

Cottonwood County



Comprehensive Local Water Management Plan 2007-2017

Amendment July 2012

COTTONWOOD COUNTY LOCAL WATER MANAGEMENT PLAN

A 10-year plan with a 5-year implementation schedule. 2007-2017
Plan Amendment. 2011-2012

| | | |
|----|---|-------------|
| I. | Table of Contents | <u>Page</u> |
| A. | Executive Summary | 3 |
| 1. | Purpose & Introduction | 3 |
| 2. | Description of Priority Concerns | 6 |
| 3. | Summary of Goals, Actions, and Projected Costs | 7 |
| 4. | Consistency with Local, State and Regional Plans | 9 |
| 5. | Summary of Recommended Amendments to Other Plans and Official Controls | 9 |
| B. | Priority Concerns | 9 |
| 1. | Identification of Priority Concerns | 9 |
| 2. | Assessment of Priority Concerns | 10 |
| 3. | Goals and Objectives to Address Priority Concerns | 22 |
| C. | Implementation to Address Priority Concerns | 23 |
| D. | Implementation Schedule of Ongoing Activities | 36 |
| E. | Appendix | 37 |
| 1. | Acronyms Used | 37 |

For additional information on water management in Cottonwood County, Minnesota, contact:
Cottonwood Soil and Water Conservation District
339 Ninth Street, Windom, MN 56101

A. Executive Summary

Cottonwood County is located in southwestern Minnesota, adjacent to Murray, Redwood, Brown, Watonwan, Jackson, and Nobles counties. The City of Windom is the county seat. Cottonwood County's population in the 2010 census was 11,687 and the City of Windom's population was 4,646.

The Coteau des Prairies - a conspicuous ridge extending northwest to southeast across the region - bisects Cottonwood County into two major drainages. Watersheds of the Cottonwood, Watonwan, and to a lesser extent the Little Cottonwood and Blue Earth, drain in a northeasterly direction into the Minnesota River, which meets the Mississippi River at St. Paul. The West Fork Des Moines River watershed drains south into Iowa and eventually into the Mississippi River.

A.1 Purpose & Introduction

The Cottonwood County Local Water Management Plan is intended to identify existing and potential water issues in the context of watershed units and groundwater systems, informing specific implementation actions to achieve goals for sound hydrological management of water and related resources.

Requirements of a local water plan are set forth in current state statute (M.S. 103B.311, Subd. 4.). The plan must address management of water, effective environmental protection, and efficient resource management, and must be consistent with local water management plans prepared by counties and watershed management organizations wholly or partially within a single watershed unit or ground water systems. This Water Plan is a ten-year management plan with a five-year implementation schedule.

This is the plan amendment for the third edition of the local water management plan for Cottonwood County, which was completed in March of 2007 by a Public Hearing before the Cottonwood County Board of Commissioners.

The County Board of Commissioners adopted a resolution on October 4, 2011 to update this plan, according to Minnesota Statutes now in effect.

Major accomplishments under Cottonwood County's previous water management plans included from 2007 - 2011:

- The Cottonwood County Commissioners entered into an 'Agreement for the Provision of Services' June of 2011 with the Cottonwood Soil and Water Conservation District. Programs to be administered include:
 - Local Water Management Coordinator
 - Management of the Natural Resources Block Grant Programs
 - Administrator of the Wetlands Conservation Act
 - Coordination of the Feedlot Program
 - Coordination of the SSTS Program

- In 2006, the Cottonwood Soil and Water Conservation District contracted with the Greater Blue Earth River Basin Alliance (GBERBA) to provide the Administrative and Technical Coordinators (equal to one FTE) for the Joint Powers Organization.
- Managed and provided funds for county residents to test well water for nitrates and bacteria.
- Promoted the sealing of abandoned wells, and provided cost-share to seal 136 wells.
- Promoted the replacement of non-compliant septic systems and assisted residents with the installation of systems for new construction: 146 installed during 2007-2011. Maintained files and data base with pertinent information.
- Secured funds for the Low Interest Loan Program through the MN Department of Agriculture to provide funding for installation of septic systems, agricultural waste systems and conservation tillage equipment continue to look for additional sources of this funding.
- Worked with MPCA as a Delegated County for the Feedlot Program, and maintained the feedlot data base.
- Worked with county livestock producers in registering their feedlots and completing their Manure Management Plans.
- Provided county livestock producers with funding for testing samples of manure.
- Provided technical assistance and guidance in developing Well Head Protection Plans for the Cities of Comfrey and Mountain Lake.
- Participated in the 13 County Water Planners organization.
- Administered the Wetland Conservation Act
- Administered the Shoreland and Flood Plain Management Program.
- Partnering with the HLWD, WFDNR Coordinator (and others) on the West Fork Des Moines River TMDL Implementation Plan, and the WFDNR TMDL Implementation Project to complete a Level III Feedlot Inventory in the Des Moines River Watershed.
- Partnering with RCRC (and others) on the Cottonwood River Fecal Coliform Bacteria and Turbidity TMDL Implementation Plan.
- Updating of the Cottonwood County Subsurface Sewage Treatment System Ordinance #38 with approval in 2012.
- Applied for and received a Mississippi River Basin Initiative grant through the NRCS for the Little Cottonwood River Watershed.
- Received a BWSR Clean Water Fund grant for the hiring of a MRBI Technician to be shared with the Cottonwood and Brown SWCDs.
- Since 1998, Cottonwood County, along with Brown and Nicollet Counties, sponsor and help coordinate the annual Children's Water Festival held in the month of March for 4th grade students of the three counties. Approximately 900 students attend each year.
- Provided funding for 5th Grade Conservation Day, which is a joint activity between Jackson and Cottonwood SWCDs.
- Provided funding for the Southwest MASWCDE Environmental Fair attended by 6th grade classes of Cottonwood County since 1992.
- Continued support and assistance with the State of Minnesota Des Moines River Watershed Conservation Resource Enhancement Program, RIM Buffer Program and the RIM/WRP conservation programs.
- Provided funds to plant trees in shelterbelts and wildlife plantings.

- Assisted with the establishment and continuing effort of the Windom and Mountain Lake Tree Commissions.
- Provided funds for a weed-badger used in weeding the tree plantings.

The Cottonwood Soil and Water Conservation District (SWCD) administers the Local Water Management Program in Cottonwood County. Cottonwood County agreed to allow the Cottonwood SWCD to manage the Plan update process and convene the Cottonwood County Local Water Management Task Force. Task Force membership currently includes:

2011-12 Local Water Management Plan Task Force Members

- Phyllis Bakken, County Planning Commission, Agriculture
- Karen Boysen, Natural Resources Conservation Service
- Dave Bucklin, Cottonwood Soil and Water Conservation District
- Kay Clark, Cottonwood Soil and Water Conservation District
- Andy Geiger, Cottonwood County Environmental Office, Planning & Zoning
- Renee Harnack, Cottonwood Soil & Water Conservation District
- Mike Haugen, City of Windom
- Kelly Heather Pfarr, Natural Resources Conservation Service
- Norm Holmen, Cottonwood County Commissioner
- Dominic Jones, Red Rock Rural Water System
- Lloyd Kalfs, Cottonwood Soil and Water Conservation District, Feedlots, SSTS
- Clark Lingbeek, Cottonwood Soil and Water Conservation District Supervisor, Township Official, Pheasants Forever

Other Participants

- Ryan Doorenbos, MN DNR Fisheries
- Curt Gode, Germantown Township Supervisor
- Doug Goodrich, Redwood-Cottonwood Rivers Control Area
- Mark Hiles, Board of Water and Soil Resources
- Brian Hoskins, MRBI Technician Little Cottonwood River Watershed
- Tom Kresko, MN DNR Area Hydrologist
- Scott MacLean, Minnesota Pollution Control Agency
- Tom Maher, Brown Soil & Water Conservation District
- Lauren Michelsen, West Fork Des Moines River Watershed Coordinator
- Margaret Peeters, Heron Lake Watershed District
- Katherine Pekarek-Scott, Minnesota Pollution Control Agency
- Hans Remmers, Southbrook Township Supervisor
- Jan Voit, Heron Lake Watershed District
- Mark Werner, Germantown Township Supervisor

A.1.a Public and Internal Forums

- 10-4-2011 Cottonwood County Board of Commissioners approve resolution of intent to revise and update the local water management plan.
- 11-16-2011 Meeting with Board of Water and Soil Resources reviewing the water plan update criteria. (Attendance: Kay Clark, Andy Geiger and Mark Hiles)
- 12-2-2011 Notice of 'Kick-Off' Meeting for the Water Plan Task Force and the beginning of the water plan revision process.

