- Review land use plans and ordinances to insure minimal development impacts on groundwater.
- Educate landowners near public supply wells on measures to protect groundwater.
- Consider drinking water sources in land use and development hearings.
- Amend zoning ordinances and watershed district rules to consider drinking water sources.

Objective: Prevent groundwater contamination from unused wells and gravel pits.

Actions:

- Work with well contractors to promote proper well protection and sealing.
- Inventory unused wells in GIS layer.
- Develop best management standards for gravel pit reclamation to be considered during conditional use permit process.

Objective: Prevent contamination of groundwater aquifers through the sealing of 20 unused wells per year.

Objective: Facilitate land retirement in critical areas.

Actions:

- Work with water suppliers to identify opportunities to retire lands in vulnerable areas.
- Consider benefits of wildlife habitat and recreation in project prioritization.
- Establish public and private partnerships to take advantage of opportunities to retire land as they become available.
- Accomplish land retirement when opportunities become available.

- Seek additional funding from USDA and other sources for land retirement.

Objective: Support rural water systems and long-term water supply.

Actions:

- Support efforts of public water suppliers to secure additional sources of water.
- Support funding for Lewis & Clark Regional Water System.
- Promote water conservation.
- Monitor groundwater and review all available monitoring data and information.



# 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.