

Cottonwood River Watershed: Water Plans

The Cottonwood River Watershed encompasses Brown, Cottonwood, Lyon, Murray, Nicollet, and Redwood 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:

Brown County LWMP 2008-2013

Cottonwood County LWMP 2007-2017 amended 2012

Lyon County LWMP 2007-2017 amended 2011

Murray County LWMP 2007-2017 amended 2012

Nicollet County LWMP 2008-2018

Redwood County LWMP 2005-2015 amended 2010

Water Plan Evaluation

Concern	Brown	Cottonwood	Lyon	Murray	Nicollet	Redwood
Conservation BMPs						
Coordination/Partnership						
Erosion Control						
Feedlot Compliance						
Groundwater						
SSTS/ISTS						
Technical/Financial Assistance						
Wellhead Protection						
Wetlands						
Abandoned Wells						
Education						
Monitoring						
TMDL - Impaired Water						
Priority Pollutants						
Sediment						
Seek Funding						
Surface Water						
Water Retention						
Development Concerns						
Drainage Management						
Shoreland Management						
Stormwater Management						
Watershed-based Approach						
Manure Management Plan						
Municipal Wastewater						
New Technology						
Nutrient Management						



Concerns addressed in County Water Plan associated with nutrient issues

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

Brown County Local Water Management Plan (2008-2013)

Priority Concern: Soil Erosion

Goal: Address impaired surface waters and their TMDL's

Objective: Develop understanding of water quality issues.

Actions:

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

Objective: Reduce the impairments in surface waters.

Actions:

- Cooperate with SWCD and NRCS to market available conservation programs to landowners.
- Develop strategies with the county drainage authority to address water quantity issues that explore alternatives to existing drainage management.
- Utilize Counties Geographic Information Systems (GIS) data to inventory and target areas for best management practices.
- Provide educational opportunities on the TMDL process to the public through articles, meetings and personal contacts.
- Partner with Cities and Industries to define their role in the TMDL process and the practices they can utilize to reduce impacts.

Objective: Delisting of existing impaired waters.

Actions:

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

- Work with individuals and businesses to help develop plans that will reduce their impacts to the developed implementation plan on impaired reaches.
- Use developed priority areas as guide on progress and update implementation strategy based on successes and continued sampling.

Goal: Reduction soil erosion and sedimentation on agricultural lands

Objective: Identify areas that show potential for high erosion.

Actions:

- Use available GIS resources and soil survey information to identify areas of concern where soil and slope conditions exist that may cause highly erodible conditions.
- Identify and map areas to be targeted for implementation projects.
- Prioritize implementation projects based on impaired waters.

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

Actions:

- Provide education to landowners in targeted areas on BMP's and conservation programs available through County, State and Federal programs.
- Work with the Brown County SWCD to pursue additional cost-share and incentive funding for BMP's.
- Work with County Board as the Ditch Authority to establish a long term or permanent buffer program.

Goal: Reduce streambank erosion and ditch bank erosion

Objective: Identify problem areas within the County.

Actions:

- Utilize GIS data and ditch records to identify high priority areas prone to stream and ditch bank erosion.
- Conduct air photo reviews of priority areas.
- Conduct site visits and document erosion impacts.
- Inventory and prioritize sites based on implementation potential.

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

Actions:

- Target sites on the inventory list to educate and provide assistance to landowners on erosion control measures.
- Pursue funding for the implementation of buffer strips and stream bank stabilization practices.

- Develop and provide information on upland management practices including wetland restorations, water storage, and infiltration practices that help to store and meter water.
- Provide education and information on grazing management practices that reduce bank erosion.
- Seek and provide funding for demonstration projects for fencing or buffers that show benefits of bank stabilization.
- Work with County Drainage Authority to develop a plan that considers water retention and storage as part of ditch repair and improvements.
- Work with Ditch Authority on possible funding of buffer incentives through the County.
- Research and provide information on cost effective conservation practices that provide ditch and stream bank stabilization and report to County Board.
- Work with SWCD and NRCS to encourage the re-enrollment of expiring CRP contracts that promote stream and ditch buffers.
- Demonstrate conservation tillage, alternative drainage practices and BMP's through field days sponsored by the County, U of M, State Agencies and farm groups and businesses.

Goal: Reduce urban runoff and stormwater impacts to surface waters

Objective: Assess urban nonpoint source pollution in Brown County.

Actions:

- Consult with cities to review storm water system designs and current outlet systems.
- Consult with cities to determine flows at different storm event levels.
- Consult with industries to determine discharges to storm sewer systems and permitted discharges.
- Sample to determine types and quantities of pollutants seen in the storm water system.
- Work with State agencies to determine acceptable levels for storm water management.
- Assess the nature, cause, and effect of urban runoff and storm water pollution on surface waters.

