

Redwood County Comprehensive Local Water Management Plan

January 2006 – January 2016

Amendment 2016 - 2020



Prepared for the Citizens of Redwood County by:

Redwood Soil and Water Conservation District

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Section I

Executive Summary 2016 Amendment

The Redwood County Local Water Management Plan was in effect for 10 years from January 2006 – January 2016. This amendment will cover an implementation period of January 2016 – December 2020.

REDWOOD COUNTY TASK FORCE MEMBERS:

Dennis Groebner – County Commissioner
Sharon Hollatz – County Commissioner
Kerry Netzke – Area II Minnesota River
John Hogan – Citizen & Ag Producer
Brad Salfer – Banker
Scott Wold – Environmental Office
Jim Doering – City of Redwood Falls
Brian Timm – Redwood SWCD
Ed Lenz - BWSR

Kurt Mathiowetz – Redwood SWCD, Water Quality Technician
Marilyn Bernhardson – Water Plan Coordinator

This section will address the following items:

- ◆ Purpose of the plan
- ◆ Special Considerations
- ◆ Description of Priority Concerns
- ◆ Summary of Goals, Objective, and Actions along with estimated costs
- ◆ Consistency of Plan with other Local Plans
- ◆ Past Accomplishments
- ◆ Ongoing Implementation Activities

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

- SWCD = Soil & Water Conservation District
- NRCS = Natural Resources Conservation Service
- FSA = Farm Service Agency
- DNR = Department of Natural Resources
- CH = Redwood County Highway Department
- Area II = Area II Minnesota River Basin Project
- EO = Redwood County Environmental Office
- RCRCAs = Redwood-Cottonwood Rivers Control Areas

This is an amendment to Redwood County Local Water Management Plan that will cover a five year period from 2016-2020. The remaining section of the "10-year Local Water Management Plan" dated January 2006-January 2016 will remain in effect through 2020.

Purpose of Local Water Management Plan:

Prepare and adopt a local water management plan that meets the requirements in section 103B.315.

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 amendment focuses on priority concerns as identified in coordination with local governments and state agencies (2003 Statutory M.S. 103B.301) in 2006. These priority concerns still apply to Redwood County; however we have elected to broaden the scope of each concern to meet current needs of the county.

Special Considerations:

In Redwood County there has been very little water testing completed on the surface water bodies. Two Total Maximum Daily Load assessments (TMDL's) have been completed with only one being approved and the data is aged. Watershed Restoration and Protection Strategy (WRAPS) are not scheduled to begin in the Redwood and Cottonwood Watersheds until 2017.

Therefore, since there has not been a lot of water testing done we are using the Nutrient and Sediment Strategies that were completed for the Minnesota River in 2014 as a basis for some of our action items.

DESCRIPTION OF PRIORITY CONCERNS:

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

All citizens of Redwood County depend on groundwater resources for their water needs. This makes it essential to take additional measures to ensure that our groundwater is protected to assure its quality and quantity for future generations.

PRIORITY CONCERN 2: DRAINAGE MANAGEMENT FOCUSING ON WETLAND RESTORATIONS AND FLOODWATER RETENTION OPPORTUNITIES (ALTERED HYDROLOGY).

Redwood County has lost more than 99 percent of its natural wetlands. Loss of wetlands has resulted in increased agricultural and rural flooding, loss of groundwater recharge areas, loss of wildlife habitat and reduced and impaired water quality. Sediment loading on surface waters as documented in the "Sediment Reduction Strategy for MN River Report" indicated that we need to place more emphasis on wetland restorations and other floodwater retention opportunities.

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

Approximately 87% of the land in Redwood County is dedicated to row crop production. Approximately 20% of the row crop land requires proper manure management due to livestock in the county. Based on the "Nutrient Reduction Strategy Report" there is increased amount of nutrients being found in our surface waters. This is especially apparent following heavy rains, which are occurring more frequently.

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 surface water bodies in the county. This, in turn, results in poor water quality and also negatively impacts aquatic plants and animals. The topography in a portion of the county shows slopes and soils that are susceptible to gully and concentrated flow. With the percentage of land in row crop production it exposes the soil to both wind and water erosion for 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, OBJECTIVE, AND ACTIONS AND ESTIMATED COSTS:

In order to address the priority concerns identified in the Redwood County Comprehensive Local Water Management Plan, the Water Plan Task Force met and developed four (4) goals. For each of the four goals, objective and action items were developed to aid in the implementation of the plan. We recognize that some of the action items may not be achieved during the five year implementation plan; however the task force felt they were important and if feasible, time will be spent on them.

Each action item has an estimated cost to accomplish that goal. For some the action items it was difficult to establish the estimated cost as it depends on whom and when the action item is completed. When we established the estimated cost we used an average cost of \$35.00 per hour for staff time.

Below is a summary of our action items for each goal along with the projected estimated cost for implementation of these action items as relating back to our priority concerns. The implementation program details the action items, focus areas, time frame, responsible agencies and estimated costs.

GOAL I: Protection of Groundwater Resources for Public & Private Supplies

- Work with cities to develop wellhead protection plans and work with landowners within these protection areas that have areas of concern.
- Seek funds for the sealing of abandoned wells.
- Utilize all educational opportunities to educate citizens about the importance of protecting groundwater from contamination.
- Seek funds to conduct private well testing.

See pages 1-3 of the Implementation Program for detailed descriptions.

Goal I Total Average Annual Cost = \$26,360.00

GOAL II: Protect, Improve & Manage all Surface Waters

- Implement the 2015 Buffer Law.
- Target practices that will store water on the land, reduce nitrogen, phosphorus and sediment loading.
- Utilizing the Wetland Conservation Act (WCA) to work with producers to understand the importance of wetlands and encourage restorations.
- Work to develop a drainage management plan for the county.
- Work with feedlot operators to ensure feedlot sites are in compliance and they are utilizing proper manure management.
- Work with citizens of the county by providing educational materials and low interest loans to upgrade failing septic systems.
- Continue the work of addressing solid waste issues such as proper handling of materials that may cause environmental contaminant concerns.
- Work with all Watershed Restoration and Protection Strategy (WRAPS) Programs and One Watershed, One Plan as they occur in each watershed within the county.

See pages 4-12 of the Implementation Program for detailed descriptions.

Goal II Total Average Annual Cost = \$1,496,220.00

GOAL III: Reduce Erosion, Sediment, & Nutrient Loading

- Hold workshops on topics such as cover crops that show the importance of reducing soil erosion and improving soil health.
- Encourage enrollment in programs and the installation of Best Management Practices that will aid in reduction of soil erosion.

See pages 13-14 of the Implementation Program for detailed descriptions.

Goal III Total Average Annual Cost = \$6,886,745.00*

*A large percent of the estimated cost for Goal III is tied to RIM/CREP easements that will utilize State and Federal funds.

GOAL IV: Target Landscapes to Increase Conservation Cover to Increase Biodiversity

- Work with residents of the county to promote enrollment in land retirement programs to achieve high quality grasslands and wetlands.

See page 15 of the Implementation Program for detailed descriptions.

Goal IV Total Average Annual Cost = \$32,310.00

Annual Total Cost of all Goals = \$8,441,635.00

In order to accomplish the goals of the Local Water Management Plan it is necessary to foster and maintain Local, State and Federal Partnerships. Local support and cooperation with state and federal agencies is necessary to provide financial support to fund local priorities. Funding sources such as the USDA Programs include; EQIP, WRE, CRP and CCRP, as well as BWSR Programs such as, but not limited to: CREP, RIM, State Cost-Share, Clean Water Funds and New Capacity Building funds will need to be utilized to achieve Redwood Counties Water Management Goals.

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.

The following plans have been references and used in the development of this plan:

- Nutrient Reduction Strategy for MN River
- Sediment Reduction Strategy for MN River
- Redwood River Diagnostic and Implementation Plan
- Cottonwood River Diagnostic and Implementation Plan
- Redwood County Ordinance

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. They were addressed as part of the 5 year implementation plan from the updated 2006 – 2016 Local Water Management Plan. Following is a summary of some of those accomplishments that have been achieved in Redwood County from 2006-2016.