- 12-14-2011 Meeting with Water Plan Task Force to review the water plan amendment process. (Attendance 12)
- 12-19-2011 Notice of Decision to Revise and Update the Local Water Management Plan provided by email and/or postal service to local units of government, organizations and responsible agencies as suggested and required (70 notices mailed). Meeting Notice published in the Windom Citizen, Mountain Lake Observer and Cottonwood County Shopper.
- 1-5-2012 Cottonwood County Water Task Force 'Open' House Meeting held at the Cottonwood SWCD Office. (Attendance 9)
- 1-11-2012 Water Task Force Meeting – Focus - Cottonwood River Watershed. (Attendance 13)
- 1-18-2012 Water Task Force Meeting – Focus – Des Moines River Watershed. (Attendance 12)
- 2-1-2012 Water Task Force Meeting – Focus – Little Cottonwood River Watershed. (Attendance 10)
- 2-8-2012 Water Task Force Meeting – Focus – Watonwan and Blue Earth River Watersheds (Attendance 8)
- 3-21-2012 Water Task Force Meeting - Plan Amendment Review. (Attendance 6)
- 3-8-2012 Meeting notice published as legal ad in Cottonwood County Shopper.
- 3-10-2012 Meeting notice published as display ad in Cottonwood County Citizen. Ten days before the Public Hearing.
- 3-24-2012 Public Hearing on Local Water Management Plan Amendment before the County Board of Commissioners.
- 3-27-2012 Date revised plan sent to Board of Water and Soil Resources.
- June 2012 Approval by the Board of Water and Soil Resources.

A.1.b Plan Adoption and Amendment

Upon approval of this plan by the Minnesota Board of Water and Soil Resources (BWSR), Cottonwood County has up to 120 days to pass and Adoption and Implementation Resolution. After final adoption, the plan may be amended in a similar process, by petitioning the BWSR Board, scheduling a public hearing, and sending notice to the required parties.

A.2 Description of Priority Concerns

The Priority Concerns listed below were selected by the Water Plan Task Force members by consensus during the 2006-2007 plan development and reviewed by the Water Task Force in 2011-2012. While the assessment of priority concerns utilized the best available data, this plan rests solidly on information and analysis contained in previous editions of the county's local water management plan.

Priority Concern 1. Improve Surface Water Quality.

Protecting soil from erosion is always a challenge. Improved land use and agricultural best management practices are necessary to address the quality of lakes, wetlands and rivers. MPCA listing of impaired waters requires local strategies to meet Total Maximum Daily Load (TMDL) standards.

Priority Concern 2. Protect Groundwater.

Portions of Cottonwood County have enjoyed adequate groundwater supplies, while other areas have experienced difficulty with sufficient supply. There is increasing concern with groundwater quality and long-term supply. Efforts to protect groundwater should be focused on Drinking Water Supply Management Areas (DWSMA) and surficial aquifer areas.

Priority Concern 3. Feedlots & SSTS (Sub-Surface Sewage Treatment Systems).

Nutrient management plans and controlling feedlot runoff are important tools in preventing water quality issues. There are also many dispersed farmsteads and rural residential properties with outdated septic systems; there is a great need and demand to continue upgrades.

A.3 Summary of Goals, Actions, and Projected Costs

Goals and Actions were selected to address priority concerns on a watershed basis, with a focus on principles of sound hydrological management. A watershed based approach will help in prioritizing future funding opportunities for Cottonwood County.

Priority Concern 1. Improve Surface Water Quality.

This concern will be addressed to prevent further degradation of stream and lake water quality. Objectives include protecting soil from erosion and agricultural runoff, impacts of drainage management, wetland restoration and management, and addressing TMDL impaired waters with the promotion of conservation practices in the watersheds.

Implementation actions include promotion and education, providing technical assistance for conservation programs and best management practices; seeking financial assistance for conservation practices; develop a Drainage Management Plan for Cottonwood County and develop a GIS layer for all public drainage systems in the County; promote conservation drainage; and work with local, state and federal partners on measures to improve water quality and provide technical and administrative support for watershed work in TMDL impaired watersheds.

Projected total costs over the five years from the *'Implementation to Address Priority Concerns' – 'Goals and Objectives – Action'* section of the management

plan amendment include approximately \$1,694,850 for projects and financial assistance, \$1,814,950 for technical and administrative assistance and \$40,500 for outreach and education. All dollar figures are estimates and recognize approximate costs (technical assistance calculated adding specific action items and twenty-five percent of the project costs). There will also be in-kind associated with each action item written.

Priority Concern 2. Protect Groundwater.

This concern will be addressed to assure long-term quality and quantity of groundwater supplies, with a priority for Drinking Water Supply Management Areas (DWSMA) and surficial aquifers. Objectives include supporting wellhead protection, preventing groundwater contamination, and protecting long-term supplies.

Implementation actions include providing technical assistance for conservation programs and best management practices; seeking financial assistance for landowners; outreach and education; maintenance of GIS layers; testing well water quality; providing assistance and funding to seal unused wells; and work with cities and water providers for to protect our long-term water supplies.

Projected total costs over the five years from the *'Implementation to Address Priority Concerns' – 'Goals and Objectives – Action'* section of the management plan amendment include approximately \$527,812 for projects and financial assistance, \$275,938 for technical and administrative assistance, and \$13,000 for outreach and education. All dollar figures are estimates and recognize approximate costs (technical assistance calculated adding specific action items and twenty-five percent of the project costs). There will also be in-kind associated with each action item written.

Priority Concern 3. Feedlots & SSTS (Sub-Surface Sewage Treatment Systems).

This concern will address the protection of public waters and assist residents in meeting feedlot and septic standards, focusing on immediate health and safety needs. Objectives include assisting feedlots owners to maintain compliance with state statutes and continuing to bring nonconforming septic systems into compliance with state standards.

Implementation actions include providing education and outreach, technical assistance with nutrient and manure plan development, maintenance of GIS layers, review ordinances, and providing financial, technical assistance to upgrade feedlots (with emphasis on the Level II Inventory results), and upgrading non-compliant septic systems.

Projected total costs over the five years from the *'Implementation to Address Priority Concerns' – 'Goals and Objectives – Action'* section of the management

plan amendment include approximately \$3,353,625 for projects and financial assistance, \$1,132,875 for technical and administrative assistance, and \$24,000 for outreach and education. All dollar figures are estimates and recognize approximate costs (technical assistance calculated adding specific action items and twenty-five percent of the project costs). There will also be in-kind associated with each action item written.

A.4 Consistency with Local, State and Regional Plans

Cottonwood County Environmental Office administers the County's comprehensive land use plan and zoning ordinance. The Cottonwood SWCD and the Cottonwood County Environmental Office work closely together to ensure that environmental issues are handled consistently throughout Cottonwood County. The Cottonwood County 2005 Comprehensive Plan identifies issues, goals, objectives, policies and tasks that have been reviewed for consistency with the 2007 water management plan.

A.5 Summary of Recommended Amendments to Other Plans and Official Controls

No specific amendments are recommended at this time. Action items include updates to the comprehensive plan and zoning ordinances within this document's management timeline. It would be recommended to incorporate data from this plan into other local plans and controls when they are updated.

B. Priority Concerns

B.1 Identification of Priority Concerns

Priority Concerns for local water management were selected by the Cottonwood County Local Water Management Plan Task Force members after reviewing the concerns submitted by state and local agencies and other stakeholders during the 2005-2006 planning sessions.

For the amended document, concerns and comments were requested from:

- Minnesota Board of Water and Soil Resources
- Minnesota Department of Agriculture
- Minnesota Department of Health
- Minnesota Department of Natural Resources
- Minnesota Environmental Quality Board
- Minnesota Pollution Control Agency
- Cottonwood County Environmental Office
- Cottonwood Soil and Water Conservation District
- Natural Resources Conservation District, Windom Field Office

Local water management concerns and comments were received from:

- Minnesota Board of Water and Soil Resources
- Minnesota Pollution Control Agency

- Soil and Water Conservation District
- Natural Resources Conservation District, Windom Field Office
- Heron Lake Watershed District
- Redwood-Cottonwood Rivers Control Area

Concerns were presented at the Water Task Force Meetings and discussed and implemented into the water management plan Priority Concerns.

B.2 Assessment of Priority Concerns

Cottonwood County consists of seven (7) incorporated cities, one (1) unincorporated village, and eighteen (18) townships. The MN State Demographic Center reported that there are 11,687 residents in the county as of 2010, 3.9% less than the 12,167 people counted in the year 2000 US Census and 7.6% less than the 12,648 counted in 1990.

The number of households in the county as reported by the MN State Demographic Center is 4,857 households as of the 2010 census.

Geographically, US Highway 71 runs north-south through Windom. MN State Highway 30 and State Highway 62 run east-west across the county. MN State Highway 60 runs on a diagonal through Windom, Bingham Lake and Mountain Lake between Worthington and Mankato, providing a major link between the Twin Cities and Sioux City, Iowa. The Union Pacific Railroad runs parallel to Highway 60.