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

Actions:

- Provide information and education opportunities to local officials on non-point source pollution, runoff and storm water issues.
- Provide information to communities on the use of BMP's that reduce the effects of storm water runoff.
- Provide education and training opportunities for implementation of storm water best management practices to city utility employees.
- Assist in providing Phase II Storm water Program workshops for local officials and contractors.
- Provide education opportunities to developers, and contractors on low impact development.
- Provide education opportunities that highlight the role citizens play in nonpoint source pollution through press releases and community events.

- Educate homeowners on the proper handling and disposal of household hazardous waste.
- Offer incentives to residents to encourage redirecting runoff to pervious surfaces for on-lot infiltration.

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

Actions:

- Assist communities to utilize existing and pursue additional funding for the implementation of urban best management practices.
- Provide technical and financial assistance to communities to assist officials, developers, and contractors in fulfilling Phase II Storm water Program requirements.
- Encourage and provide information on the utilization of storm water management practices including retention, infiltration and storm water wetlands.
- Provide assistance on projects to follow erosion and sediment control regulations and techniques available from the MPCA and Minnesota Erosion Control Association (MECA).
- Encourage the development of Storm water Management Plans that consider practices that improve water quality including street sweeping, catch basin cleaning, leaf litter management, salt application, snow removal storage, ponds, filter strips, infiltration and plans for future improvements.

Priority Concern: Groundwater

Goal: Protect ground water sources from pesticide and fertilizer contamination from agricultural and urban contamination

Objective: Obtain Groundwater information relating to potential impacts.

Actions:

- Compile and review monitoring data from MDA on pesticide application and groundwater contamination.
- Review Brown County Groundwater Vulnerability Project information; Work with MDNR and MGS on well log survey.
- Work with Brown Nicollet Community Health for well information from nitrate testing studies.

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

Action(s):

- Use MDA guidelines to promote pesticide water quality BMP's.
- Concentrate education activities on priority areas that show greatest potential for groundwater impacts.
- Work with and provide information to applicators and producers on following the University of Minnesota recommended application rates.

- Provide field day education opportunities for ag suppliers, applicators and property owners on proper application practices.
- Encourage soil sampling to gain a better understanding of soil needs before application.
- Provide technical and financial assistance to assist producers in adopting BMP's to reduce the impacts of manure runoff.
- Develop residential educational resources on chemical and fertilizer application.
- Provide educational resources and technical assistance to community groups, schools and at community events on utilizing BMP's.

Goal: Protect drinking water sources

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

Actions:

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

Objective: Encourage private well protection from contamination sources.

Actions:

- Educate homeowners, realtors, and contractors on the importance of maintaining proper setbacks from private wells to potential contamination sources.
- Educate homeowners and realtors on the importance of well disclosure.
- Encourage homeowners to get private wells tested on a regular basis.

Objective: Encourage proper sealing of unused or abandoned wells.

Actions:

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

Goal: Minimize impacts to groundwater sources from industrial and rural development

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

Actions:

- Define and map areas that may have low availability of groundwater resources and high potential for contamination.
- Obtain up to date information on water use practices involving rural development including feedlot needs and ethanol production.
- Inform Planning and Zoning office on industrial uses that have high water use potential and develop plans that consider high water use impacts.
- Work with DNR to consider planning for significant water use developments.

Priority Concern: Drainage

Goal: Improve drainage management system based on water quality goals

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

Actions:

- Utilize mapping and data management process from current GIS ditch layer for public drainage systems.
- Field verify ditch systems to determine as built conditions.
- Compile ditch information relating to previous repair and improvements.
- Inventory conservation projects currently active on ditch network.
- Consider new GIS based information system with archived ditch maps and compiled information.

Objective: Determine and map problem areas.

Actions:

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

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

Actions:

- Utilize GIS data to create potential water retention sites.
- Identify upstream practices that slow or reduce flow to receiving waters in problem areas.
- Pursue funding opportunities for water storage or wetland restorations in high priority areas.
- Explore funding mechanisms through the Ditch Authority that rewards landowners for their water retention efforts through incentives or reduced taxing.
- Develop controlled drainage demonstration site.

Objective: Develop education and incentives programs to increase conservation practices.

Actions:

- Promote and seek funding for the installation of buffers on the drainage systems.
- Pursue funding for alternatives to surface tile inlets.
- Provide information and educational resources on water retention and wetland restoration efforts to officials and landowners.
- Provide information and educational resources on controlled drainage to officials and landowners.
- Develop economic worksheet considering water storage benefits to the system in reduced maintenance costs.
- Encourage the County Drainage Authority to partner with other agencies for project support and funding.

