Redwood County Comprehensive Local Water Management Plan

January 2011 – December 2015

2010 Amendment

Executive Summary

Five Year Implementation Plan

Executive Summary

Table of Contents

Executive Summary
2010 Amendment

The Redwood County Local Water Management Plan will be in effect for 10 years* from January 2006 – January 2016. *There are two five-year implementation plans, one from January 2006 – December 2010 and the second one* will be implemented from *January 2011 – December 2015.

REDWOOD COUNTY TASK FORCE MEMBERS:

Gary Dahms – County Commissioner
Pricilla Klabunde – County Commissioner
Kerry Netzke – Area II Minnesota River
Dennis Fultz – Citizen & Ag Producer
Paul Hagen – Citizen & Ag. Producer
Rich Seavert – Business Owner
Brent Lange – Environmental Office
Jim Doering – City of Redwood Falls
Ralph Heiling – Redwood SWCD
Judy Schulte – Redwood SWCD
Marilyn Bernhardson – Water Plan Coordinator

This section will address the following items:

- Abbreviations
- Version and Purpose of the plan
- County Information
- Watershed Information
- Impaired Waters
- Past Accomplishments
- Ongoing Activities
- Description of the Priority Concerns that will be addressed
- A summary of the goals and actions for the implementation program of each of the Priority Concerns
- A summary of the consistency of the plan with other pertinent local, state and regional plans and controls.

Below is a list of abbreviations used in the Executive Summary and the Implementation Program sections of this revision:

- **WMC** = Water Management Coordinator
- **SWCD** = Soil and Water Conservation District
- **RCWMP** = Redwood County Water Management Plan
- **NRCS** = Natural Resources Conservation Service
- **FSA** = Farm Service Agency
- **USFWS** = United States Fish & Wildlife Service
- **DNR** = Department of Natural Resources
- **CH** = Redwood County Highway Department
- **Twps** = Townships
- **Area II** = Area II Minnesota River Basin Project
- **EO** = Redwood County Environmental Office
- **RCRCA** = Redwood-Cottonwood Rivers Control Area
- **EXT** = University of Minnesota Extension Service
- **SAFE** = State Acres For Wildlife Enhancement
- **MDH** = Minnesota Department of Health
- **WHP** = Wellhead Protection Plan
- **EQIP** = Environmental Quality Incentive Program
- **BMP** = Best Management Practice
- **RIM** = Reinvest In Minnesota
- **BWSR** = Board of Water and Soil Resources
- **TMDL** = Total Maximum Daily Load
- **MPCA** = Minnesota Pollution Control Agency
- **SWORC** = Southwest Outreach and Research Center
- **CRP** = Conservation Reserve Program

VERSION AND PURPOSE:

The third version of the Redwood County Comprehensive Water Plan dated, December 2005, was renamed Redwood County Comprehensive Local Water Management Plan. This plan will place more emphasis on implementation versus planning.

On March 16, 2010, the Redwood County Board of Commissioners passed a resolution to amend the implementation and executive summary of Redwood County Comprehensive Local Water Management Plan. On March 31, 2010 a Notice of Decision to amend the Redwood County Comprehensive Local Water Management Plan was sent to State Agencies, Local Units of Government and Special Interest Groups. Comments were sought from these same agencies and other groups. The Task Force met to review the priorities and develop the 2nd implementation plan that will be in effect from January 2011 – December 2015.

Redwood County Comprehensive Local Water Management Plan has two purposes:

1) To identify existing and potential problems and opportunities for the protection, management and development of water and related land resources.
2) To develop objectives and carry out a plan of action to promote sound hydrologic management of water and related resources and effective environmental protection.

The plan focuses on Priority Concerns as identified in coordination with local governments and state agencies (2003 Statutory M.S. 103B.301) and an Implementation Plan that addresses the Priority Concerns.

REDWOOD COUNTY INFORMATION:

Redwood County is located in Southwestern Minnesota. The total land area is 874 square miles or 559,360 acres. The county population reached an all-time high of 22,229 people in 1940. However, in the 1980s the population began a serious decline, to only 16,519 in 2002. Based on the last 25-year trend, it is anticipated that the county will continue to see a slight decrease in population over the next 10 years.

The soils in Redwood County are dark and the terrain varies from nearly level to steep. These soils formed in glacial till or in material sorted out of the till by water. The original vegetation was medium to tall prairie grasses and forbs.

Agriculture is the dominant land use in the county. Approximately 545,248 acres, or 90% of the land, is in agriculture, with 486,900 acres or 87% of the land in crop production. Corn, soybeans and livestock are the primary sources of agricultural income. Agriculture will remain the main industry in Redwood County with a projected increase in the size of farms.

Land retirement programs have been very successful in Redwood County. There are 10,405 acres under Reinvest in Minnesota (RIM) contracts and 16,547 acres enrolled in the Conservation Reserve Program (CRP). The RIM acres will remain under permanent easement and the CRP will be expiring over the course of the next few years.