Agriculture is the primary economic driver in the county, with some industrial businesses along Highway 60. The University of Minnesota found that about 82% of the land area in Cottonwood County was cultivated, with 7% in grass/shrub/wetlands, 6% urban and just over 1% covered by water in the year 2002 (Remote Sensing and Geospatial Analysis Laboratory). There were almost 5,300 acres of impervious area, or 1.3% of the county overall.

Cottonwood County is on the edge of the Midwestern humid area, with average annual precipitation of 23-29 inches (Minnesota’s state-wide average is 27.01 inches). Average precipitation can vary from less than 17 inches (1955) to over 41 inches (1993). In 2010, over 40 inches of precipitation was observed (State Climatology Office DNR Waters at <http://climate.umn.edu/>). Previous editions of the Water Plan contain historical weather data and trends.

| Cottonwood County Water Plan Population | |
|--|--------|
| 2010 Population | |
| Amboy Township | 164 |
| Amo Township | 132 |
| Ann Township | 179 |
| Carson Township | 280 |
| Dale Township | 151 |
| Delton Township | 123 |
| Germantown Township | 207 |
| Great Bend Township | 287 |
| Highwater Township | 166 |
| Lakeside Township | 237 |
| Midway Township | 219 |
| Mountain Lake Township | 384 |
| Rosehill Township | 166 |
| Selma Township | 193 |
| Southbrook Township | 79 |
| Springfield Township | 120 |
| Storden Township | 165 |
| Westbrook Township | 216 |
| City of Bingham Lake | 126 |
| City of Comfrey (Part) | 16 |
| City of Jeffers | 369 |
| City of Mountain Lake | 2,104 |
| City of Storden | 219 |
| City of Westbrook | 739 |
| City of Windom | 4,646 |
| County | 11,687 |
| Source: MN State Demographic Center | |

Southwestern Minnesota has a conspicuous feature called the Coteau des Prairies, meaning “highland of the prairies” or “hill of grasses”, which bisects Cottonwood County. This is a ridge that extends northwest to southeast across South Dakota, Minnesota and on into Iowa. The rolling topography of the county consists of glacial till on top of Sioux Quartzite and Cretaceous sandstone bedrock. Depth to bedrock is variable, deepest in the western part of the county, with outcrops of Quartzite in the northeast. Pre-settlement vegetation consisted of grasslands and hardwood forests in river-bottom lands.

Five major watersheds cross the county borders. The three larger watersheds include the Cottonwood River Watershed which encompasses the north-central and western portion of the county covering about 245 square miles or 38% of the county land area; the Watonwan River Watershed which covers the eastern portion of the county and contains 198 square miles or 31% of the county land area; and the West Fork Des Moines River Watershed located in the southwestern and central portions of the county covering 165 square miles or 25% of the county land area. The two smaller watersheds include the Middle Minnesota Watershed (also called the Little Cottonwood River Watershed) which starts close to the center of the County and continues to the very northeastern edge of Cottonwood County covering 39 square miles or 6% of the land area; and the smallest one, the Blue Earth Watershed which covers only 1.3 square miles in the southeastern corner of the county. All but the Des Moines drain into the Minnesota River.

The following rivers and creeks drain within these watersheds:

- Cottonwood River Watershed: Dry Creek, Dutch Charley Creek, Highwater Creek, Mound Creek, Pell Creek
- Watonwan River Watershed: Watonwan River, North Fork of the Watonwan River, South Fork of the Watonwan River, Unnamed Branch
- West Fork Des Moines Watershed: Des Moines River, Heron Lake Outlet
- Middle Minnesota River Watershed: Little Cottonwood River
- Blue Earth River Watershed: no named streams

In addition to flowing creeks and streams, there are about 30 bodies of still water in Cottonwood County covering 5,824 acres of land and average about 170 acres each in size. Surface waters are typically undeveloped and most of the runoff and drainage water is not retained. High priority water quality problems are seen in areas where sediment, nutrients, chemicals or other pollutants discharge to DNR designated protected waters or to any high priority waters as identified in this plan, or discharge to a sinkhole or ground water. The pollutant delivery rate to the water source is in amounts that will impair the quality or usefulness of the water resource. Typical land use and management practices have caused water quality degradation in all of the County’s lakes and streams. Due to the increase in nutrients in the water column, the County’s lakes have seen an increase in algae blooms and other suspended sediments. With this decrease in water clarity, the sunlight is not able to reach all

areas of the lake which restricts many different kinds of plant growth. This not only eliminates a food supply for many game fish, but it also favors the growth of less desirable species such as carp and black bullhead. These fish then cause greater destruction to water bodies by uprooting other types of vegetation and sending more debris into the water column. (For more information on land use, see the Cottonwood County 2005 Comprehensive Plan).

Priority Concern 1. Improve Surface Water Quality.

Surface waters of Minnesota are managed under the doctrine of riparian rights. This means that riverbank landowners have equal rights to reasonable use of waters that border their property. The Minnesota Department of Natural Resources (DNR) Division of Waters has the authority to issue permits for water use, and to limit withdrawals of surface water and groundwater in accordance with the public interest (see also the discussion of groundwater below).

a. Protect Soil from Erosion and Prevent Agricultural Runoff

The *Cottonwood County 2005 Comprehensive Plan* encourages farmers to adopt Best Management Practices (BMPs) to optimize farm profits, conserve soil, and to protect and enhance ground and surface water quality. Simple conservation practices, such as grass waterways, terraces, and sediment basins, can substantially reduce the impacts of soil erosion on surface waters and wetlands. Vegetative buffers separating cropland from bodies of water act as a last line of defense from runoff. These buffers should be a minimum of 33 feet wide and extend at least to the edge of the flood plain.

High priority erosion problems occur in areas where erosion from wind or water is occurring equal to or in excess of twice the “tolerable rate” as defined by NRCS. High priority erosion problems also occur in any area that exhibits active gully erosion. As well, the focus-areas for this local water management plan, including watersheds of impaired waters, should be considered high priority for erosion prevention.

Conservation tillage, leaving adequate crop residue, provides a layer of protection from water and wind erosion and increases organic matter in the soil. In the state of Illinois, for example, no-till soil conservation practices have surpassed conventional tillage, according to NRCS and state Soil & Water Conservation District (SWCD) surveys. Cottonwood SWCD and NRCS have completed tillage transect surveys in the past to better understand trends in local conservation tillage. Changes in market economics for corn and soybean production have raised concerns among producers about the efficiency of conservation tillage. In particular, recent increases in the price of corn have led to predictions of increasing acres planted “corn-on-corn”, rather than the typical corn-soybean rotation. Farmers are pressed to get into the field earlier and earlier each year. These concerns must be addressed by ag educators and advocates, such as the University of Minnesota Extension Service,

Watershed District, Soil and Water Conservation District, and the Environmental Office, through promotion, education and demonstration.

Some highly erodible lands may benefit more by being taken out of production, or being protected as public lands. Cottonwood County operates several parks that offer natural recreation opportunities. Cottonwood County also has 19 DNR Wildlife Management Areas (WMAs), and 14 USFWS Waterfowl Production Areas (WPAs), as well as lands protected by the DNR divisions of Waters, Trails and Waterways, and Fisheries.

Voluntary conservation programs have proven a popular method to reward agricultural producers for doing their part to prevent erosion. Conservation Reserve (CRP), Reinvest In Minnesota (RIM), and Environmental Quality Incentives (EQIP) program and the Conservation Stewardship (CSP) program provide tools to return appropriate land to a native ecology that is better able to respond to erosion pressures. As of September 1, 2011, there are 10,916 acres of CRP and 5,301.30 acres of RIM and CREP and 48 acres in WRP in Cottonwood County, according to the Board of Water and Soil Resources. Private conservation easements have also proven popular in other areas of the state and nation.

Effects of erosion are also evident on many of the county's stream-banks and lakeshores. Aquatic plants provide a natural buffer between windswept open water and fragile shores. Drainage and development have eliminated many of these plants, leading to bank erosion, runoff of fertilizer from fields and lawns, and other problems. The typical modern response has been rock rip-rap. A concerted effort to replace riparian vegetation in shorelands, including tree windbreaks, would help protect lake shores and restore wildlife habitat.

The State of Minnesota regulates the use of shoreland - land within 300 feet of a river or 1,000 feet of a lake. The DNR identifies three river types in Cottonwood County (addressed in the Cottonwood County Zoning Ordinance): Transition River Segments, Agricultural River Segments, and Tributary River segments. The lakes within Cottonwood County are classified as Natural Environment, Recreational Development and General Development lakes. Guidelines for the development of lakes were developed by the DNR and adopted by the County in its zoning code. Most lakes in the County have areas that are unsuitable for development, such as wetlands or soils not capable for development (septic systems, wet soils, strength).