Priority Concern: Wetlands/Water Retention

Goal: Protect existing wetlands and increase wetland resources

Objective: Identify current wetlands and potential wetland restoration sites.

Actions:

- Create wetland inventory for existing wetlands covered under local, State and Federal jurisdictions
- Create drained wetlands inventory for water storage potential
- Create GIS map of wetlands currently managed through an easement or conservation program
- Identify wetland preservation areas according to the Wetland Conservation Act.

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

Actions:

- Collaborate with agency and conservation group partners to share information gathered through the inventory process Develop information to distribute to contractors, developers and realtors on wetland identification
- Provide wetland training opportunities to local officials who make planning, development and permitting decisions
- Work with DNR and Planning and Zoning on lakeshore development wetland impact issues
- Provide lakeshore owners information on needed permits for vegetation removal and beach development by the DNR.

Objective: Encourage wetland restoration and management.

Actions:

- Identify through the building permit process potential wetland impacts that may need consideration
- Protect existing wetland areas for their value to flood reduction, infiltration, sediment reduction, erosion control and nutrient reduction
- Administer the Wetland Conservation Act
- Work with DNR and USFWS to maintain existing wildlife and wetland areas; Educate landowners to the benefits of converting drained wetlands in the WRP and CRP programs
- Work with SWCD and other agencies to enroll individuals in wetland restoration programs.

Objective: Develop a Local Comprehensive Wetland Projection and Management Plan.

Actions:

- Form a stakeholder/advisor group of County Board members, BWSR, DNR, Brown County SWCD, Brown County NRCS and local citizens of the County
- Develop the plan according to Wetland Conservation Act 8420.0650.

Priority Concern: Human Wastewater

Goal: Eliminate Subsurface Sewage Treatment Systems (SSTS) contamination to surface and groundwater.

Objective: Maintain onsite sewage treatment inspection program.

Actions:

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

Objectives: Provide education and seek funding for septic program.

Actions:

- Provide educational materials on system design and maintenance to new septic system owners
- Provide pumping notice to homeowners for maintenance to systems
- Develop information to be used at meetings, events and shows on the importance of SSTS upgrade and maintenance
- Provide financial and technical status reports to County Officials
- Inventory of systems considered Imminent Threat to Public Health or Safety

- Continue seeking funds for low interest loan programs sponsored by Clean Water Partnerships and County Septic fund.

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

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

Actions:

- Work with waste water operators and municipal officials to gain understanding of current systems
- Develop inventory of current treatment plant operations
- Obtain permit information pertaining to facility discharges and their potential impacts to impaired waters.

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

Actions:

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

Cottonwood County LWMP 2007-2017 amended 2012

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.

Lyon County LWMP 2007-2017 amended 2011

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

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 NO₃-N, fecal coliform, chloride, total dissolved solids, and NH₃
- 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

Nicollet County LWMP 2008-2018

Priority Concern: Stormwater management

Goal: Stormwater control

Objective: Innovative techniques for city stormwater control

Actions:

- Assist the City of Lafayette with their stormwater improvement project
- Assist the City of Lafayette with installation of 4 rain gardens
- Assist cities in researching grants and loans for stormwater projects, including control of erosion during construction
- Work with cities to continue and increase stormwater education
- Encourage the cities to continue to inform their citizens of the outlet source of the storm water drains

Objective: Erosion control and best management practices

Actions:

- Continue research into various practices
- Implement new practices at 5 locations
- Hold one demonstration of new practices each year
- Hold one demonstration on current BMPs each year
- Research methods to address ravine erosion

Objective: Sensitive land along ravines and streams

Actions:

- Implement BMPs at 20 locations throughout the 10 year plan
- Hold one educational event per year on ways to keep surface water from eroding ravines
- Promote structural practices in ravine buffer strips

Objective: Establish filter strips along riparian corridors, bluff land interfaces, ditches, and natural streams

Actions:

- Establish 5 buffer strips per year
- Send out 20 proposals to landowners per year

Objective: Stormwater education

Action:

- Develop and distribute information on the BMPs of stormwater management yearly

Priority Concern: Urban and Rural Resource Management

Goal: Urban and rural resource management

Objective: Establish buffers and native plantings

Actions:

- Establish buffer strips around 2 existing wetlands during the duration of the Plan
- Hold 2 demonstrations on all aspects of native grass plantings in rural and urban areas where applicable

Objective: Subsurface sewage treatment systems

Actions:

- Upgrade 65 non-compliant systems per year
- When applicable continue with County funding for upgrades
- Continue funding full time SSTS inspector program

Objective: Wetlands

Actions:

- Utilize college interns to complete mapping historic wetlands started under Seven Mile Creek CWP project
- Work with other agencies to reestablish 25 acres of wetlands