EDUCATION AND INFORMATION -

- Sent letters to two of the remaining cities indicating the importance of delineating wellhead protection areas.
- Made presentations to schools, several adult groups and others demonstrating the importance of protecting our groundwater.
- Continue to distribute Ag. Best Management practices brochure that was developed.
- Published news articles on the importance of establishing a buffer strips on ditches and other surface water bodies.
- Sponsored a cover crop workshop for producers in the county showing the importance of soil health and protection.
- Continue to provide funding so 6th grade students in the county can attend Southwest Minnesota Employee's Environmental Fair.
- Had water quality displays at the county fair and Farmfest.
- Each year published a newsletter with information, facts, etc. about water quality issues and concerns.
- Sponsored the Ecology Bus for two schools each year.
- Continued to promote the installation of best management practices.

MONITORING -

- Provided funds to complete special water testing when environmental concerns were expressed.
- Each year conduct secchi disc readings on Lake Laura.

LAND AND WATER TREATMENT -

- Provided funds to individuals to seal 47 wells from 2010-2015.
- Enrolled 1,856 acres of land in the farmable wetland program and other wetland restoration practices.
- Worked with producers to enroll 1,314 acres along county ditches and streams into filter strips.

LAND AND WATER TREATMENT – (Continued)

- Worked with landowners to complete nutrient management plans on 19,100 acres.
- Provided 15 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 54.7 acres of filterstrips and will until buffers are required by 2015 buffer law.
- Developed plans on 752 acres to improve the cover on RIM contracts.
- Provided funds through the State Cost Share Program, Clean Water Legacy Funds and Environmental Quality Incentive Program to install the following practices:
 - 7.4 Acres of Waterways
 - 37 Water and Sediment Control Basins
 - 11 Alternative intakes
 - 26 Grade Stabilization Structures
 - 1600 Acres of Variable Rate Incentive
 - 1 Rain Garden

ONGOING IMPLEMENTATION ACTIVITIES:

- Annually, will 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 the 11 county Environmental Fair that provides educational opportunities for 5th and 6th graders on environmental issues.
- Continue to promote the installation of best management practices that will aid in achieving water quality goals.
- Continue to monitor wells for DNR to monitor groundwater quantity.
- Continue to implement the state's Wetland Conservation Act (WCA).
- Promote the installation of filterstrips along county ditches and protected waters, utilizing State of Minnesota Reinvest in Minnesota Program and Continuous Conservation Reserve Program.

ONGOING IMPLEMENTATION ACTIVITIES: (continued)

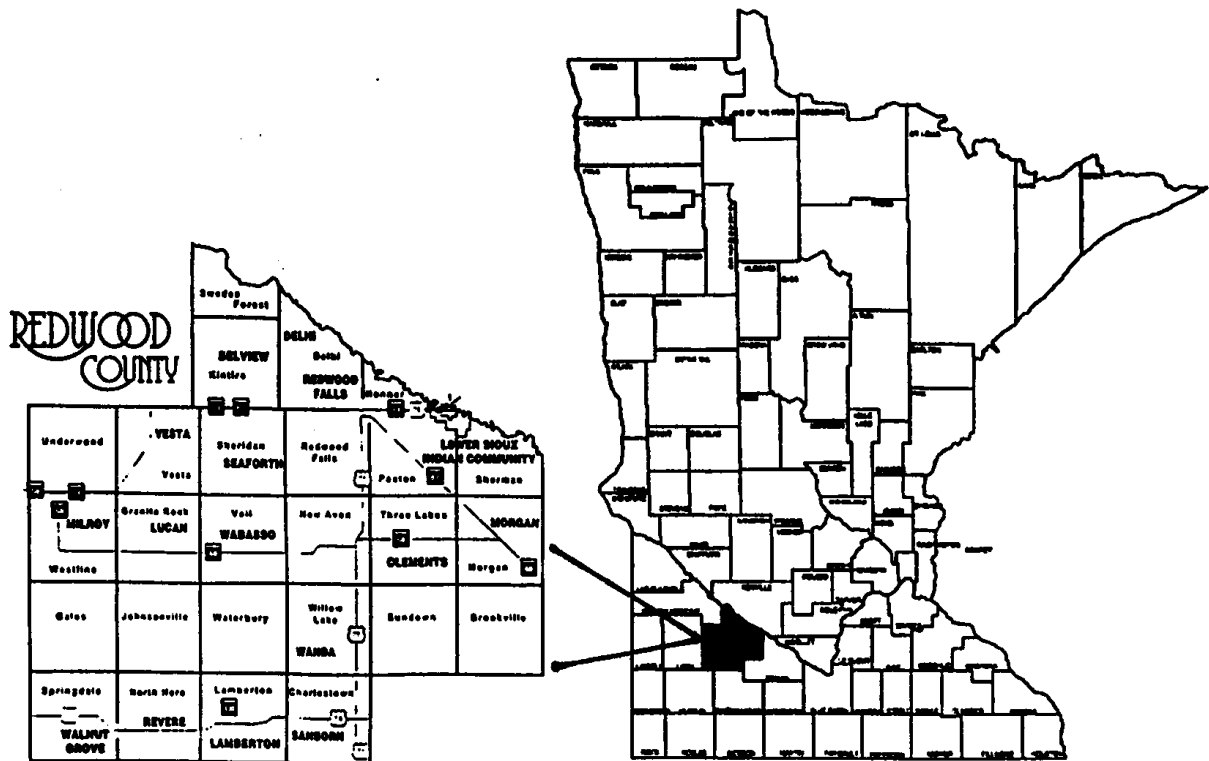
- Continue to apply for funds to implement practices that will target water quality issues in sub-watersheds in the county.
- Continue to make presentations on the importance of conservation.
- Continue to promote CRP and CCRP.
- Continue to promote the importance of sealing abandoned wells.
- Help producers understand the importance of proper application of nutrients.
- Continue to sponsor the Ecology Bus for schools in the county.
- Promote planting of trees and shrubs.
- As requested by the Environmental Office, review permits where wetlands could be an issue.
- Review DNR Permits as requested.
- Promote and install living snow fences.
- Upgrade remnant prairie sites.
- Continue to promote no-till, strip till and cover crop practices.
- Promote the replacement of stand pipe intakes to alternative intakes.
- Encourage citizens in county to test wells for standard contaminants.
- Continue to promote sealing of abandoned wells.
- Promote recycling & solid waste management.
- Participate in WRAP's in the three major watersheds in the county.
- Encourage wetland restorations and other projects that will store water in targeted locations in the county.
- If applicable, work with producers to complete assessments for the Minnesota Ag. Water Quality Certification Program.

Section II

Redwood County Information

This section contains the following information:

- ◆ A brief description of Redwood County
- ◆ The Plan Administration and Role of the Water Plan Advisory Board
- ◆ Land Cover Map
- ◆ Watershed Map
- ◆ List of Impaired Waters



Redwood County, MN

Redwood County is located in Southwestern Minnesota. **(Illustration 1)** 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 tall and medium prairie grasses.

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. **(Illustration 2)**

Land retirement programs have been very successful in Redwood County. There are 10,405 acres under Reinvest in Minnesota (RIM) contract 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 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 Delhi and Seaforth have central water distribution centers. All cities except Seaforth have central sewage systems and waste water treatment plants.

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 or a part of the Lower Sioux Reservation.

PLAN ADMINISTRATION AND ROLE OF THE WATER PLAN ADVISORY BOARD

Redwood Soil and Water Conservation District is the lead agency for implementation of the Comprehensive Local Water Management Plan. Marilyn Bernhardson serves as the Water Plan Coordinator under the direction of the Water Plan Advisory Board. The responsibility of the Water Plan Advisory Board includes:

- To provide guidance for plan implementation
- To receive and provide input for plan recommendations
- To review and approve plan changes and updates

Redwood SWCD is responsible for the development of a Comprehensive Local Water Management Plan budget and a plan of work each year, as well as reporting the annual progress of the plan.

The county will update the overall Comprehensive Local Water Management Plan every ten years and review and update the implementation plan every five years.