The *Cottonwood County 2005 Comprehensive Plan* calls on developers to complete a detailed study identifying the areas and development techniques, as well as long term land management practices, that would minimize environmental impacts to the watershed any time development is proposed in shoreland areas. New development is encouraged to focus on bodies of water best suited for more intensive uses; discouraging development around more sensitive areas. The Comprehensive Plan also encourages natural landscaping to enhance wildlife habitat and protect water quality. Development should

conform to natural limitations presented by topography and soil to create the least potential for environmental degradation.

b. Drainage Management

Agricultural drainage is intended to remove standing or excess water from land which does not drain naturally. These systems use surface ditches and subsurface permeable pipes to direct water off the land. As explained by the U of MN Extension Service, "Until the 1970s, most subsurface drainage pipes were made from short, cylindrical sections of concrete or clay called 'tile.' That is why terms like tile, tile drainage, and tiling are still used, even though most drainage pipe today is perforated polyethylene tubing" (*Agricultural Issues and Answers*, <http://www.extension.umn.edu>). Typically, private 'tile' systems then outflow into public ditches and streams.

Increased tiling has led to changes in the typical hydrograph of regional watersheds. Headwaters are moving upstream as water is brought to the surface earlier - while many lands benefit from tile intakes, another specific property is inundated and may become un-usable. Increased flows speed up water flow as well, with larger peak flows (and subsequent lower off-peak flows) damaging in-stream fish habitat, stream-banks and wetlands.

Modern, comprehensive drainage management can provide the private and public tools to stabilize the effects of both wet and dry weather cycles, reduce soil erosion, and improve water quality, while also providing additional benefits to wildlife habitat. Research continues on the optimal combination of strategies such as variable depth tilling, drainage structures and controlled intakes. As one example, the Minnesota Corn Growers Association has joined with the national Agricultural Drainage Management Coalition to promote the wider use of comprehensive approaches to drainage. Locally, the SWCD and HLWD have been promoting Alternative Tile Intakes, also known as rock inlets. A long trench is excavated and backfilled with a 6"-12" bed of small rock. A perforated tile is placed and covered with pea gravel to about 1' above grade for settling. According to the Watershed District, these systems have been demonstrated in Minnesota to deliver "adequate drainage capacity and a 50% reduction of sediment and phosphorus loading into subsurface tile lines."

Area II Minnesota River Basin Projects, Inc. is a local grant-in-aid organization which provides financial and technical assistance to member counties for the planning, design, and installation of floodwater retarding/retention projects. According to the BWSR website "Nine reservoirs have been constructed since 1978, with several providing multi-purpose functions as county park and recreation areas. Besides the larger structures, Area II has assisted with the installation of many road retention structures which serve as temporary reservoirs that 'meter' out the floodwaters at controllable velocities and volumes."

Development activity in flood-prone areas should be avoided. For example, high risk areas could receive a permanent vegetative cover in order to help alleviate erosion and sedimentation caused by flooding. Some communities have adopted a No Adverse Impact (NAI) floodplain management approach, which extends beyond the floodplain to manage development in the watersheds where flood waters originate. NAI requires new development to mitigate potential impacts before disaster strikes.

Included in this amendment is the recommendation that the County develop a comprehensive Drainage Management Plan (DMP) that addresses present and future drainage needs as well as methods to mitigate the unintended consequences as described above. The County drainage authority will review the DMP when a petition to improve a public drainage system is requested and consider options for mitigating increases in flow volume. A concerted effort by local decision makers, local and state agencies and landowners will be necessary to ensure sufficient drainage for crop production while maintaining and improving Cottonwood County water quality. High priority areas will include impaired water bodies and reaches of impaired water bodies on the Clean Water Act 303 [d] TMDL List, through any area with high resource value waters should be considered.

c. Wetland Restoration and Management

As the USFWS notes, historically, southwestern Minnesota was part of a huge grass and wetland complex called the Prairie Pothole Region of the Northern Tallgrass Prairie. Cottonwood County's remaining wetlands act as natural filters, holding water on the landscape, retaining flood waters, reducing erosion and allowing time for sediment to settle. These interrelated prairie potholes and wetland complexes also provide important habitat to a variety of plants and animals. Wetlands also reduce the size and scope of storm event and snowmelt flooding.

Wetlands need to be integrated into management of the larger drainage system to be of greatest benefit. However, active wetland restoration would be required to show substantial differences. The Reinvest in Minnesota-Wetland Reserve Program (RIM/WRP), administered through BWSR and NRCS, has a potential to provide incentives for landowners. State and federal funding sources have not been found to be effective in promoting wetland restoration in the county. However, new drain tile installation will continue to accelerate water flow to the potential detriment of downstream users, unless new and/or replacement wetlands are created to balance flows within and between watersheds.

d. TMDL Impaired Waters

The federal Clean Water Act requires states to adopt water quality standards. A water body is considered "impaired" or polluted if it fails to meet these standards. The Act requires the state to conduct a Total Maximum Daily

Load (TMDL) study to identify point and non-point sources of each of these pollutants. MPCA and other agencies are working to reduce impairments in these waters. Statewide, there are 2,575 river, lake and wetland impairments (2008 inventory) including 1,090 impaired by conventional pollutants and 1,476 by toxics (mercury, PCBs, other).

| Cottonwood County Water Plan 2010 Impaired Waters Requiring a TMDL (Draft) | | | | |
|---|---|---------------------------|--|---|
| Name | Stretch | Impaired Use | Impaired Cause | Status |
| Des Moines River | Windom Dam to Jackson Dam | AqLife AqRec AqLife | Ammonia, Dissolved Oxygen Fecal Coliform Turbidity | TMDL Required TMDL Approved TMDL Approved |
| Des Moines River | Lime Creek to Heron Lake Outlet | AqRec AqLife | Fecal Coliform Turbidity | TMDL Approved TMDL Approved |
| Des Moines River | Heron Lake Outlet to Windom Dam | AqLife | Turbidity | TMDL Approved |
| Heron Lake Outlet | Heron Lake (32-0057-01) to Des Moines River | AqLife AqLife | Turbidity pH | TMDL Approved TMDL Approved |
| Unnamed Creek | String Lakes to Des Moines River | AqLife | Turbidity | TMDL Required |
| Cottonwood River | Dry Creek to Mound Creek | AqCons | Mercury in Fish Tissue | TMDL Approved |
| Watowan River | Headwaters to N Fork Watowan R | AqLife AqRec AqLife | Fishes Bioassessments Fecal Coliform Turbidity | TMDL Required TMDL Approved TMDL Required |
| Watowan River, North Fork | Headwaters to Watowan River | AqLife | Turbidity | TMDL Required |
| Judicial Ditch 1 | Headwater to Irish Lake | AqLife | Fishes Bioassessments | TMDL Required |
| Dutch Charlie Creek | Headwaters to Highwater Cr | AqLife AqLife | Fishes Bioassessments Turbidity | TMDL Required TMDL Required |
| Little Cottonwood River | Headwaters to Minnesota R | AqRec AqLife | Fecal Coliform Turbidity | TMDL Required TMDL Required |
| Pell Creek | Headwaters to T109 R38W S29, east line | AqLife | Turbidity | Proposed Impairment Under USEPA Review |
| Bean Lake | | AqRec | Nutrient/Eutrophication Biological Indicators | Proposed Impairment Under USEPA Review |
| Bingham Lake | | AqRec | Nutrient/Eutrophication Biological Indicators | Proposed Impairment Under USEPA Review |
| Double Lake | North Portion | AqRec | Nutrient/Eutrophication Biological Indicators | Proposed Impairment Under USEPA Review |
| Eagle Lake | | AqRec | Nutrient/Eutrophication Biological Indicators | Proposed Impairment Under USEPA Review |
| Fish Lake | Main | AqCons | Mercury in Fish Tissue | TMDL Approved |
| Mountain Lake | | AqCons | Mercury in Fish Tissue | TMDL Approved |
| Talcot Lake | | AqRec | Nutrient/Eutrophication Biological Indicators | Proposed Impairment Under USEPA Review |

Cottonwood County is part of five ongoing initiatives to monitor water quality, specifically TMDL studies. The West Fork Des Moines River Watershed TMDL Implementation Plan for Multiple Impairments (ammonia, low oxygen, fecal coliform and turbidity) was approved in September 2009. The Cottonwood River Fecal Coliform Bacteria and Turbidity TMDL Implementation Plan was submitted June 2011- Public Comment Period April-May 2011. Draft TMDL Minnesota River for Turbidity – Public Comment Period February –April 2011. The Lower Minnesota River TMDL – Low Dissolved Oxygen – Implementation Plan approved February 2006. The Blue Earth River TMDL for Fecal Coliform – Implementation Plan approved November 2007.

MPCA is now following the Intensive Watershed Monitoring approach for both monitoring and assessments. This watershed approach is a 10-year rotation for addressing waters of the state on the level of Minnesota’s major watersheds. Since 2007, the MPCA and its partners have begun implementing this approach as recommended by the Clean Water County and directed by the Minnesota Legislature. (For MPCA project schedules, see (<http://www.pca.state.mn.us/index.php/view-document.html?gid=10228>))

Priority Concern 2. Protect Groundwater.