There are 15 incorporated cities in the county: Belview, Clements, Delhi, Lamberton, Lucan, Milroy, Morgan, Redwood Falls, Revere, Sanborn, Seaforth, Vesta, Wabasso, Walnut Grove and Wanda. Redwood Falls is the county seat. All cities in the county, except Seaforth, have central water distribution centers and central sewage systems and waste water treatment plants. However, the city of Seaforth is currently in the process of installing both a central water distribution center and a central sewage system.

Redwood County consists of 26 townships: Brookville, Charlestown, Delhi, Gales, Granite Rock, Honner, Johnsonville, Kintire, Lamberton, Morgan, New Avon, North Hero, Paxton, Redwood Falls, Sheridan, Sherman, Springdale, Sundown, Swedes Forest, Three Lakes, Underwood, Vail, Vesta, Waterbury, Westline and Willow Lake.

Ninety eight percent of the land in Redwood County is privately owned. The remaining 2% of land is under state ownership or is owned as part of the Lower Sioux Reservation.

All the county drains into the Minnesota River by way of Redwood River, Cottonwood River, many small streams and 517 miles of county drainage ditches.

WATERSHED INFORMATION:

Redwood County has four different watersheds that run through the county.

The Yellow Medicine Watershed is located in the northern four townships of the county. This 165,760 square mile watershed starts at Lake Shaokatan in Lincoln County. In Redwood County this watershed is made up of small streams and creeks and covers 73.99 square miles. Land use is predominantly agricultural; however it also has some of the oldest rocks in North America in the rock outcrop areas.

The Middle Minnesota Watershed is located in the eastern edge of the county. This 1,346 square mile Watershed is an odd shaped watershed that lies in parts of 8 counties. In Redwood County this watershed is made up of small streams and creeks and covers 141.58 square miles. Except for one city, the entire watershed is in agricultural production.

The Redwood River Watershed starts at the northwest edge of the county and runs east toward the city of Redwood Falls. This 640 square mile watershed originates in Pipestone County and drains into Lake Redwood before flowing into the Minnesota River.

Redwood County has approximately 220.30 square miles of the total watershed and is predominantly agricultural. Most of the tributaries in the main stem of the Redwood River are classified as county or judicial ditches. Most of the natural wetlands have been drained.

The Cottonwood River Watershed covers most of the southern half of Redwood County This 1,310 square mile watershed originates in Lyon and flows into the Minnesota River. Redwood County has approximately 465.39 square miles of the total watershed and is predominantly agricultural. Along with county and judicial ditches are several major creeks that flow into the Cottonwood River. Like all other watersheds in the county, most of the wetlands have been drained.

Redwood County is a member of Redwood-Cottonwood River Control Area (RCRCA). This is a joint powers organization that covers both the Redwood and Cottonwood River Watersheds. This non-regulatory joint powers organization was established in 1983. RCRCA works with SWCD and Counties to enhance and protect the Redwood and Cottonwood Rivers by making land use changes that improve water quality. Redwood County Comprehensive Local Water Management Plan goals, objectives and actions will help address the identified TMDL's in both river systems.

IMPAIRED WATERS:

The following is a list of Impaired Waters in Redwood County based on the Clean Water Act Section 303 [d] from 2008.

Reach	Assessment Unit ID #	Affected Use	Pollutants/Stressors
Minnesota River Wood Lake Cr to Sacred Heart Cr	07020004-504	Aquatic Consumption	Mercury in Fish Tissue
Minnesota River Wood Lake Cr to Sacred Heart Cr	07020004-504	Aquatic Consumption	[1]PCB in Fish Tissue
Minnesota River Sacred Heart Cr to Timms Cr	07020004-507	Aquatic Consumption	Mercury in Fish Tissue
Minnesota River Sacred Heart Cr to Timms Cr	07020004-507	Aquatic Consumption	[1]PCB in Fish Tissue
Minnesota River Timms Cr to Redwood River	07020004-509	Aquatic Consumption	Mercury in Fish Tissue
Minnesota River Timms Cr to Redwood River	07020004-509	Aquatic Consumption	[1]PCB in Fish Tissue
Minnesota River Timms Cr to Redwood River	07020004-509	Aquatic Life	Turbidity
Minnesota River Redwood R to Beaver Cr	07020004-511	Aquatic Consumption	Mercury in Fish Tissue