Illustration 1

Redwood County, Minnesota

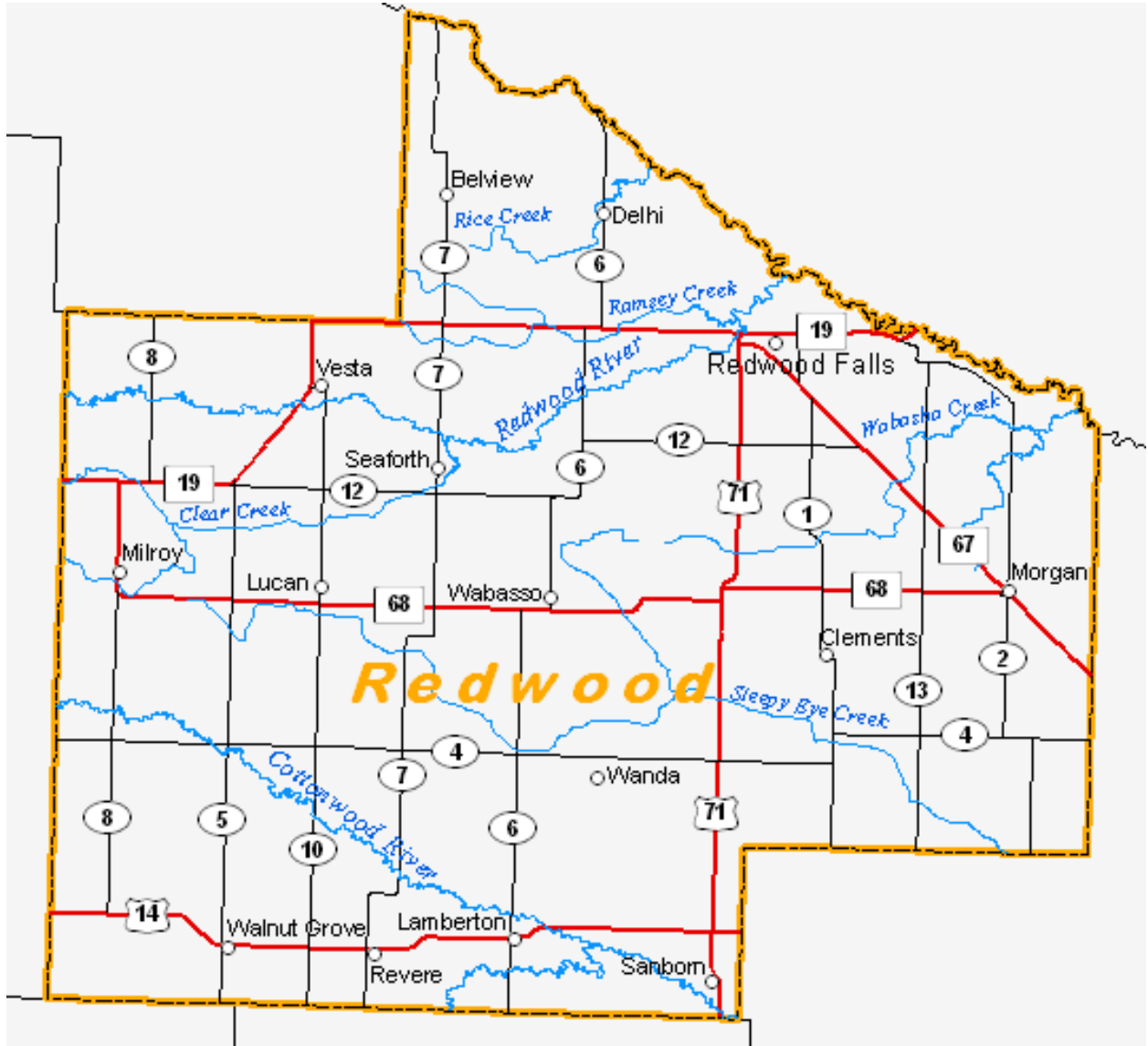
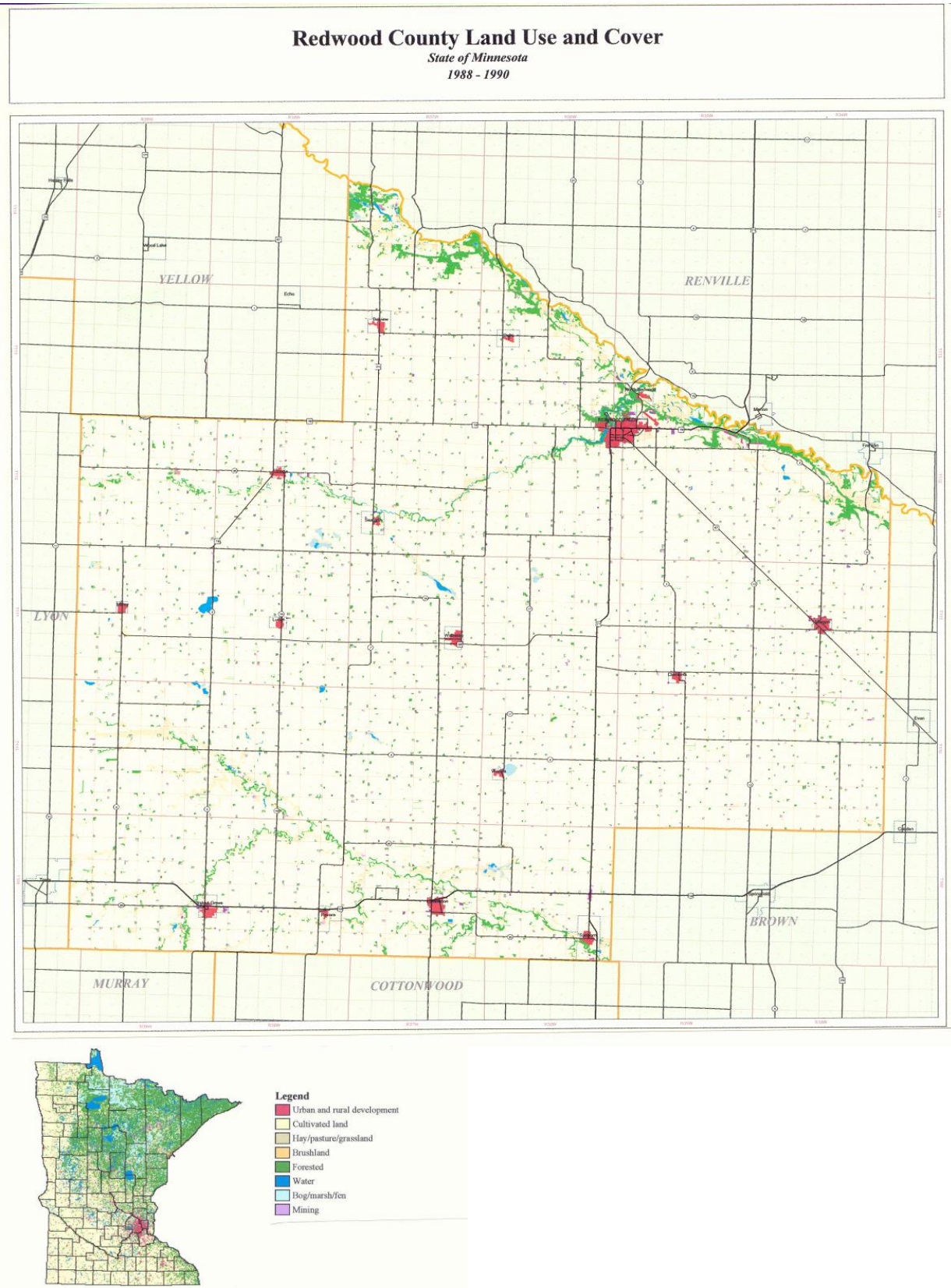
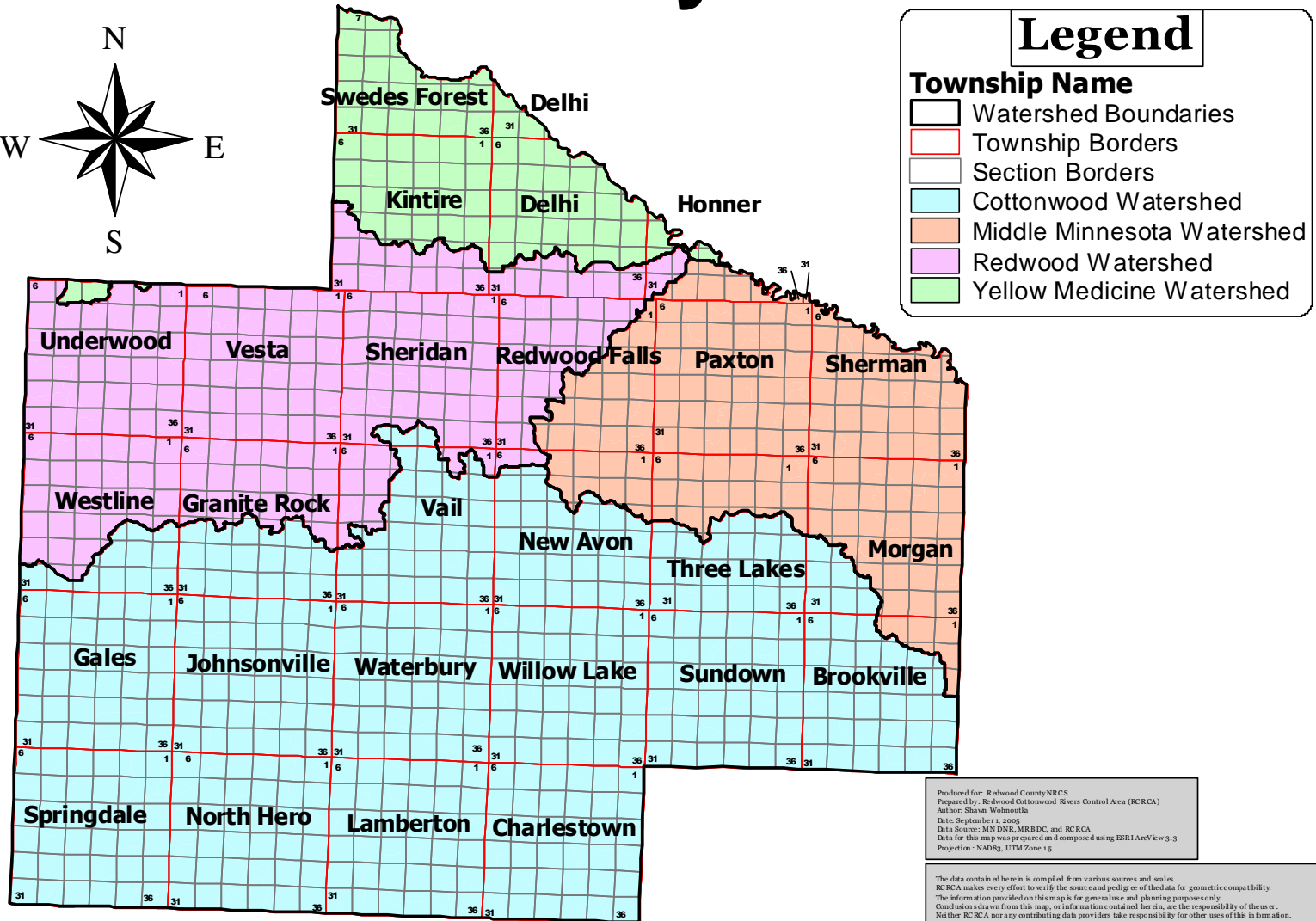
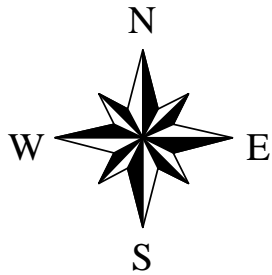