Demand for water resources is expected to continue to grow for the near future. Groundwater is the primary source of drinking water in southwestern Minnesota. The original edition (1991) and first revision (1996) of the Cottonwood County Comprehensive Water Plan contain extensive information on the geology and aquifers of Cottonwood County.

While there are locally important aquifers in Cretaceous sandstones and Precambrian Sioux Quartzite, these deposits typically are high in dissolved minerals (sulfate, iron, manganese). Even when these minerals are within US EPA standards, they may give water an objectionable taste and stain laundry and dishes. Quaternary sand and gravel deposits show higher yields and offer good potential for source water.

Some aquifers in surficial sand and gravel deposits associated with lakes and river channels show substantial yields, in particular along the Des Moines River where the City of Windom and Red Rock Rural Water System both have established well fields. These surficial aquifers yield “young water”, with 10-12 year recharge cycles from precipitation. This makes them more susceptible to drought and contamination from both point and non-point sources.

a. Wellhead Protection

The Minnesota Dept. of Health (MDH) Wellhead Protection program is designed to protect public water supply wells. As explained on the MDH website, “A capture zone for the well (called the wellhead protection area) is designated and a plan is developed and implemented for managing potential contamination sources within the wellhead protection area.” A Drinking

Water Supply Management Area (DWSMA) provides a geographic focus for securing the water supply.

Currently, RRRWS and the cities of Jeffers, Mountain Lake and Windom are the only public, community water suppliers to complete a Wellhead Protection Plan. The City of Comfrey is currently in MDH's plan process. Efforts in these areas will move toward implementation of the protection plans, such as education and outreach to landowners and users of land in the DWSMAs.

There are also a number of other sources in the County which are considered public water suppliers by MDH, such as resorts, restaurants or churches. MDH has completed ground water assessments on 12 of 14 public water systems in the county, including seven non-community systems. On this list, public water is now provided to the unincorporated community of Delft by the Red Rock Rural Water System and to the City of Bingham Lake by the City of Windom.

b. Nitrate and Pesticide Infiltration of Shallow Groundwater

Cottonwood County and the SWCD work regularly with landowners to ensure the proper application of fertilizers and farm chemicals. This is especially important in sensitive areas, particularly those in the floodplain where there is the possibility of spreading overland, and above shallow aquifers where pollutants can infiltrate groundwater. Well samples taken from 1991-2002 showed elevated results of coliform across the county. Results were highest in Amboy (64% positive for coliform), Carson (62%), Rosehill (52%) and Storden (52%) townships. Since that time, many residents in these townships have hooked up to rural water. It may be worthwhile to systematically test wells in these areas to update the baseline data.

Proper use of manure management plans and nutrient management plans (see Feedlot section below) places the right amount of chemical on the ground while minimizing unneeded input costs. The *Cottonwood County 2005 Comprehensive Plan* encourages regular screening clinics for testing private wells for nitrates. This helps alert homeowners to protect their families' health.

c. Unused Wells

New wells drilled today have an established permitting process, which allows the public to track well locations and characteristics. However, there are an unknown number of wells put in place since settlement that continue to provide pathways for potential pollutants to

| Cottonwood County Water Plan Wells Sealed with Assistance | | | |
|--|-------|-------------|--------------|
| | Wells | Total Cost | Private Cost |
| 2007 | 26 | \$10,717.00 | \$2,739.00 |
| 2008 | 37 | \$17,482.86 | \$3,992.50 |
| 2009 | 29 | \$13,270.99 | \$3,856.96 |
| 2010 | 24 | \$11,763.75 | \$3,921.25 |
| 2011 | 20 | \$10,677.18 | \$3,309.06 |

Source: County Natural Resources Block Grant

reach the county's aquifers. Established farmstead sites are often abandoned as agricultural operations consolidate into larger units and rural residents choose different home locations. Each of these sites typically has a well that needs to be correctly sealed by a licensed contractor. Property owners who connect to rural water systems need to decommission their existing wells if the wells will no longer be used.

Cottonwood County has worked with property owners to see that unused wells are properly sealed. The county offers cost-share assistance as it is able. Public demand for this assistance is likely to continue into the future.

d. Long-Term Water Supply

There is growing concern in the county about the quantity and quality of available ground water. With the poor quality of groundwater outside the glacial drift aquifers, the rural water system will be an increasingly important asset for communities, livestock producers and rural residents. The Comprehensive Plan supports development of the Red Rock Rural Water System as an alternative for rural property owners. RRRWS provides service in much of the county, and is expanding the quantity and extent of their residential and industrial services.

Minnesota DNR has tracked water levels for many years. This data indicate strong correlations between rainfall and well levels across Cottonwood County, suggesting potential water supply issues in future times of drought.

Feedlots and ethanol facilities water usage have begun to highlight the need for sustainable, long-term water supplies. An average rural resident may use about 100,000 gallons of potable water a year. An average feedlot may use 1,000,000 gallons of water a year. With current technology, corn-based ethanol refineries use water at an average rate of four-to-six gallons per gallon of fuel produced; therefore, a 100 million gallon plant will require at least 400,000,000 gallons of water each year. Moreover, where potable drinking water supplies must meet basic standards for public safety, ethanol plants require further pre-treatment to remove minerals and chemicals commonly found in groundwater in the region.

Further growth in animal agriculture and renewable energy will require careful balancing of interests in economic development and protection for existing residents. New industrial development requires careful planning for infrastructure and utilities. The Comprehensive Plan encourages new development inside city limits. Applicants for new development should document long-term sources of water, and document financial ability to complete extension of infrastructure. Applicants should also document quality of water supply and mitigate any potential detrimental impacts.

Priority Concern 3. Feedlots & SSTS (Sub-Surface Sewage Treatment Systems).

Development in rural communities is a process of balancing interests. The majority of land in Cottonwood County is in agriculture. Feedlot expansion has, at times, created conflicts with nearby residents. Residential development itself can lead to conflicts with established agricultural operations, waters and wildlife. Cottonwood County seeks to provide opportunities for housing in both town and country, but that development must fit into working landscapes and natural areas.

a. Feedlot Conformance with State Standards

The total number of farms in the county has been declining to stable, similar to trends across southwestern Minnesota. The 2007 U.S. Census of Agriculture reports 865 farms on 381,249 acres in Cottonwood County. Of these, 336,956 acres were harvested cropland. There were 173 farms with cattle, 66 with hogs, and 41 with sheep.

The *Cottonwood County 2005 Comprehensive Plan* supports the right to farm. The Plan also states that the County must carefully control the location of feedlots and other animal confinement operations to minimize the potential for pollution. Animal agriculture creates manure which must be safely managed. Trends in feedlot management, such as changing demographics; market trends for feed, beef and pork; and economics of fertilizer will effect growth in the industry. Population growth in some townships, however, may also lead to future land use conflicts with feedlots and manure management.

Nutrient management programs are intended to prevent and mitigate non-point nutrient contamination of water and soil resources. This is particularly important in areas with a great deal of surface runoff, as well as surficial aquifer areas. Technical assistance from county staff can help farm operators understand the variety of rules and regulations, which can be confusing and seemingly contradictory. While larger operations are required to develop formal management plans, more modest feedlots can also benefit from the same sound scientific management principles.

MPCA regulates the collection, transportation, storage, processing and disposal of animal manure. As of March 2012, there are 312 registered feedlots in Cottonwood County. Total number of animals for Cottonwood County is 37,303 beef, 9,477 dairy, 285,506 swine and 206,508 turkeys. Approximately 30% of registered feedlots and other livestock facilities should be considered high priority for improvements. As noted above, the County continues to implement Agricultural Best Management Practices (AgBMPs) in conjunction with the Minnesota Department of Agriculture, such as feedlot improvements; upgrading manure storage facilities, and odor control; improved manure handling, and spreading and incorporation equipment. Also cost-share is available through the EQIP program and special Clean

Water Fund grant opportunities. In addition Cottonwood County is partnering with the Heron Lake Watershed District to complete a Level III Feedlot Inventory in the West Fork Des Moines River Watershed with 70 sites being completed in Cottonwood County during 2012-2015.

b. SSTS Compliance with State Standards

Sub-Surface Sewage Treatment Systems (SSTS) can provide a high degree of sewage treatment if properly sited, installed and maintained. State legislation governing SSTS is implemented at the county level.

Failing and nonconforming treatment systems are considered an imminent threat to public health.

These systems can spread hepatitis, dysentery and other diseases that are spread by bacteria, viruses and parasites in wastewater. Untreated sewage also may contain toxic chemicals from household cleaning products. This wastewater can directly enter surface waters and spread to unsuspecting humans, as well as pets and wildlife. Excess nutrients reaching lakes or streams will also promote algae growth, making lakes unsuitable for swimming, boating and fishing. Over time, wastewater will reach down to groundwater as well.