Minnesota River Redwood R to Beaver Cr	07020004-511	Aquatic Consumption	[1]PCB in Fish Tissue
Echo Creek Unnamed Cr to Minnesota River	07020004-604	Aquatic Life	Fish Bioassessments
Redwood River Ramsey Cr to Minnesota River	07020006-501	Aquatic Recreation	Fecal Coliform
Redwood River Ramsey Cr to Minnesota River	07020006-501	Aquatic Consumption	Mercury in Fish Tissue
Redwood River Ramsey Cr to Minnesota River	07020006-501	Aquatic Life	Turbidity
Redwood River Threemile Cr to Clear Cr	07020006-503	Aquatic Life	Fish Bioassessments
Redwood River Threemile Cr to Clear Cr	07020006-503	Aquatic Consumption	Mercury in Fish Tissue
Clear Creek Headwaters to Redwood River	07020006-506	Aquatic Recreation	Fecal Coliform
Redwood River Dam to Ramsey Cr	07020006-508	Aquatic Consumption	Mercury in Fish Tissue
Redwood River Clear Cr to Redwood Lk	07020006-509	Aquatic Recreation	Fecal Coliform
Redwood River Clear Cr to Redwood Lk	07020006-509	Aquatic Consumption	Mercury in Fish Tissue
Redwood River Clear Cr to Redwood Lk	07020006-509	Aquatic Life	Turbidity
Minnesota River Wabasha Cr to Fort Ridgely Cr	07020007-512	Aquatic Consumption	Mercury in Fish Tissue
Minnesota River Wabasha Cr to Fort Ridgely Cr	07020007-512	Aquatic Consumption	[1]PCB in Fish Tissue
Minnesota River Beaver Cr to Birch Coulee	07020007-514	Aquatic Consumption	Mercury in Fish Tissue
Minnesota River Beaver Cr to Birch Coulee	07020007-514	Aquatic Consumption	[1]PCB in Fish Tissue
Minnesota River Beaver Cr to Birch Coulee	07020007-514	Aquatic Life	Turbidity
Minnesota River Birch Coulee to Redwood CSAH 11	07020007-559	Aquatic Consumption	Mercury in Fish Tissue
Minnesota River Birch Coulee to Redwood CSAH 11	07020007-559	Aquatic Consumption	[1]PCB in Fish Tissue

Minnesota River Redwood CSAH 11 to Wabasha Cr	07020007-560	Aquatic Consumption	Mercury in Fish Tissue
Minnesota River Redwood CSAH 11 to Wabasha Cr	07020007-560	Aquatic Consumption	[1]PCB in Fish Tissue
Cottonwood River Headwaters to Meadow Cr	07020008-502	Aquatic Consumption	Mercury in Fish Tissue
Cottonwood River Meadow Cr to Plum Cr	07020008-503	Aquatic Consumption	Mercury in Fish Tissue
Cottonwood River Plum Cr to Dutch Charlie Cr	07020008-504	Aquatic Recreation	Fecal Coliform
Cottonwood River Plum Cr to Dutch Charlie Cr	07020008-504	Aquatic Consumption	Mercury in Fish Tissue
Cottonwood River Plum Cr to Dutch Charlie Cr	07020008-504	Aquatic Life	Turbidity
Cottonwood River Dutch Charlie Cr to Dry Cr	07020008-505	Aquatic Consumption	Mercury in Fish Tissue
Cottonwood River Dry Cr to Mound Cr	07020008-506	Aquatic Consumption	Mercury in Fish Tissue
Sleepy Eye Creek Headwaters to Cottonwood R	07020008-512	Aquatic Recreation	Fecal Coliform
Sleepy Eye Creek Headwaters to Cottonwood River	07020008-512	Aquatic Life	Fish Bioassessments
Sleepy Eye Creek Headwaters to Cottonwood River	07020008-512	Aquatic Life	Turbidity
Plum Creek (Judicial Ditch 20A) Headwaters to Cottonwood River	07020008-516	Aquatic Recreation	Fecal Coliform
Plum Creek (Judicial Ditch 20A) Headwaters to Cottonwood River	07020008-516	Aquatic Life	Turbidity
Dutch Charlie Creek Highwater Cr to Cottonwood River	07020008-517	Aquatic Recreation	Fecal Coliform
Dutch Charlie Creek Highwater Cr to Cottonwood River	07020008-517	Aquatic Life	Fish Bioassessments
Dutch Charlie Creek Highwater Cr to Cottonwood River	07020008-517	Aquatic Life	Turbidity
Dutch Charlie Creek Headwaters to Highwater Cr	07020008-518	Aquatic Life	Fish Bioassessments
Dutch Charlie Creek Headwaters to Highwater Cr	07020008-518	Aquatic Life	Turbidity

Lakes	Lake ID #	Affected Use	Pollutants/Stressors
Redwood	64-0058-00	Aquatic Consumption	Mercury in Fish Tissue
Redwood	64-0058-00	Aquatic Recreation	Nutrient/Eutrophication Biological Indicators

[1]Polychlorinated Biphenyls (PCB)

Excess nutrients and sediment in surface waters are a primary cause of water quality degradation. Efforts to limit nutrients and sediment from reaching surface waters are key priorities of the RCWMP. Through the use of the approved TMDL Dissolved oxygen plan and the soon to be approved TMDL Turbidity plan for the Minnesota River along with the active participation in the development of the TMDL Turbidity and Fecal Coliform Bacteria plans for both the Redwood and Cottonwood River watersheds the Redwood SWCD, RCRCA, NRCS, DNR and Redwood County Environmental Office have been able to develop the RCWMP along with using this vital information on past projects and activities. In order to accomplish these set goals within the implementation section of the RCWMP at the most effective level possible, there has been a focus set on individual sub-watersheds within Redwood County. By prioritizing these sub-watersheds it allows for upland treatment of Redwood County's highly impaired waters. Each action within the Implementation plan has prioritized sub-watersheds where the projects are to be completed.