Illustration 2



Redwood County Watersheds



Produced for: Redwood County NRCS
 Prepared by: Redwood Cottonwood Rivers Control Area (RCRA)
 Author: Shawn Wokosinski
 Date: September 1, 2005
 Data Sources: MN DNR, MEBDC, and RCRA
 Data for this map was prepared in d.composed using ESRI ArcView 3.3
 Projection: NAD83, UTM Zone 15

The data contained herein is compiled from various sources and scales. RCRA makes every effort to verify the source and pedigree of the data for geometric compatibility. The information provided on this map is for general use and planning purposes only. Conclusions drawn from this map, or information contained herein, are the responsibility of the user. Neither RCRA nor any contributing data providers take responsibility for other uses of this information.



IMPAIRED WATERS

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

Assessment			
Reach	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	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	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	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	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	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	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	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	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 Polychlorinated Biphenyls (PCB)

Section III

Implementation Plan

I. Goal: Protection of Groundwater Resources for Public & Private Supplies				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 1: Assist municipalities with the preparation and implementation of wellhead protection plans.				
1. Make personal contacts with two cities each year outlining the importance of completing phase 1, the delineation of wellhead protection areas.	Cities	2016-2020	SWCD	\$100.00
2. Provide technical assistance to two cities for the preparation of wellhead protection plans.	Cities	2016-2020	SWCD, EO	\$280.00
3. When wellhead protection areas are identified, ensure that they are a priority for establishing and maintaining CRP contracts and other best management practices within them.	Redwood Falls, Lamberton	2016-2020	SWCD, NRCS, FSA	\$350.00
4. Seek financial support to assist with private well testing and make testing kits available.	County Wide	2016-2020	SWCD, EO	\$900.00

I. Goal: Protection of Groundwater Resources for Public & Private Supplies				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 2: Target communities where public drinking water supplies are susceptible to contamination from land use.				
1. Provide technical assistance to the cities of Redwood Falls and Lamberton who have been identified as highly susceptible to contamination.	Redwood Falls, Lamberton	2016-2020	SWCD	\$1,400.00

I. Goal: Protection of Groundwater Resources for Public & Private Supplies				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 3: Identify landowners who own and operate land in the delineated wellhead protection areas and encourage them to use practices that will aid in groundwater protection.				
1. Send letters to forty (40) landowners in the designated area information on the importance of wise land use such as, but not limited to: nutrient management, pest management, septic compliance or solid waste handling.	County Wide, Redwood Falls & Lamberton Wellhead Protection Areas	2016-2020	SWCD, EO	\$560.00
2. Enroll 100 acres of RIM on highly vulnerable lands that lie within wellhead protection areas.	County Wide, Redwood Falls & Lamberton Wellhead Protection Areas	2016-2020	SWCD	\$840.00

Implementation Plan

I. Goal: Protection of Groundwater Resources for Public & Private Supplies				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 4: Encourage residents to identify and seal inactive or abandoned wells.				
1. Provide educational materials on the problems associated with an inactive well.	County Wide	2016-2020	SWCD	\$200.00
2. Provide well sealing funds to six (6) individuals who have inoperable abandoned or contaminated wells, following MN Status 4725.	County Wide	2016-2020	SWCD	\$3,000.00
3. Identify and prioritize the sealing of ten (10) wells in delineated wellhead protection areas of cities that have completed phase II.	Redwood Falls & Lamberton Wellhead Protection Areas	2016-2020	SWCD	\$630.00
4. Second priority will be given to wells within 1 mile of municipal wells that have not completed their wellhead protection plan.	Redwood County Municipalities	2016-2020	SWCD	\$315.00
5. Seek additional financial assistance to seal twenty (20) unused wells within the county each year.	Highly Vulnerable Areas	2016-2020	SWCD	\$945.00
6. Seek financial assistance to complete inventories of environmental concerns that can impact groundwater, such as, but not limited to abandoned wells. This inventory can be utilized to improve efforts to achieve goals in the water plan.	County Wide	2016-2020	SWCD	\$12,000.00

I. Goal: Protection of Groundwater Resources for Public & Private Supplies				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 5: Educate county citizens of all ages on the importance of groundwater protection and recharge.				
1. Make one (1) presentation utilizing the groundwater model and other educational tools to illustrate the importance of groundwater protection.	County Wide	2016-2020	SWCD	\$280.00
2. Annually hold two (2) hazardous waste collection days in two or three locations within the county.	County Wide	2016-2020	SWCD, EO	\$540.00
3. Utilize the Redwood County hydrogeologic atlas to evaluate the impact of land use activities on ground water supplies.	County Wide	2020	SWCD, EO	\$280.00

Implementation Plan

I. Goal: Protection of Groundwater Resources for Public & Private Supplies				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 6: Provide education to the residents on the importance of protecting their wells.				
1. Develop and distribute information about potential contamination sources for their wells and how to identify them in their yards.	County Wide	2016-2020	SWCD	\$200.00
2. Encourage thirty (30) residents to sample their wells for standard contaminants and pick up sample bottles where available.	County Wide	2016-2020	SWCD, EO	\$200.00
3. Seek grants for private well testing to locate areas where contaminants that cause health concerns are occurring in the county.	County Wide	2016-2020	SWCD	\$2,400.00
4. If specific areas of concern are found send notice to all landowners within two miles of the affected area and publish results in our annual newsletters.	Identified Impacted Groundwater Areas	2016-2020	SWCD	\$840.00
5. Annually do a radio program promoting the importance of having wells tested for contaminants.	County Wide	2016-2020	SWCD	\$100.00
				\$26,360.00