Many communities are relying more on engineered treatment systems; however, there does not appear to be a consensus supporting increased requirements in Southwestern Minnesota. Another option for treatment is a regional sewer district, which functions much the same as rural water systems. A central entity, often a non-profit organization or the incumbent water supplier, organizes construction of sewer collection and treatment facilities and provides annual maintenance, and in return collects payment on a utility fee-for-service basis.

The Greater Blue Earth Basin Alliance (GBERBA) has received Clean Water legacy funding from the State of Minnesota to develop a nine-county, basin-wide plan to bring non-conforming SSTS into compliance with state standards. A Technical Panel has been formed and discussion has begun to formalize the project work plan and timeline.

The *Cottonwood County 2005 Comprehensive Plan* discourages development in areas where poor soil characteristics may not support SSTS systems, and encourages property owners to upgrade septic systems. The plan also calls for enforcement of standards for on-site sewage treatment systems of all types. Cottonwood County has a successful record of assisting landowners to upgrade their septic systems through a low-interest loan program. Public interest in assistance is expected to continue into the future.

B.3 Goals and Objectives to Address Priority Concerns

The Goals and Objectives were selected in the 2006 Local Water Management Plan process. During the amendment process of 2011-2012 the Water Task Force worked on a watershed basis through each Priority Concern for each of the watersheds in Cottonwood County. Goals are general statements that communicate what is to be accomplished over the long-term to address the priority concerns and are achievable in a reasonable period. Objectives state how the goal will be accomplished by breaking it down into smaller, more specific measures that will be taken in each watershed and are measurable. Goals and objectives were reached by consensus and are not necessarily in rank order.

Priority Concern 1. Improve Surface Water Quality.

Goal 1: Prevent further degradation of stream and lake water quality.

Objective 1.a: Protect soil from erosion and prevent agricultural runoff.

Objective 1.b: Address impacts of Drainage Management.

Objective 1.c: Wetland restoration and management.

Objective 1.d: Address TMDL Impaired Waters.

Priority Concern 2. Protect Groundwater.

Goal 2: Assure long-term quality and quantity of groundwater supplies, with a priority for Drinking Water Supply Management Areas (DWSMA) and surficial aquifer areas.

Objective 2.a: Support Well Head Protection planning and implementation.

Objective 2.b: Prevent nitrate and pesticide infiltration of shallow groundwater.

Objective 2.c: Prevent groundwater contamination from unused wells.

Objective 2.d: Protect long-term water supply.

Priority Concern 3. Feedlots & SSTS (Sub-Surface Sewage Treatment Systems).

Goal 3: Protect public waters and assist residents in meeting feedlot and septic standards, focusing on immediate health and safety situations.

Objective 3.a: Assist feedlot owners to maintain compliance with MN Statute 7020 standards.

Objective 3.b: Continue to bring nonconforming ISTS into compliance with state standards.

C. Implementation to Address Priority Concerns

This section establishes the implementation program for local water management to address priority concerns by watersheds. Action items describe specific measures that the County intends to implement, in cooperation with appropriate local, state and federal agencies and organizations. Action items listed below were reached by consensus and are not necessarily in rank order.

| Goals and Objectives | | | | |
|--|---|---|-------------------|--|
| Priority Concern 1. Improve Surface Water Quality | | | | |
| Goal 1: Prevent further degradation of stream and lake water quality in Cottonwood County | | | | |
| Objective 1.a Protect Soil from Erosion and Prevent Agricultural Runoff. | | | | |
| Watershed | Action | Responsibility | Time Frame | Total Units/Cost |
| County Wide 1.a-1 | Assist with coordination and funding of environmental education events for the students of Cottonwood County. These include (but not limited to) Children’s Water Festival, Environmental Fair, Fifth Grade Conservation Day, 4 th Grade Water Awareness. Target Audience - 2,500+ area students/year; \$2,000/year | County Environmental Office, Soil & Water, NRCS, RCRCA, USF&WS, RRRWS, DNR, City of Windom, HLWD | 2012-2017 | 12,500 students \$10,000.00 |
| 1.a-2 | Educate landowners on lakeshore and streambank stabilization practices. Technology – Beacon website Outreach - Direct mailings, news releases, USDA Update, personal contacts. Target Audience – 500 landowners/year; \$1,500/year | County Environmental Office Soil and Water MN DNR | 2012-2017 | 2,500 contacts \$7,500.00 |
| 1.a-3 | Promote the use of buffer strips along ditches, streams and lakes within Cottonwood County utilizing available conservation programs and incentives. Technology – LiDAR, Stream Power Index, others Outreach - Direct mailings, news releases, USDA Update, personal contacts. Target Audience – 300 landowners/year; \$1,000/year | Soil and Water NRCS County Environmental Office | 2012-2017 | 1,500 contacts \$5,000.00 |
| 1.a-4 | Promote conservation practices and programs to landowners in Cottonwood County. These include State Cost-Share, RIM, RIM/WRP, CRP, EQIP, CSP and others. Outreach - Direct mailings, news releases, USDA Update, personal contacts. Target Audience – 2,000 landowners/year – 20 sign-ups/year; \$3,000/year | Soil and Water County Environmental Office NRCS, RCRCA, HLWD | 2012-2017 | 10,000 contacts 100 sign-ups \$15,000.00 |
| Cottonwood River 1.a-5 | Promote, assist and seek funding for eligible acres enrolling into a buffer strip program along ditches, steams and lakes. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 4 acres/year; \$1,600/year | Soil and Water NRCS County Environmental Office RCRCA | 2012-2017 | 20 acres \$8,000.00 |
| 1.a-6 | Promote, assist and seek funding to enroll riparian land into a perpetual buffer program. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 2 acres/year; \$8,000/year | Soil and Water, NRCS County Environmental Office, RCRCA | 2012-2017 | 10 acres \$40,000.00 |
| 1.a-7 | Promote, assist and seek funding to reduce the amount of wind erosion by planting field windbreak, living snowfences and farmstead windbreaks. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 0.5 miles windbreaks and 2 acres shelterbelts/year; \$5,000/year | Soil and Water NRCS | 2012-2017 | 2.5 miles 10 acres \$25,000.00 |
| 1.a-8 | Promote, assist and seek funding to reduce erosion by installing eligible streambank and lakeshore stabilization projects. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 200 feet/year; \$10,000/year | Soil and Water County Environmental Office NRCS RCRCA | 2012-2017 | 1,000 feet \$50,000.00 |

| Goals and Objectives | | | | |
|--|--|--|-------------------|--------------------------------------|
| Priority Concern 1. Improve Surface Water Quality | | | | |
| Goal 1: Prevent further degradation of stream and lake water quality in Cottonwood County | | | | |
| Objective 1.a Protect Soil from Erosion and Prevent Agricultural Runoff. | | | | |
| Watershed | Action | Responsibility | Time Frame | Total Units/Cost |
| Cottonwood River 1.a-9 | Promote and seek funding for the installation of alternative tile intakes. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 10/year; \$3,500/year | Soil and Water County Environmental Office NRCS, RCRCA | 2012-2017 | 50 contacts \$17,500.00 |
| Des Moines River 1.a-10 | Promote and seek funding for eligible acres enrolling into a buffer strip program along ditches, steams and lakes. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 2 acres/year; \$800/year | Soil and Water NRCS County Environmental Office | 2012-2017 | 10 acres \$4,000.00 |
| 1.a-11 | Promote and seek funding to enroll riparian land into a perpetual buffer program. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 2 acres/year; \$8,000/year | Soil and Water NRCS County Environmental Office | 2012-2017 | 10 acres \$40,000.00 |
| 1.a-12 | Promote and seek funding to reduce the amount of wind erosion by planting field windbreak, living snowfences and farmstead windbreaks. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 0.5 miles windbreaks and 2 acres shelterbelts/year; \$5000/year | Soil and Water NRCS | 2012-2017 | 2.5 miles 10 acres \$25,000.00 |
| 1.a-13 | Promote and seek funding to reduce erosion by installing eligible streambank and lakeshore stabilization projects. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 200 feet/year; \$10,000/year | Soil and Water County Environmental Office NRCS | 2012-2017 | 1,000 feet \$50,000.00 |
| 1.a-14 | Promote and seek funding for the installation of alternative tile intakes. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 5intakes/year; \$1,750/year | Soil and Water County Environmental Office NRCS, HLWD | 2012-2017 | 25 intakes \$8,750.00 |
| Little Cottonwood River 1.a-15 | Promote and seek funding for eligible acres enrolling into a buffer strip program along ditches, steams and lakes. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 0.8 acres/year; \$320/year | Soil and Water NRCS County Environmental Office | 2012-2017 | 4 acres \$1,600.00 |
| 1.a-16 | Promote and seek funding to enroll riparian land into a perpetual buffer program. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 0.3 acres/year; \$1,200 | Soil and Water NRCS County Environmental Office | 2012-2017 | 1.5 acres \$6,000.00 |
| 1.a-17 | Promote and seek funding to reduce the amount of wind erosion by planting field windbreak, living snowfences and farmstead windbreaks. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 0.4 miles windbreaks and 0 .2 acres shelterbelts/year; \$500/year | Soil and Water NRCS | 2012-2017 | 2 miles 1 acre \$2,500.00 |
| 1.a-18 | Promote and seek funding to reduce erosion by installing eligible streambank and lakeshore stabilization projects. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 200 feet/year; \$10,000/year | Soil and Water County Environmental Office NRCS | 2012-2017 | 1,000 feet \$50,000.00 |
| 1.a-19 | Promote and seek funding for the installation of alternative tile intakes. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 2intakes/year; \$700/year | Soil and Water County Environmental Office NRCS | 2012-2017 | 10 intakes \$3,500.00 |