PAST ACCOMPLISHMENTS:

Redwood County Comprehensive Local Water Management Plan working through Redwood Soil and Water Conservation District has addressed Water Quality and other conservation issues during the past 5 years of implementations. Following is a summary of some of those accomplishments that have been achieved in Redwood County from 2005-2009.

EDUCATION AND INFORMATION -

- Sent letters to cities indicating the importance of delineating wellhead protection areas.
- Made presentation to schools, Scouts, and others demonstrating the importance of protecting our groundwater.
- Participated in the Junior Ranger Program through the Community Recreation Program with an emphasis on water quality.
- Determined that 22 miles of the total 517 miles of drainage ditch are required to have a minimum of 1 rod bufferstrip.
- Continue to publish and distribute Ag. Best Management Practices brochure.

- Published news articles on the importance of establishing a bufferstrip on ditches and other surface water bodies.
- Purchased new groundwater model, stream table and other miscellaneous educational materials to use in educational opportunities throughout the county.
- Continue to help fund 6th grade students to attend Southwest Minnesota Employee's Environmental Fair.
- Had water quality displays at county fair and Farmfest.
- Each year publish a newsletter with information, facts, etc about water quality.
- Sponsors the Ecology Bus for two schools each year.
- Continued to promote the installation of best management practices.
- Along with 6 other SWCD's annually sponsor a conservation education for women.

MONITORING –

- Provided funds to complete special water testing when environmental concerns were expressed.
- Provide funding to Redwood County Public Health for water testing for families with small or infant children.
- Each year conduct secchi disc readings on Lake Laura.

LAND AND WATER TREATMENT –

- Sealed 50 wells from 2005 – 2009.
- Enrolled 635 acres of land in the farmable wetland program and other wetland restoration practices.
- Enrolled 830 acres along county ditches in the CRP filterstrip program
- Worked with landowners to complete nutrient management plans on 19,100 acres.
- Protected rare and declining species and isolated wetlands on 374 acres of Minnesota River Rock Outcrop.
- Provided 35 low interest loans to producers for installation of septic system upgrades, purchase tillage equipment, upgrade ag waste systems and purchase manure handling equipment.
- Provided funds for the delayed planting or destroying crops for the installation of best management practices.
- Implemented Wetland Conservation Act.
- Monitored 7 DNR wells each year for groundwater quantity.
- Continued funding the 72.5 acres of filterstrips.
- Developed plans on 274 acres to improve the cover on RIM contracts.
- Established 25 acres of tree plantings.
- Provided funds through the State Cost Share Program, Clean Water Legacy Funds and Environmental Quality Incentive Program to install the following practices:

35	acres Waterways
3.4	acres Terraces
43	Water and Sediment Control Basins
126	Alternative intakes
5	Multi-purpose Dam Repairs

ONGOING IMPLEMENTATION ACTIVITIES:

- Publish newsletter and news articles to address water quality and other conservation concerns.
- Provide low interest loans for upgrading septic systems and bring animal feedlots into compliance.
- Have displays at fairs, Farmfest and other events throughout the county.
- Participate in Employee Associations Environmental Fair.
- Continue to protect the installation of best management practices that help achieve TMDL and water quality goals.
- Continue to monitor wells for DNR to monitor groundwater quantity.
- Continue to implement the state's Wetland Conservation Act
- Promote the installation of filterstrips utilizing State of Minnesota Riparian Bufferstrip Program and Conservation Reserve Program.
- Continue to apply for funds to implement practices that will target water quality issues in sub-watersheds in the county.
- Continue to make presentations on the importance of conservation.
- Continue to promote CRP and continuous CRP.
- Continue to promote the importance of sealing abandoned wells.
- Help producers understand the importance of proper application of nutrients.
- Continue to sponsor the Ecology Bus for schools in the county.
- Promote the continued planting of trees and shrubs.
- Protect rare wetland on rock outcrops area in Minnesota River Basin
- As requested by the Environmental Office, review permits where wetlands could be an issue.
- Review DNR Permits as requested.
- Promote and install Living Snowfences.
- Continue to conduct Minn-Farm Assessments
- Upgrade remnant prairie sites.
- Continue to promote no-till and strip till practices
- Promote the replacement of stand pipe intakes to alternative intakes.
- Continue to promote sealing abandoned wells.
- Promote recycling & solid waste management.

DESCRIPTION OF PRIORITY CONCERNS:

The Priority Concerns on which the Redwood County Local Water Management Advisory Board will focus are as follows:

PRIORITY CONCERN 1: GROUNDWATER PROTECTION THAT WILL FOCUS ON WELLHEAD PROTECTION FOR PUBLIC WATER SUPPLY.