Objective: Parks and scenic areas

Actions:

- Continue efforts to purchase additional land for established parks and scenic areas
- Search out grants and other avenues to continue to furnish state-of-the-art playground equipment
- Continue to enhance the county park and scenic areas with landscaping (including costs)
- Assist the Parks Department and Probation Office in the building of a structure at SMC Park to store equipment for the Park and Sentence-to-Serve crew
- Assist landowners, cities, townships and agencies in preserving and enhancing scenic areas such as lakes and the scenic roadways as request

- Work with DNR and landowners in the Swan Lake Watershed to plant 1 area in native plants and restore 1 wetland area within the 10 year lifespan of the plan
- Assist with grants and other contributions for purchase of the 2.8 acre lot adjoining and to the west of Minnemishinona Falls Scenic Outlook

Objective: Manure management plan

Actions:

- Advocate manure and soils testing with 10 area producers
- Develop 5 manure plans utilizing U of M guidelines and match up application rates with needs of crops and discuss with area producers
- Discuss with 5 area producers the issues of over application of commercial fertilizer and manure
- Seek 2 landowners who will erect educational signs that show benefits of using manure as fertilizer, e.g. 10 hogs fertilize 1 acre

Objective: Solid waste

Actions:

- Continue to enforce the Solid Waste Ordinance
- Continue ways of promoting proper solid waste disposal throughout the county
- Continue Open Burning/Burn Barrel education campaign at the County Fair demonstrations and presentations
- Hold Household Hazardous Waste Collections and Tire-Appliance Electronic Collections yearly (cost includes disposal and staffing)
- Develop and distribute educational information packets on the dangers of using backyard burn barrels to 50 citizen per year
- Give annual presentations to 2 schools on recycling, dangers of backyard burning and/or solid waste
- Seek Funding for solid waste education and help clean up problem areas

Objective: Education

Actions:

- Continue to hold the Annual Children's Water Festival for Fourth Graders
- Continue to attend Career Day and present occupational information
- Annually donate tree seedlings to elementary students
- Continue to participate in the Fort Ridgely Education Days every year

Priority Concern: Total Maximum Daily Loads

Goal: TMDLs

Objective: Seven Mile Creek Watershed (SMC WS)

Actions:

- Assist with the implementation of the Fecal Coliform TMDL Study
- Seek innovative ways of accomplishing the objectives of the Fecal Coliform TMDL Implementation
- Contact 5 landowners along ditch systems to implement CRP
- Contact 5 landowners for wetland restorations under CRP
- Install 2 structural practices through EQIP & State Cost-Share Program

Objective: Rush River Watershed (RR WS)

Actions:

- Complete the Implementation Plan for Fecal coliform Bacteria Impairment
- Assist with the Implementation of the Fecal Coliform TMDL Study
- Assist with the Turbidity TMDL Study
- Seek innovative ways of accomplishing the objectives of the Fecal Coliform Implementation Plan
- Contact 5 landowners along ditch systems to implement CRP
- Contact 5 landowners for wetland restorations under CRP
- Install structural practices through EQIP & State Cost-Share Program
- Install 5 rock tile inlets per year

Objective: Middle Minnesota BMP CWP

Action:

- Continue the initiatives as set forth in the CWP work plan

Objective: Roger's a.k.a Robard's Creek

Actions:

- Investigate the Fish Biota (IBI) Impairment Listing on Roger's Creek
- Pursue removal from the TMDL List if appropriate
- Pursue writing a TMDL Study if applicable

Objective: Minnesota River TMDLs

Action:

- Work with adjacent counties along the Minnesota River to form partnerships to complete the Turbidity TMDL Study for implementation

Objective: Education

Action:

- Promote education on the improvement of the Minnesota River and the importance of its tributaries

Priority Concern: Ground water

Goal: Groundwater

Objective: Township well water testing

Actions:

- Continue Township Well Water testing program if applicable, every three years
- Continue to support GIS water quality data base input from township testing

Objective: Wellhead Protection

Actions:

- Assist the cities of North Mankato and Courtland in wellhead protection plans and implementation as applicable
- Assist property owners that have transient and non-transient wells, as designated by MDH, in wellhead protection plans and implementation as applicable
- Assist property owners in education about wellhead areas around private wells as applicable
- Assist in seeking wellhead protection implementation funding

Objective: Well Sealing

Actions:

- Use state cost share and other funds to assist with 2 well decommissioning per year
- Assist cities in obtaining funding for relocation and sealing of municipal wells

Objective: Education

Actions:

- Assist Extension in one educational event on protection of rural wells
- Assist in education on non-community public water supply systems and interwell management zone at County Fairs

Redwood County LWMP 2005-2015 amended 2010

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