Implementation Plan

II. Goal: Protect, Improve & Manage all Surface Waters				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 1: Improve the drainage ditch system in the county through applying Best Management Practices (BMP) when maintaining open drainage systems.				
1. By November 2018, work with producers who have land along county ditches to establish the required 1 rod buffer to comply with the 2015 buffer law by utilizing state and federal programs. (Statute 103F.48)	County Ditch Systems	2016-2020	SWCD, EO	\$29,000.00
2. SWCDs will provide recommended seed mixes to Redwood County Environmental Office for buffer strips after clean outs are complete.	County Ditch Systems	2016-2020	SWCD	\$100.00
3. Maintain the 54.7 acres of filter strips enrolled through the Redwood County Water Management Plan until the contracts expire.	County Wide	2016-2020	SWCD	\$9,950.00

II. Goal: Protect, Improve & Manage all Surface Waters				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 2: Protect the existing wetlands throughout the county.				
1. Implement the state of Minnesota's Wetland Conservation Act (WCA) to Achieve "no net loss" of wetlands, as stated under the law. The Redwood SWCD is the identified LGU responsible for implementation of WCA.	County Wide	2016-2020	SWCD	\$20,600.00
2. Spot check approximately 1/2 of all RIM easements including wetland restorations and the 126 acre calcareous fen in Swedes Forest Township.	County Wide	2016-2020	SWCD	\$12,000.00

Implementation Plan

II. Goal: Protect, Improve & Manage all Surface Waters				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 3: Enforce the Redwood County Shore Land Ordinance as legislated through MS 394.				
1. Work with landowners to establish the required 50 foot buffer along public waters by November of 2017. (Statute 103F.48)	Public Waters	2016-2018	SWCD, EO	\$12,000.00
2. Develop a list of watercourses that need to be protected that were not originally included on the original DNR maps and amend the water plan to include these watercourses as well as create a plan to address water quality concerns of these waters.	County Wide	2016	SWCD, EO	\$280.00

II. Goal: Protect, Improve & Manage all Surface Waters				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 4: Identify the areas that can be used as temporary water storage to slow down water as it moves off the landscape.				
1. Provide technical assistance and secure incentives and other financial assistance for five (5) landowners to establish water storage areas on the land to alleviate problems caused by rapid movement of water off the landscape.	Middle MN & Yellow Medicine Watersheds. Main stream of Redwood & Cottonwood River. SW corner of the county.	2016-2020	SWCD	\$3,500.00
2. Utilize the new terrain analysis data to study water movement and potential storage areas.	County Wide	2016-2020	SWCD, NRCS	\$2,300.00
3. Work with six (6) local newspapers to show success stories (both grade stabilization and wetland restoration) where local people have held water on the land and the difference it makes locally.	County Wide	2016-2020	SWCD, NRCS	\$100.00

II. Goal: Protect, Improve & Manage all Surface Waters				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 5: Educate citizens about the value and function of wetlands.				
1. Monthly prepare two (2) news releases, newsletters and radio programs outlining wetland benefits.	County Wide	2016-2020	SWCD	\$100.00
2. Every other year send out twenty (20) direct mailings to gain interest in creating a wetland bank for mitigation.	County Wide	2016-2020	SWCD, NRCS	\$300.00

Implementation Plan

II. Goal: Protect, Improve & Manage all Surface Waters				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 6: Due to the loss of 99% of our original wetlands, we need to protect the remaining and restore the high priority wetlands.				
1. Restore the hydrology of 500 acres of prairie pothole wetlands (not including upland buffer), using temporary or permanent conservation programs.	Cottonwood River & Middle Minnesota River Watersheds	2016-2020	SWCD, NRCS	\$40,000.00
2. Restore the hydrology of 250 acres of floodplain wetlands (not including upland buffer), using temporary or permanent conservation programs.	Cottonwood River & Middle Minnesota River Watersheds	2016-2020	SWCD, NRCS	\$60,000.00
3. Work with two (2) producers to develop a wetland for use as a wetland bank.	County Wide	2016-2020	SWCD	\$150.00

II. Goal: Protect, Improve & Manage all Surface Waters				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 7: Incorporate floodwater retention whenever possible.				
1. Install one (1) road retention project into the county road system every five years.	Middle MN & Yellow Medicine Watersheds. Main stream of Redwood & Cottonwood River. SW corner of the county.	2016-2020	SWCD, Area II, CH	\$125,000.00-350,000.00
2. Continue to restore and repair six (6) existing grade stabilization structures and increase storage potential whenever feasible.	Middle MN & Yellow Medicine Watersheds. Main stream of Redwood & Cottonwood River. SW corner of the county.	2016-2020	SWCD, NRCS, Area II	\$15,000.00-\$30,000.00
3. Construct three (3) larger grade stabilization structures on the landscape with focus on ravines.	Middle MN & Yellow Medicine Watersheds. Main stream of Redwood & Cottonwood River. SW corner of the county.	2016-2020	SWCD, NRCS, Area II	\$35,000.00-\$75,000.00
4. Promote to County Commissioners and land occupiers the availability of special taxing districts to assist in funding the local match required for larger, more expensive retention projects once every five years.	County Wide	2016-2020	SWCD	\$500.00

Implementation Plan

II. Goal: Protect, Improve & Manage all Surface Waters				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 8: Investigate the development of a drainage management plan for the Redwood County drainage system and provide feedback opportunities to the public.				
1. Hire a consultant to assist in developing a drainage management plan for the county.	County Wide	2016-2020	EO	\$100,000.00-\$300,000.00
2. Hold three (3) public meetings for members of the county to gather feedback about the goals of the drainage management plan.	County Wide	2016-2020	EO	\$1,000.00

II. Goal: Protect, Improve & Manage all Surface Waters				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 9: Create GIS layers showing the county drainage system.				
1. Create two (2) new GIS layers for the county drainage system that would include intakes and outlets and existing retention structures.	County Wide	2016-2020	EO	\$15,000.00

II. Goal: Protect, Improve & Manage all Surface Waters				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 10: Promote and encourage the proper use of nutrients applied to cropland.				
1. Work with ten (10) producers to enroll in federal programs, such as CSP or EQIP to reduce nitrogen and phosphorus applications.	Middle MN & Yellow Medicine Watersheds. Main stream of Redwood & Cottonwood River. SW corner of the county.	2016-2020	SWCD, NRCS	\$10,000.00
2. Continue to promote nutrient management plans utilizing grid sampling and variable rate nutrient applications for four (4) producers each year.	County Wide	2016-2020	SWCD, NRCS	\$1,400.00
3. Utilize the local radio station to announce soil temperatures provided by the Southwest Research Center to promote the proper timing of nitrogen applications in the fall.	County Wide	2016-2020	SWCD, NRCS	\$100.00

Implementation Plan

II. Goal: Protect, Improve & Manage all Surface Waters				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 11: Target all identified Total Maximum Daily Load (TMDL) water bodies for implementation of practices to reduce pollutants.				
1. Promote the installation and provide technical and financial assistance for the construction of best management practices (BMPs) that will aid in the reduction of nutrient loading: 8 water & sediment control basins, 4 grade stabilization structures).	Middle MN & Yellow Medicine Watersheds. Main stream of Redwood & Cottonwood River. SW corner of the county.	2016-2020	SWCD, NRCS, AREA II, RCRCA	\$300,000.00
2. Through a volunteer take daily secchi disk readings on Lake Laura from June through September and submit to MCPA.	Lake Laura	2016-2020	SWCD	\$500.00
3. Implement the Minnesota Agricultural Water Quality Certification Program by assisting Redwood county producers with the completion of an assessment of their lands for water quality concerns.	County Wide	2016-2020	SWCD	\$6,000.00
4. Seek financial assistance to complete inventories of environmental concerns that can impact surface water. Such as, but not limited to feedlots or buffers. This inventory can be utilized to improve efforts to achieve goals in the water plan.	County Wide	2016-2020	SWCD	\$12,000.00

II. Goal: Protect, Improve & Manage all Surface Waters				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 12: Stabilize stream and ditch banks on water courses in the county.				
1. Encourage producers to install BMPs that will reduce the flow to surface water bodies.	County Wide	2016-2020	SWCD, NRCS, RCRCA	\$1,450.00
2. Seek additional funding to Install five (5) stream bank stabilization BPM's focusing on protecting personal property.	Minnesota & Cottonwood Rivers, Plum Creek	2016-2020	SWCD, NRCS, Area II	\$45,000.00