All communities as well as the rural residents depend on groundwater as the source of their water supply. Necessary measures should be taken to assure its quality and quantity. More emphasis needs to be directed toward groundwater protection

PRIORITY CONCERN 2: DRAINAGE MANAGEMENT FOCUSING ON WETLAND RESTORATIONS AND FLOODWATER RETENTION OPPORTUNITIES.

Redwood County has lost more than 90 percent of its natural wetlands. Loss of wetlands has resulted in increased agricultural and rural flooding, along with the loss of groundwater recharge, wildlife habitat and reduced and impaired water quality. Sedimentation readings on creeks and rivers document the need to manage drained land in Redwood County focusing on wetland restorations and floodwater retention opportunities.

PRIORITY CONCERN 3: SURFACE WATER QUALITY ADDRESSING IMPAIRED WATERS BY MAJOR WATERSHED FOR THESE PRIORITY POLLUTANTS: NUTRIENTS, TURBIDITY, BIOTA AND FECAL COLIFORM BACTERIA.

Redwood County has a high percentage of land in row crop production using large amounts of commercial fertilizer. The county also has large numbers of livestock requiring proper manure management. Surface water tests in all the watersheds in the county show increased levels of these pollutants in the water, particularly following heavy rains.

PRIORITY CONCERN 4: EROSION AND SEDIMENT CONTROL FOCUSING ON RESIDUE MANAGEMENT COUNTY-WIDE, AND GULLY AND CONCENTRATED FLOW AREAS IN THE SOUTHWEST PORTION OF REDWOOD COUNTY.

Increased erosion results in excess sediment and nutrients reaching the streams and lakes in the county. This, in turn, results in poor water quality and also negatively impacts aquatic plants and animals. Redwood County includes topography throughout which is susceptible to gully and concentrated flow. There is a very high percentage of land in row crop production that exposes the soil to both wind and water erosion much of the year. The sediment-laden water from the southwestern part of the county flows to the eastern part of the county.

SUMMARY OF GOALS AND ACTIONS

Summary of goals and actions for each Priority Concern includes:

PRIORITY CONCERN 1: GROUNDWATER PROTECTION THAT WILL FOCUS ON WELLHEAD PROTECTION FOR PUBLIC WATER SUPPLY.

The goal summary of this Priority Concern is to protect groundwater for all the citizens in the county.

Summary of the actions include:

- Contact public water suppliers with approved WHP to offer assistance with implementation activities.
- Assist remaining public water suppliers and MDH staff in development of wellhead protection plans.
- 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.
- Provide landowners and operators with a brochure on the importance of wise land use in delineated areas.
- Work with landowners to enroll vulnerable land into the Conservation Reserve Program.
- Send letter to identified individuals who may have abandoned wells in protection area, giving them highest priority for well sealing funds.
- Develop a brochure identifying potential groundwater contaminants for private well users.
- As funds become available conduct an inventory of all wells within a 2 mile radius of all public water supply wells in the county.
- Make presentations using the groundwater model and other educational tools illustrating the importance of groundwater protection.
- Educate producers on the effects of tile on groundwater discharge and the importance of implementing practices to improve recharge.

PRIORITY CONCERN 2: DRAINAGE MANAGEMENT FOCUSING ON WETLAND RESTORATION AND FLOODWATER RETENTION OPPORTUNITIES.

The goal summary of this priority concern is to improve surface water management by decreasing runoff and flooding and maintaining the current drainage systems in the county.

Summary of the actions:

- Each year enroll 10 producers in the Farmable Wetland Program or CP-23 wetland restoration practice to reduce flood potential by restoring wetlands.
- Educate producers on the importance to reduce flood potential and water velocity from drainage systems.
- Redwood SWCD will continue to implement the State Wetland Conservation Act.
- Replace bridges with floodwater retention projects where feasible.
- Replace open tile intakes with alternative intakes.
- Using CRP and RIM Riparian Buffer Initiative promote filterstrips until 50% of water courses in the county are protected by filterstrips at least 33 feet wide.
- Continue maintaining the 72.5 acres of filterstrips enrolled through Comprehensive Local Water Management Plan.
- Restore or construct at least one multi-purpose dam each year.
- Through news releases and direct contact inform landowners of the importance of not farming right up to a water course and the importance of leaving a filterstrip to protect the drainage system.
- Submit a newspaper article to all newspapers in the county, at least once each year to promote awareness of drainage regulations that affect citizens in the county.
- Install control structures to better manage the output of drainage systems.

PRIORITY CONCERN 3: SURFACE WATER QUALITY ADDRESSING IMPAIRED WATERS BY MAJOR WATERSHED FOR THESE PRIORITY POLLUTANTS: NUTRIENTS, TURBIDITY, BIOTA AND FECAL COLIFORM BACTERIA.

The goal summary of this priority is to protect, restore and improve the deterioration of surface water quality in lakes, rivers and streams.