| Goals and Objectives | | | | |
|--|---|---|-------------------|----------------------------------|
| Priority Concern 1. Improve Surface Water Quality | | | | |
| Goal 1: Prevent further degradation of stream and lake water quality in Cottonwood County | | | | |
| Objective 1.a Protect Soil from Erosion and Prevent Agricultural Runoff. | | | | |
| Watershed | Action | Responsibility | Time Frame | Total Units/Cost |
| Watowan/ Blue Earth Rivers 1.a-20 | Promote and seek funding for eligible acres enrolling into a buffer strip program along ditches, streams and lakes. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 1.6 acres/year; \$640/year | Soil and Water NRCS County Environmental Office | 2012-2017 | 8 acres \$3,200.00 |
| 1.a-21 | Promote and seek funding to enroll riparian land into a perpetual buffer program. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 0.8 acres/year; \$3,200/year | Soil and Water NRCS County Environmental Office | 2012-2017 | 4 acres \$16,000.00 |
| 1.a-22 | Promote and seek funding to reduce the amount of wind erosion by planting field windbreak, living snowfences and farmstead windbreaks. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 0.2 miles windbreaks and 0.8 acres shelterbelts/year; \$2,000/year | Soil and Water NRCS | 2012-2017 | 1 mile 4 acres \$10,000.00 |
| 1.a-23 | Promote and seek funding to reduce erosion by installing eligible streambank and lakeshore stabilization projects. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 200 feet/year; \$10,000/year | Soil and Water County Environmental Office NRCS, RCRA | 2012-2017 | 1,000 feet \$50,000.00 |
| 1.a-24 | Promote and seek funding for the installation of alternative tile intakes. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 5 intakes/year; \$1,750/year | Soil and Water County Environmental Office NRCS | 2012-2017 | 25 intakes \$8,750.00 |

| Goals and Objectives | | | | |
|--|--|---|-------------------|---|
| Priority Concern 1. Improve Surface Water Quality | | | | |
| Goal 1: Prevent further degradation of stream and lake water quality in Cottonwood County | | | | |
| Objective 1.b Address Impacts of Drainage Management. | | | | |
| Watershed | Action | Responsibility | Time Frame | Total Units/Cost |
| County Wide 1.b-1 | Develop a comprehensive Drainage Management Plan (DMP), for Cottonwood County, that addresses present and future drainage needs as well as methods to mitigate the unintended consequences of agricultural drainage on water quality. Hiring of technical personnel to investigate and resources to complete work by present staff in developing plan. Technology – Data collection Research – Compiling information and data Outreach - Direct mailings, news releases, USDA Update, personal contacts. Target Audience – Cottonwood County Drainage Authority and County residents | Soil and Water County Environmental Office, County Auditor/Treasurer's Office and other County Departments, NRCS RRRWS, HLWD, RCRCA, USF&WS, MPCA, DNR, other LGUs | 2012-2017 | All County Residents \$200,000.00 |
| 1.b-2 | Investigate existing information of all public drainage systems and develop a GIS layer of all public drainage systems in Cottonwood County. Technology – GIS Target Audience – Cottonwood County Drainage Authority and County Residents | County Environmental Office County Auditor/Treasurer's Office Soil and Water | 2012-2017 | All County Residents \$50,000.00 |
| 1.b-3 | Promote conservation drainage practices in Cottonwood County. Seek incentive funds and cost-share to assist producers with the installation of conservation drainage practices, these practices include alternative tile intakes, structures to control tile drainage and bioreactors. High priority areas would include impaired water bodies and reaches of impaired water bodies. Outreach - Direct mailings, news releases, USDA Update, personal contacts. Enrollment - 20 practices/year; \$160,000.00/year | Soil and Water NRCS HLWD RCRCA | 2012-2017 | 100 BMPs \$800,000.00 |
| Cottonwood River 1.b.4 | Promote, assist and seek funding for the installation of grass waterways. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 2,000 ft/year; \$7,000.00/year | Soil and Water NRCS RCRCA | 2012-2017 | 10,000 feet \$35,000.00 |
| 1.b.5 | Promote, assist and seek funding for the installation of water and sediment control structures. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 2 structures/year; \$60,000/year | Soil and Water NRCS RCRCA | 2012-2017 | 10 structures \$300,000.00 |
| 1.b.6 | Work with Area II River Basin Initiative to identify area for water retention projects. Outreach - Direct mailings, news releases, USDA Update, personal contacts. Target Audience – 5 landowners/year | Soil and Water County Environmental Office Cottonwood County Highway Area II River Basin Project | 2012-2017 | 25 contacts \$0.00 |
| 1.b.7 | Promote, assist and seek funding for the installation of Urban BMPs, to individuals and the communities of Jeffers, Storden and Westbrook, as found in the MN Stormwater Manual. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 5 BMPs/year; \$2,500 | Soil and Water County Environmental Office | 2012-2017 | 25 BMPs \$12,500.00 |

| Goals and Objectives | | | | |
|--|---|---|-------------------|------------------------------|
| Priority Concern 1. Improve Surface Water Quality | | | | |
| Goal 1: Prevent further degradation of stream and lake water quality in Cottonwood County | | | | |
| Objective 1.b Address Impacts of Drainage Management. | | | | |
| Watershed | Action | Responsibility | Time Frame | Total Cost/Units |
| Des Moines River 1.b.8 | Promote, assist and seek funding for the installation of grass waterways. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 1,000 ft/year; \$3,500.00/year | Soil and Water NRCS HLWD | 2012-2017 | 5,000 feet \$17,500.00 |
| 1.b.9 | Promote, assist and seek funding for the installation of water and sediment control structures. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 1 structure/year; \$30,000/year | Soil and Water NRCS HLWD | 2012-2017 | 5 structures \$150,000.00 |
| 1.b.10 | Promote, assist and seek funding for the installation of Urban BMPs, to individuals and the community of Windom, as found in the MN Stormwater Manual. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 2 BMPs/year; \$1,000/year | Soil and Water County Environmental Office HLWD | 2012-2017 | 10 BMPs \$5,000.00 |
| Little Cottonwood River 1.b.11 | Promote, assist and seek funding for the installation of grass waterways. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 400 ft/year; \$1,400/year | Soil and Water NRCS | 2012-2017 | 2,000 feet \$7,000.00 |
| 1.b.12 | Promote, assist and seek funding for the installation of water and sediment control structures. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 0.6 structures/year; \$18,000/year | Soil and Water NRCS | 2012-2017 | 3 structures \$90,000.00 |
| 1.b.13 | Work with Area II River Basin Initiative to identify area for water retention projects. Outreach - Direct mailings, news releases, USDA Update, personal contacts. Target Audience – 2 landowners/year | Soil and Water County Environmental Office County Highway Department Area II River Basin Project | 2012-2017 | 10 contacts \$0.00 |
| 1.b.14 | Promote, assist and seek funding for the installation of Urban BMPs, to individuals and the community of Comfrey, as found in the MN Stormwater Manual. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 0.4 BMPs/year; \$200/year | Soil and Water County Environmental Office | 2012-2017 | 10 BMPs \$1,000.00 |
| Watowan/ Blue Earth Rivers 1.b.15 | Promote, assist and seek funding for the installation of grass waterways. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 400 ft/year; \$1,400/year | Soil and Water NRCS GBERBA | 2012-2017 | 2,000 feet \$7,000.00 |
| 1.b.16 | Promote, assist and seek funding for the installation of water and sediment control structures. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – .5 structures/year; \$15,000/year | Soil and Water NRCS GBERBA | 2012-2017 | 2 structures \$60,000.00 |
| 1.b.17 | Promote, assist and seek funding for the installation of Urban BMPs, to individuals and the communities of Bingham Lake and Mountain Lake, as found in the MN Stormwater Manual. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment –5 BMPs/year; \$2,500/year | Soil and Water County Environmental Office | 2012-2017 | 10 BMPs \$5,000.00 |