Implementation Plan

II. Goal: Protect, Improve & Manage all Surface Waters				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 13: Work with landowners who utilize manure to educate them on the importance of testing and correct application.				
1. Utilize state and federal programs to work with five (5) livestock producers who utilize manure to ensure that they are testing before application and are taking proper nutrient credits.	County Wide	2016-2020	SWCD, NRCS	\$500.00
2. Provide assistance to one feedlot operator who has a pollution problem utilizing funds through EQIP or State Cost Share Programs.	County Wide	2016-2020	SWCD, NRCS	\$560.00
3. Provide a low interest loan to one (1) producer to upgrade an animal waste facility that has less than 1000 a.u..	County Wide	2016-2020	SWCD	\$100.00
4. Amend Redwood County feedlot ordinance to prohibit the spreading of manure on C and D slopes within the county.	County Wide	2016-2020	EO	\$500.00
5. Provide informational packets to feedlot operators on best management practices for manure upon receipt of a conditional use permit.	County Wide	2016-2020	EO	\$100.00
6. Conduct at least five (5) inspections of permitted feedlot manure spreading operations to ensure that they are in compliance with county setback requirements.	County Wide	2016-2020	EO	\$700.00
7. Annually send out manure spreading setback requirements reminder to two (2) commercial applicators within the county.	County Wide	2016-2020	EO	\$100.00

Implementation Plan

II. Goal: Protect, Improve & Manage all Surface Waters				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 14: Educate landowners about the degradation of water quality and the health risks associated with non-complying septic systems.				
1. Have available an updated list of licensed septic contractors.	County Wide	2016-2020	EO	\$100.00
2. Provide information on what harm a failing septic system can have on water quality through direct mailings, news releases, social media, and county websites.	County Wide	2016-2020	EO	\$500.00
3. Annually, promote financial assistance availability for septic system upgrades in the county through news releases, radio programs and newsletters.	County Wide	2016-2020	SWCD, EO	\$500.00

II. Goal: Protect, Improve & Manage all Surface Waters				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 15: Continue to upgrade, repair and replace septic systems. Focus on disconnecting systems found to be a threat to public health and safety.				
1. Upgrade fifty (50) failing septic systems each year, utilizing low interest loan programs for twenty-five (25) of these upgrades.	County Wide	2016-2020	EO, SWCD	\$1,750.00
2. Provide educational materials to homeowners and contractors on the impact to water quality and human health from septic systems hooked to tile lines and/or outlet to surface waters.	County Wide	2016-2021	EO	\$700.00
3. Identify septic systems that may pose a threat to public health and safety. A compliant system must be installed.	County Wide	2016-2022	EO	\$280.00
4. Seek financial assistance to upgrade, repair, and replace twenty (20) failing septic systems.	County Wide	2016-2023	SWCD, EO	\$900.00
5. Promote the availability of the low income loan program for septic systems upgrade.	County Wide	2016-2024	SWCD, EO	\$100.00

Implementation Plan

II. Goal: Protect, Improve & Manage all Surface Waters				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 16: Ensure the proper handling and disposal of solid waste, recycling, hazardous and household waste materials, and other problem materials and environmental contaminants.				
1. Solid Waste Management: Continue to educate residents on the adverse health effects of backyard burning and burying of solid waste, and to provide residents information on options and proper refuse disposal. (Provide educational media messages throughout the year). Investigate and remediate illegal dumping activities.	County Wide	2016-2020	RRSWA	\$30,000.00
2. Household Hazardous Waste: Continue to provide on-going options for proper disposal of hazardous waste through the utilization of the Redwood County Household Hazardous Waste Facility. Continue educational efforts to promote the proper use and disposal of all types of household hazardous waste. Provide approximately two (2) collection events per month, and as needed.	County Wide	2016-2020	RRSWA	\$30,000.00
3. VSQG Business Waste: Educate businesses on the Very Small Quantity Generators (VSQG) Program for the proper disposal of hazardous waste (assist two (2) businesses each year and refer those businesses to the Lyon County Regional HHW Facility for additional disposal options).	County Wide	2016-2020	RRSWA	\$500.00
4. Business Waste: Provide information, as requested, to industries and businesses as to where they can obtain technical assistance for proper disposal and reduction of waste. (Refer businesses to Lyon County Regional HHW Facility).	County Wide	2016-2020	RRSWA	\$500.00
5. Waste Pesticide: Continue to participate twice a year in the MDA's annual waste pesticide collection program, through proper disposal of unwanted pesticide, herbicide and insecticide at the county household hazardous waste facility.	County Wide	2016-2020	RRSWA	\$2,500.00
6. Pesticide Container Collection: Hold two (2) empty pesticide container collection days (Assist in the continuous collection and processing of waste pesticide containers throughout the year).	County Wide	2016-2020	RRSWA	\$5,000.00

Implementation Plan

II. Goal: Protect, Improve & Manage all Surface Waters				
Objective 16: Continued				
7. Problem Materials Collection: Continue to provide collection options and locations for residents and businesses to properly dispose of problem materials, such as: pharmaceuticals/prescription drugs, electronics, tires, appliances, fluorescent bulbs, and rechargeable batteries (establish and promote collection events by providing on-going collection opportunities at various sites in Redwood County).	County Wide	2016-2020	RRSWA	\$45,000.00
8. Recycling: Increase recycling rates by improving recycling practices and collection through cooperative efforts with townships, cities, and Renville County. Persistently educate residents, students, and businesses on waste reduction, Do's and Do Not's of recycling, and the "How To" of composting through radio ads, Redwood-Renville Regional Solid Waste Authority and county web sites, Facebook, other forms of social media, school visits, newsletters, brochures, events, etc...	County Wide	2016-2020	RRSWA	\$10,000.00

II. Goal: Protect, Improve & Manage all Surface Waters				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 17: Work with the Watershed Restoration and Protection Program (WRAP) as it is scheduled.				
1. In 2016-2018 provide assistance to the Middle Minnesota River Watershed (WRAPS) by doing the following: Holding meetings within the watershed and getting the publics input about the environmental issues within the watershed. The Spring Creek subwatershed will be targeted for best management practice implementation.	Middle Minnesota River Watershed & Spring Creek Subwatershed	2016-2018	SWCD	\$5,400.00
2. In 2017 provide assistance to the Cottonwood River and Redwood River Watersheds (WRAPS) by doing the following: Holding meetings within the watershed and getting the publics input about the environmental issues within the watershed.	Cottonwood & Redwood River Watersheds	2017-2020	SWCD	\$10,800.00
3. When available aid in the One Watershed, One Plan for the Redwood and Cottonwood Watersheds.	Cottonwood & Redwood River Watersheds	2020	SWCD, EO	\$10,800.00
				1,496,220.00

Implementation Plan

III. Goal: Reduce Erosion, Sediment, & Nutrient Loading				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 1: Promote the use of cover crops across the county for improved soil quality.				
1. Host or co-host one (1) producer lead field day demonstrating the importance of establishing cover crops.	County Wide	2016-2020	SWCD, NRCS	\$1,000.00
2. Promote the establishment of 5,000 acres of cover crop per year.	County Wide	2016-2020	SWCD, NRCS	\$500.00
3. Distribute the twenty-five (25) copies of the Midwest Cover Crop field guides to interested producers.	County Wide	2016-2020	SWCD, NRCS	\$125.00
4. Work with the local media to publish at least two (2) articles on the importance of establishing cover crops.	County Wide	2016-2020	SWCD, NRCS	\$100.00

III. Goal: Reduce Erosion, Sediment, & Nutrient Loading				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 2: Continue to promote various types of reduced tillage management.				
1. Write two (2) news releases each year promoting conservation tillage.	County Wide	2016-2020	SWCD, NRCS	\$100.00
2. Enroll five (5) producers in a State or Federal program such as EQIP, as an incentive to improve residue levels.	County Wide	2016-2020	SWCD, NRCS	\$350.00
3. Encourage the planting of cover crops on 2,500 acres each year after canning crops and sugar beet harvest.	Canning Crop & Sugar Beet Fields	2016-2020	SWCD, NRCS	\$200.00
4. Provide three (3) low interest loans through the Agricultural BMP Loan Program to purchase tillage equipment that leaves at least 30% residue and less soil disturbance.	County Wide	2016-2020	SWCD	\$300.00
5. Participate in tillage transect surveys whenever offered, and use the data for educational purposes about reduced tillage practices.	County Wide	2016-2020	SWCD, NRCS	\$1,370.00