- Work with five agricultural producers each year to develop nutrient management plans.
- Work with producers to encourage commercial applicators and crop consultants to implement variable rate application to insure correct amount of fertilizer is applied.
- Educate producers on the timing of application due to leaching and volatilization if applied prior to soil temperatures being below 50 degrees.
- Each year, work with two livestock producers who utilize manure to ensure they are testing before application and applying at recommended rates.
- Each year, provide assistance to one feedlot operator who has a pollution problem utilizing funds through EQIP or State Cost Share.
- Promote the installation of best management practices that will aid in the reduction of pollutant loading.
- Promote the installation of 5 bio-retention basins or rain gardens.
- Identify failing septic systems in the whole county.
- Educate Redwood County citizens on the importance of runoff control and surface water protection.
- Provide funds to sponsor presentations by the Prairie Ecology Bus Center to two schools in the county each year.
- Participate in more outreach to adults utilizing opportunities within the county, such as SWROC Field Days, Farmfest and other such events.
- Complete 10 gully stabilization structures in high priority sub-watersheds.

PRIORITY CONCERN 4: EROSION AND SEDIMENT CONTROL FOCUSING ON RESIDUE MANAGEMENT COUNTY-WIDE AND GULLY AND CONCENTRATED FLOW AREAS IN THE SOUTHWEST PORTION OF REDWOOD COUNTY.

The goal of this priority is to protect and preserve the soil resources in the county.

Summary of the actions include:

- Encourage land operators to install structural conservation practices to reduce erosion and sedimentation.
- Promote residue management
- Protect and increase wildlife habitat.
- Enroll acreage in CRP
- Establish tree plantings.

CONSISTENCY OF PLAN WITH OTHER PLANS DEVELOPED LOCALLY:

- Redwood County Comprehensive Local Water Management Plan is also the plan Redwood Soil and Water Conservation District adopts as its Comprehensive Plan.
- Redwood County updated its Comprehensive Plan which includes land use plans, highway plans and information about the county's facilities.
- The following plans have been references and used in the development of this plan:
  - Redwood River Diagnostic and Implementation Plan
  - Cottonwood River Diagnostic and Implementation Plan
  - Redwood County Ordinance

AS TMDL PLANS ARE COMPLETED AND APPROVED FOR IMPLEMENTATION THEY WILL BE INCORPORATED IN THE NEXT PLAN UPDATE.

Implementation Program
Table of Contents

Implementation Program
2011-2015

This section establishes the implementation program for the Priority Concerns. The program will identify the following items:

- Action to be completed.
- Who is responsible for implementation of the action
- When the action will be completed.
- The financial resources necessary to complete action.
- Which watershed, water body or groundwater resource will benefit from the accomplished action.

PRIORITY CONCERN 1: 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.

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

Protect public water supplies from possible sources of contamination due to land use activities.

OBJECTIVE 1: The cities of Redwood Falls and Sanborn have completed Phase I of the Wellhead Protection Plan (WHP) and will be implementing these plans. Contact remaining public water suppliers to encourage them to complete vulnerability assessments of the public water supply wells and drinking water supply management areas.

ACTION: Contact all public water suppliers with approved WHP plan to offer assistance with implementation activities.

Who: WMC
When: 2011-2015
Cost: In-kind
Benefit: Groundwater

ACTION: Assist remaining public water suppliers and MDH staff in the development of Wellhead Protection Plans (WHP).

Who: WMC and MDH
When: 2011-2015
Cost: In-kind
Benefit: Groundwater and Public Drinking water suppliers

OBJECTIVE 2: 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 and operators and provide them with a brochure on the importance of wise land use in these delineated areas.

Who: SWCD
When: 2011-2015
Cost: $100 to develop brochure
Benefit: Groundwater

ACTION: Work with landowners to enroll vulnerable land into the Conservation Reserve Program.

WHO: SWCD – Farmbill Staff
When: 2011-2015
Cost: In-kind
Benefit: Groundwater

OBJECTIVE 3: Provide well sealing funds to individuals who have abandoned wells in the wellhead protection areas of each public water supplier.

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

Who: RCWMP
When: 2011-2015 (as cities complete)
Cost: $350 per well sealed
Benefit: Groundwater

OBJECTIVE 4: Collaborate with public water suppliers in contacting individuals to make them aware of contaminants that can affect groundwater and ways to prevent groundwater pollution.

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

Who: RCWMP
When: 2012
Cost: $100 to develop brochure
Benefit: Groundwater

ACTION: As funds become available conduct an inventory of all wells within a 2 mile radius of all public water supply wells in the county.

Who: RCWMP
When: When funds are available
Cost: $200 per well
Benefits: Groundwater Research

OBJECTIVE 5: Educate county citizens of all ages on the importance of groundwater protection.

ACTION: Make 10 presentations utilizing the groundwater model and other educational tools to illustrate the importance of groundwater protection.

Who: RCWMP, SWCD
When: 2011-2015
Cost: $100/year
Benefit: Schools, civic groups and other organizations

ACTION: Educate producers on the effects of tile on groundwater discharge and the importance of implementing practices to improve recharge.