Implementation Plan

III. Goal: Reduce Erosion, Sediment, & Nutrient Loading				
Objective 3: To preserve the surface water quality of Redwood County by reducing soil erosion to at least T (Tolerable Soil Loss) utilizing appropriate resources and land management systems.				
1. Write ten (10) news releases promoting the importance of installing BMPs to reduce soil loss.	All Watersheds	2016-2020	SWCD, NRCS	\$1,000.00
2. Hold one (1) public informational gathering meeting each year to gather producer concerns and ideas.	County Wide	2016-2020	SWCD, NRCS, RCRCA	\$1,000.00
3. Provide Education, technical and financial assistance to install 7 water and sediment control basins, 3 grassed waterways, 4 grade stabilization structures, and 10 alternative intakes.	All Watersheds	2016-2020	SWCD, NRCS, RCRCA	\$310,000.00
4. Promote the use of cropping systems that promote healthy soils, and less environmental impacts.	All Watersheds	2016-2020	SWCD, NRCS	\$1,200.00
5. Implement MS 103F addressing the soil loss erosion law.	All Watersheds	2016-2020	SWCD	\$1,400.00
6. If funds are secured provide assistance with the restoration of Lake Redwood when possible.	Lake Redwood	2016-2020	SWCD, RCRCA	In-kind
7. Assist with seeking financial assistance for grade stabilization structures, grassed waterways, water and sediment control basins, and alternative intakes.	All Watersheds	2016-2020	SWCD	\$900.00
8. Enroll 800 acres in RIM/CREP that will reduce erosion, phosphorus and nitrogen loading each year.	County Wide	2016-2020	SWCD	\$6,555,200.00
9. Seek financial assistance to complete inventories of environmental concerns that can impact sediment and nutrient loading, such as, but not limited to ditch and stream erosion. This inventory can be utilized to improve efforts to achieve goals in the water plan.	County Wide	2016-2020	SWCD	\$12,000.00
				6,886,745.00

Implementation Plan

IV. Goal: Target Landscapes to Increase Conservation Cover to Increase Biodiversity				
ACTION ITEMS	FOCUS AREAS	TIME FRAME	RESPONSIBLE AGENCY	ESTIMATED YEARLY COST
Objective 1: Protect and increase wildlife habitat through existing grasslands and wetlands and by restoring additional grasslands and wetlands.				
1. Promote and implement permanent wildlife habitat on 300 acres using conservation easements and the preservation of native habitat. Assist land owners with the management and restoration of native prairie wetland and woodland habitat.	County Wide	2016-2020	SWCD	\$1,400.00
2. Work with six (6) current RIM contract holders to improve and enhance cover on 300 acres.	County Wide	2016-2020	SWCD	\$700.00
3. Enroll 50 acres in general CRP signup each year.	County Wide	2016-2020	SWCD, FSA	\$10,300.00
4. Establish 2 acres of tree plantings to include field windbreaks, farmstead shelterbelt and wildlife plantings.	County Wide	2016-2020	SWCD	\$300.00
5. GPS, stake and sign boundaries on 100 RIM easements.	County Wide	2016-2020	SWCD	\$18,000.00
6. Based on the Pheasant Action Plan, three (3) "Pheasant Target Areas" have been identified in Redwood County. Work with producers in these areas to enhance grasslands or wetland complexes using the Land Retirement Programs such as RIM, CREP or CRP.	Pheasant Target Areas	2016-2020	SWCD	\$1,400.00
7. Utilizing the DNR Working Lands Initiative (WLI), work with producers to remove red cedar and other invasive species on 78 acres of high quality grassland and grassland/wetland complexes within the Minnesota River Prairie Core Area.	Minnesota River Prairie Core Area	2016-2020	SWCD	\$210.00
TOTAL:				\$32,310.00/year

Section IV

APPENDIX TO REDWOOD COUNTY COMPREHENSIVE LOCAL WATER MANAGEMENT PLAN

NOTE: Some county statistics listed in the Redwood County Comprehensive Local Water Management Plan differ from those included in the Priority Concerns Scoping Document. Updated figures have been obtained from the U.S. Census of Agriculture and used in the creation of the Comprehensive Local Water Management Plan.

Identification of High Priority Areas in Redwood County

This section is included in the Redwood County Comprehensive Local Water Plan to allow Redwood Soil and Water Conservation District to use the plan as its Comprehensive Plan.

HIGH PRIORITY EROSION PROBLEMS

High Priority problems have been defined as:

“High priority erosion problems” means areas where erosion from wind or water is occurring equal to, or in excess of 2 x T tons per acre per year or is occurring on any area that exhibits active gully erosion or is identified as high priority.”

Unsheltered distances range from 5,000 to 11,000 acres across the county. This is due to lack of native trees and current farming practices.

There are 545,248 acres of farmland in the county and approximately 486,900 of these acres are tillable. About 75 percent of this land has a slope of less than two percent. The cropland is subject to intensive row crop farming, which at critical times leaves the soil unprotected.

Wind Erosion:

Effects of wind on unprotected soils include loss of topsoil, particularly on knolls, and deposition of soil in the county’s drainage ways and road ditches.

Agricultural practices have brought about development of extensive county ditches and tiling systems on most area farms. The poorly drained soils have been drained and are therefore more subject to wind erosion than is indicated by their soil classification. Wind erosion rates in the country range from 3 to 8 tons per acre, which is higher than what will sustain productivity levels.

Wind erosion is occurring on approximately 25 percent or 135,000 acres throughout the county at a rate that exceeds twice the soils tolerable limits. A soil’s tolerable limit is the amount of erosion it can endure and still maintain productivity through the soil’s natural regeneration.

Water Erosion:

Water erosion is a major concern on rolling uplands that have been exposed by intensive farming methods. Even with the implementation of RIM, CREP and CRP concern continues to exist along rivers and streams. It is estimated that approximately 12,500 acres of cropland in the county are subject to excessive water erosion. This is

generally found in moderate to steeply sloping areas along the Cottonwood, Redwood and Minnesota rivers and their tributaries.

Sheet and rill erosion are found on moderate to steeply sloping land, affecting about 30 percent of the total cropland in the county. Erosion rates on these acres, depending on farming methods, can range from 5 to 15 tons per acre.

The priority areas in the county that are affected by rates that exceed 2T per acre per year are: Paxton, Sherman, Vesta, Underwood, Delhi, Charlestown and Springdale townships. **(Illustration 7)**

HIGH PRIORITY WATER QUALITY PROBLEMS

High priority water quality leading to sedimentation problems have been defined as:

“High priority water quality problems” means an area where sediment, nutrients, chemicals or other pollutants discharge into Department of Natural Resources-designated protected waters, or to any high priority waters, as identified in any local plan, or discharge to sinkholes or groundwater. The pollutant delivery rate to the water source is in amounts that will impair the quality or usefulness of the water course.

Streambank erosion is found along all rivers in the county and their tributaries. This erosion is due in part to farming methods that have increased the rate of flow within individual watersheds and the removal of vegetation along stream banks. There are more than 100 miles of streams and tributaries in Redwood County and it is estimated that 40 percent of this length exhibits severe bank erosion. However, accurate systematic inventories of bank erosion have not been made.

Sedimentation in the county occurs primarily in the Minnesota, Redwood and Cottonwood rivers and their tributaries. There are specific townships in the Redwood and Cottonwood watersheds that have more impact: Underwood, Vesta, Gales, Springdale, Lamberton, Charlestown and Johnsonville. Along these drainage ways, there are approximately 12,000 acres of land that exceed 3 tons per acre per year. This sedimentation has been slowed due to the implementation of RIM, CREP and CCRP. Sedimentation also occurs as a result of erosion on long, steep irregular slopes along these same drainage ways. Sedimentation is more prevalent during intense rain or rapid snow melt allowing the water to carry with it heavy loads of soil, chemicals and animal waste. **(Illustration 8)**

In the Redwood River Watershed, Lake Redwood has been an issue regarding sedimentation. The Clean Water Partnership diagnostic study has shown that Lake Redwood in the City of Redwood Falls is the receiving body for most of the sediment in the Redwood River Watershed.

High Priority feedlots are defined as:

“Those feedlots where the pollution potential FLEval rating is greater than or equal to one, and is discharging pollutants to DNR-designated protected waters or wetlands, to a sinkhole, to shallow soils overlying fractured or cavernous bedrock, or within 150 feet of a water well.”