Who: SWCD and NRCS
When: 2011-2015
Cost: In-kind
Benefit: Groundwater

PRIORITY CONCERN 2: DRAINAGE MANAGEMENT FOCUSING ON WETLAND RESTORATIONS AND FLOODWATER RETENTION OPPORTUNITIES.

GOAL: Provide protection to the drainage management system in place in the county.

GOAL: As part of managing the drainage system, reduce sediment and nutrients from entering surface water bodies.

OBJECTIVE 1: Apply watershed-based principles to properly managing drainage system and wetland restorations.

ACTION: Enroll 10 people in the Farmable Wetland Program and CP-23 wetland restoration practice to reduce flood potential by restoring wetlands.

Who: SWCD, NRCS, FSA, USFWS, DNR
When: 2011-2015
Cost: $100,000 - $200,000
Benefit: Redwood River and Cottonwood River Watersheds targeting areas within 5 miles of the main stream of each river.

ACTION: Educate producers on the importance to reduce flood potential and water velocity from drainage systems,

Who: SWCD and NRCS
When: 2011-2015
Cost: In-kind
Benefits: Sub-watersheds within the Redwood and Cottonwood River Watersheds targeting Clear Creek and Plum Creek Sub-Watersheds.

ACTION: Implement the State Wetland Conservation Act. Redwood SWCD has been identified as the Local Governmental Unit in charge of implementation:

Who: SWCD
When: 2011-2015
Cost: $30,000 per year (BWSR 11,418 and SWCD in-kind)
Benefit: All county watersheds

OBJECTIVE 2: Incorporate flood control benefits into future road and bridge replacements.

ACTION: Replace bridges with a floodwater retention project whenever possible.

Who: Area II, RCWMP, CH, Twps,
When: 2006-2011
Cost: $30,000-$200,000 per project
Benefit: Cottonwood River and Redwood River Watersheds and Wabasha Creek Sub-Watershed.

OBJECTIVE 3: Improve the drainage ditch system in the county through proper management and the implementation of filterstrips.

ACTION: Replace 20 open tile intakes with alternative intakes.

Who: SWCD
When: 2011-2015
Cost: $6,000
Benefit: DNR Protected Waters

ACTION: Utilizing CRP and RIM Riparian Buffer Initiative to promote filterstrips until 50% of the water courses in the county have filterstrips at least 33 feet wide.

Who: SWCD, NRCS, FSA
When: 2011-2015
Cost: $300,000 - $500,000
Benefits: DNR Protected Waters

ACTION: Maintain the 72.5 acres of filterstrips enrolled through Redwood County Water Management Plan.

Who: RCWMP
When: 2006-2011
Cost: $9,400
Benefits: Drainage system where each filterstrip lies

OBJECTIVE 4: Incorporate the restoration or new construction of grade stabilization structures on the landscape to reduce sediment and nutrients from entering nearby surface water bodies.

ACTION: Restore or construct at least one grade stabilization structure per year.

Who: Area II, SWCD, NRCS and RCRCA
When: 2011-2015
Cost: $500,000
Benefits: Sub-Watersheds; Crow Creek, Wabasha Creek and main stream and sub-sheds south of the Cottonwood River.

OBJECTIVE 5: Educate landowners in the county on the drainage issues.

ACTION: Through news releases and direct contact inform landowners of the importance of not farming right up to a water course and the importance of leaving a filterstrip to protect the drainage system

Who: SWCD, NRCS, FSA, EO
When: 2011-2015
Cost: In-kind
Benefits: All water courses in the county

ACTION: Submit a newspaper article to all newspapers in the county, at least once each year to promote awareness of drainage regulations that affect citizens in the county.

Who: RCWMP, SWCD
When: 2006-2011
Cost: In-kind
Benefit: Redwood County citizens

OBJECTIVE 6: Work with five (5) landowners to help them understand that meter drainage systems will slow the Velocity of water entering ditches and rivers.

ACTION: Install Control structure to better manage the output of drainage systems.

Who: SWCD AND NRCS
When: 2011-2015
Cost: $25,000 - 50,000
Benefits: Target Redwood River Watershed.

PRIORITY CONCERN 3: SURFACE WATER QUALITY ADDRESSING IMPAIRED WATERS BY MAJOR WATERSHED FOR THESE PRIORITY POLLUTANTS: NUTRIENTS, TURBIDITY, BIOTA AND FECAL COLIFORM BACERTIA

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

GOAL: Reduce sediment and phosphorus from entering surface water bodies.

OBJECTIVE 1: Promote and encourage the proper use of nutrients as applied to cropland.

ACTION: Work with five producers each year to develop nutrient management plans.

Who: NRCS, SWCD
When: 2011-2015
Cost: $35,000
Benefits: Sub-Watersheds; Clear Creek, Plum Creek, Dutch Charlie, Sleepy Eye and Ramsey Creek.

ACTION: Work with producers to encourage commercial applicators and crop consultants to implement Variable Rate Application to insure correct amount of fertilizer is applied.