Nutrient loading of phosphorus, nitrogen and pathogens have been identified as a high priority in the Cottonwood and Redwood River Watersheds. The Hawk Creek/Yellow Medicine and Middle Minnesota watersheds have not had diagnostic studies completed to determine whether or not they are high priority. With the implementation of MPCA’s registration and nutrient management plan requirement, it is our expectation that these pollutants will be greatly reduced.

Wind/Water Erosion in Redwood County

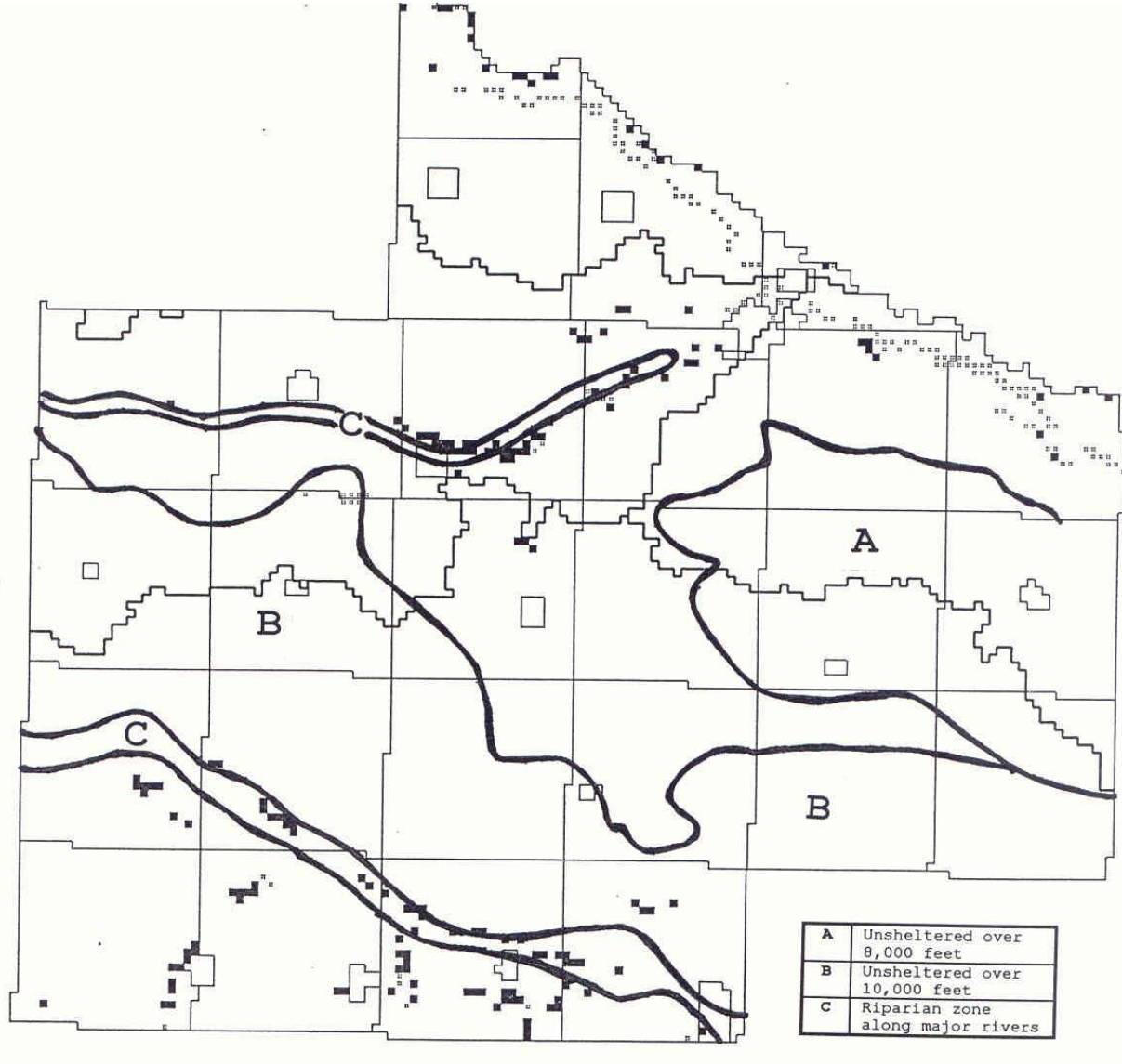
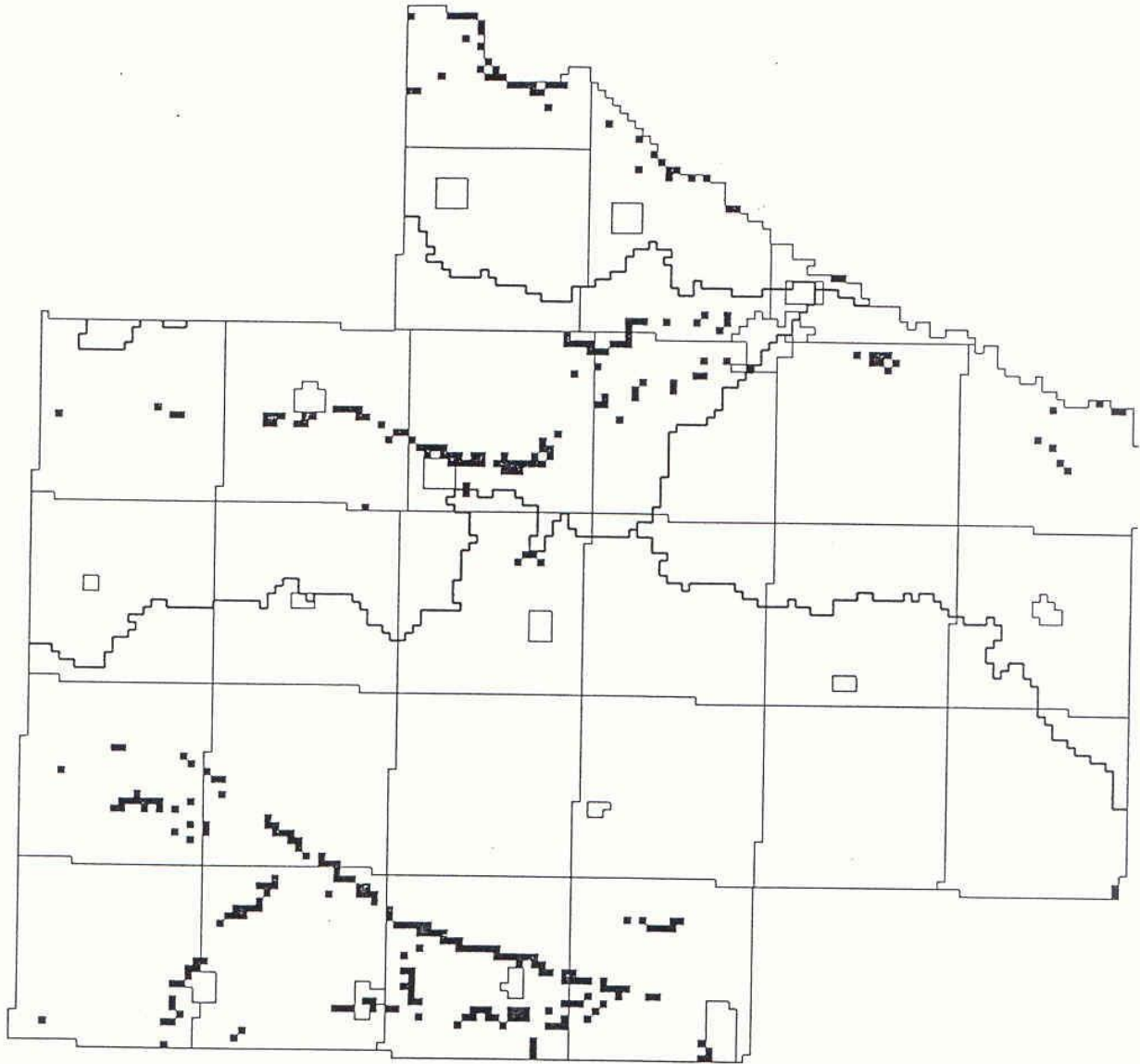


Illustration 8

Sedimentation Areas in Redwood County



This map displays critical sedimentation areas in the county. The solid areas represent priority sedimentation areas, in particular shoreland with estimated soil loss greater than or equally to 3 T/Acre/Year.