Who: NRCS, SWCD, EXT
When: 2011-2015
Cost: In-kind
Benefits: Sub-Watersheds: Clear Creek, Plum Creek, Dutch Charlie, Sleepy Eye and Ramsey Creek.

ACTION: Educate the producers on the timing of application due to leaching and volatilization if applied prior to soil temperature being below 50 degrees.

Who: SWCD with SWROC
When: 2011-2015
Cost: In-kind
Benefits: All watersheds in the county.

OBJECTIVE 2: 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 applying at recommended rates.

Who: NRCS, SWCD
When: 2011-2015
Cost: In-kind
Benefits: Sub-Watersheds; Ramsey Creek, Clear Creek, Plum Creek, Dutch Charlie and Sleepy Eye Creek.

OBJECTIVE 3: Provide technical assistance to feedlot operators who have a problem based on MinnFARM pollutant loading calculations.

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

Who: NRCS, SWCD, EO
When: 2011-2015
Cost: $20,000 - $150,000
Benefits: Sub-Watersheds; Ramsey Creek, Clear Creek, Plum Creek, Dutch Charlie and Sleepy Eye Creek.

OBJECTIVE 4: 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.

Who: SWCD, NRCS
When: 2006-2011
Cost: $40,000 - $300,000
Benefits: Impaired Waters from list on pages 4 - 7 of the Executive Summary

ACTION: Promote the installation of 3 Bio-Retentions Basins or rain gardens

Who: SWCD and NRCS
When: 2011-2015
Cost: $22,500
Benefits: Redwood and Cottonwood River Watersheds.

OBJECTIVE 5: Identify failing septic systems in the entire county.

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

Who: EO, SWCD, RCRCA
When: 2011-2015
Cost: $175,000 (low interest loans)
Benefits: Redwood, Cottonwood and Middle Minnesota Watersheds that have point source discharge or surface discharge.

OBJECTIVE 6: Educate county citizens on the importance of runoff control and surface water protection.

ACTION: Make presentations to five groups utilizing the Enviroscape, Mobile Environmental Education Transport (MEET) and other educational tools.

Who: SWCD. RCRCA, EO
When: 2011-2015
Cost: In-kind
Benefit: Citizens of Redwood County

ACTION: Provide funds to sponsor presentations by the Prairie Ecology Bus Center to two schools in the county each year.

Who: RCWMP
When: 2006-2011
Cost: $1,400
Benefit: 5th and 6th Graders from the two schools selected each year in Redwood County

ACTION: Participate in more outreach to adults utilizing opportunities within the county such as SWROC field days, Farmfest and other such events.

Who: SWCD/NRCS
When: 2011-2015
Cost: In-kind
Benefits: Participants of events listed in action items.

OBJECTIVE 7: Trap and hold sediment and nutrients to prevent them from entering surface water

ACTION: Complete 10 grade stabilization structures in high priority sub-watersheds.

Who: Area II, SWCD, NRCS, RCRCA
When: 2011-2015
Cost: $30,000 – 100,000
Benefits: Sub-Watersheds; Crow Creek, Wabasha Creek and the main stem and sub-watersheds south of the Cottonwood River Watershed.

PRIORITY CONCERN 4: EROSION AND SEDIMENT CONTROL FOCUSING ON RESIDUE MANAGEMENT COUNTYWIDE 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 1: Educate and encourage land operators on the importance of installing structural conservation practices to reduce erosion and sedimentation.

ACTION:

- Develop brochure promoting Best Management Practices (BMPs)
- Write 10 news releases promoting importance of installing BMPs
- Hold one public information gathering meeting each year

Who: SWCD, RCWMP, NRCS, FSA
When: 2011-2015
Cost: $500/year
Benefit: Citizens that live in the main stem and sub-watersheds south of the Cottonwood River.

OBJECTIVE 2: Continue to promote residue management, placing emphasis on no-till and strip till practices.

ACTION:

- Work with 20 producers on 800 acres to promote tillage practice.

ACTION:

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

Who: SWCD, NRCS
When: 2011-2015
Cost: $375,000
Benefit: Target sub-watersheds; Dutch Charlie, Sleepy Eye Creek, High Water, Plum Creek, Ramsey Creek and Clear Creek.

OBJECTIVE 3: Protect and increase wildlife habitat.

ACTION: Work with five RIM contract holders to improve existing cover.

Who: SWCD, NRCS, DNR
When: 2011-2015
Cost: $9,000
Benefit: Minnesota River Watershed

ACTION: Enroll 200 acres in general CRP sign-up and SAFE.

Who: SWCD, NRCS, FSA and DNR
When: 2011-2015
Cost: $250,000
Benefit: Minnesota River Watershed

ACTION: Establish three acres per year of tree plantings to include field windbreaks, farmstead shelterbelt, wildlife plantings and living snowfences.

Who: SWCD, NRCS, FSA
When: 2011-2015
Cost: $4,250
Benefit: Redwood River and Cottonwood River watersheds with emphasis on major roadways.