| Goals and Objectives | | | | |
|--|---|--|-------------------|-----------------------------|
| Priority Concern 1. Improve Surface Water Quality | | | | |
| Goal 1: Prevent further degradation of stream and lake water quality in Cottonwood County | | | | |
| Objective 1.c Wetland Restoration and Management. | | | | |
| Watershed | Action | Responsibility | Time Frame | Total Units/Cost |
| County Wide 1.c.1 | Provide technical assistance to the Wetland Conservation Act Technical Evaluation Panel (TEP) to minimize the amount of wetland acres lost county wide. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Audience – 1,500 landowner and operators/year | Soil and Water NRCS County Environmental Office DNR | 2012-2017 | 7,500 contacts \$0.00 |
| 1.c.2 | Work with DNR and USF&WS to expand or enhance wetland in existing wildlife areas. Educate landowners on the benefits of converting drained wetlands back to a permanent native vegetated state, using RIM/WRP and CRP or other long term conservation program. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Audience – 1,500 landowners and operators/year | Soil and Water NRCS DNR USF&WS | 2012-2017 | 7,500 contacts \$0.00 |
| 1.c.3 | Promote, assist and seek funding to enroll marginal land into available wetland restoration programs including RIM/WRP and CRP or other long term conservation program. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Audience – 1,500 landowners and operators/year Enrollment – 1 contract /year; \$50,000/year | Soil and Water County Environmental Office | 2012-2017 | 5 contracts \$250,000.00 |

| Goals and Objectives | | | | |
|--|--|---|-------------------|---|
| Priority Concern 1. Improve Surface Water Quality | | | | |
| Goal 1: Prevent further degradation of stream and lake water quality in Cottonwood County | | | | |
| Objective 1.d Address TMDL Impaired Waters. | | | | |
| Watershed | Action | Responsibility | Time Frame | Total Units/Cost |
| County Wide 1.d.1 | Provide public information on water quality. Outreach – Booths and Displays at County Fair and Farm & Home Shows, others Audience – 2,000 landowners, operators and residents /year; \$600/year | Soil and Water County Environmental Office | 2012-2017 | 10,000 contacts \$3,000.00 |
| Cottonwood River 1.d.2 | Provide technical and administrative assistance to MPCA on the scheduled watershed studies. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Audience – 1,000 residents/year | Soil and Water County Environmental Office RCRCA MPCA | 2015-2017 | 3,000 contacts \$0.00 |
| 1.d.3 | Work with the TMDL Implementation Plan for the watershed and hiring technical staff to promote conservation efforts in the watershed. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Audience – 1,000 landowners-operators and one FTE technical staff/year; \$50,000/year | Soil and Water County Environmental Office, RCRCA, MPCA | 2012-2017 | 5,000 contacts 1 staff-5 years \$250,000.00 |
| Des Moines River 1.d.4 | Provide technical and administrative assistance to MPCA on the scheduled watershed studies. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Audience – 1,000 residents/year | Soil and Water County Environmental Office, HLWD, City of Windom MPCA | 2013-2017 | 4,000 contacts \$0.00 |
| 1.c.5 | Work with the TMDL Implementation Plan for the watershed and hiring technical staff to promote conservation efforts in the watershed. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Audience – 1,000 landowners-operators and one FTE technical staff/year; \$50,000/year | Soil and Water County Environmental Office, HLWD, City of Windom, MPCA | 2012-2017 | 5,000 contacts 1 staff-5 years \$250,000.00 |
| Little Cottonwood River 1.d.6 | Provide technical and administrative assistance to MPCA on the scheduled watershed studies. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Audience – 1,000 residents/year | Soil and Water County Environmental Office MPCA | 2012-2017 | 5,000 contacts \$0.00 |
| 1.c.7 | Work with the TMDL Implementation Plan for the watershed and hiring technical staff to promote conservation efforts in the watershed. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Audience – 1,000 landowners-operators and one FTE technical staff/year; \$50,000/year | Soil and Water County Environmental Office MPCA | 2012-2017 | 5,000 contacts 1 staff-5 years \$250,000.00 |
| Watowan/ Blue Earth Rivers 1.d.8 | Provide technical and administrative assistance to MPCA on the scheduled watershed studies. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Audience – 1,000 residents/year | Soil and Water County Environmental Office GBERBA MPCA | 2012-2017 | 5,000 contacts \$0.00 |
| 1.d.9 | Work with the TMDL Implementation Plan for the watershed and hiring technical staff to promote conservation efforts in the watershed. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Audience – 1,000 landowners-operators and one FTE technical staff/year; \$50,000/year | Soil and Water County Environmental Office GBERBA, MPCA | 2012-2017 | 5,000 contacts 1 staff-5 years \$250,000.00 |
| 1.d.10 | Promote, assist and seek funding to implement BMPs towards improving the water quality of Bingham Lake. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Audience – 50 landowners-residents/year; BMPs – 2/year; \$20,000/year | Soil and Water County Environmental Office GBERBA, MPCA | 2012-2017 | 250 contacts 10 BMPs \$100,000.00 |

| Goals and Objectives | | | | |
|---|--|--|-------------------|---|
| Priority Concern 2. Protect Groundwater | | | | |
| Goal 2: Assure long-term quality and quantity of groundwater supplies, with a priority for Drinking Water Supply Management Areas (DWSMA) and surficial aquifer areas. | | | | |
| Objective 2.a Support Wellhead Protection Planning and Implementation. | | | | |
| Watershed | Action | Responsibility | Time Frame | Total Units/Cost |
| County Wide | Assist cities with completing and implementing their Wellhead Protection Plan. | Soil and Water County Environmental Office Cities MDH | 2012-2017 | City Department Heads \$0.00 |
| 2.a.1 | Outreach – Direct mailings and personal contacts. Audience – Contact City Department heads/year | | | |
| 2.a.2 | Educate landowners and residents on DWSMAs and measures to protect the groundwater. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Audience – 100 landowners-residents/year | Soil and Water County Environmental Office Cities, RRRWS | 2012-2017 | 500 contacts \$0.00 |
| 2.a.3 | Protect DWSMA and surficial aquifer areas from agricultural and industrial contamination through zoning ordinances. Manure management plans to be completed and followed in DWSMA and surficial aquifers. Coordinate with GBERBA in hiring a Nutrient Management Specialist to work on manure management plans. Outreach – Direct mailings and personal contacts. Audience – 100 landowners and 1/5 FTE /year; \$10,000/year | Soil and Water County Environmental Office GBERBA MDH | 2012-2017 | 500 contacts 1 staff-1 year \$50,000.00 |
| 2.a.4 | Make available to the public the MDH wellhead protection areas through the county GIS. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Audience –20 landowners-residents/year | Soil and Water County Environmental Office MDH | 2012-2017 | 100 contacts \$0.00 |
| 2.a.5 | Promote, assist and seek funding to enroll eligible acres (highly vulnerable wellhead ares) into the RIM Wellhead Protection Program. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enroll – 20 acres/year; \$80,000/year | Soil and Water NRCS RRRWS | 2012-2017 | 100 acres \$400,000.00 |
| Des Moines River | Continue to cooperate with Red Rock Rural Water Systems on the expansion of the rural water systems and advise the public about County programs that will help manage potential contamination sources. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Audience –25 landowners-residents/year | Soil and Water County Environmental Office RRRWS | 2012-2017 | 125 contacts \$0.00 |
| 2.a.6 | | | | |

| Goals and Objectives | | | | |
|---|---|---|-------------------|---|
| Priority Concern 2. Protect Groundwater | | | | |
| Goal 2: Assure long-term quality and quantity of groundwater supplies, with a priority for Drinking Water Supply Management Areas (DWSMA) and surficial aquifer areas. | | | | |
| Objective 2.b Prevent Nitrate and Pesticide Infiltration of Groundwater with Emphasis on Shallow Groundwater areas. | | | | |
| Watershed | Action | Responsibility | Time Frame | Total Units/Cost |
| County Wide 2.b.1 | Promote proper application of fertilizers and pesticides and partner with local crop consultants to provide an informational field day on a bi-annual basis. Also utilize the GBERBA Nutrient Management Specialist throughout the county. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Audience – 100 landowners and 1/5 FTE/year; \$10,500/year | Soil and Water County Environmental Office GBERBA | 2012-2017 | 500 contacts 1 staff – 1 year \$52,500.00 |
| 2.b.2 | Promote AgBMPs along ditches and streams in surficial aquifer areas. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Audience – 100 landowners/year; \$400/year | Soil and Water County Environmental Office GBERBA, MPCA | 2012-2017 | 500 contacts \$2,000.00 |
| 2.b.3 | Conduct annual free clinics for testing nitrate levels in well water. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Audience – 2,000 county residents/year; \$800/year | Soil and Water County Environmental Office MDH, MDA | 2012-2017 | 10,000 contacts \$4,000.00 |
| Cottonwood River 2.b.4 | Promote, assist and seek funding to assist landowners and operators with nutrient plans. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Plans – 12 plans/year; \$9,600/year | Soil and Water County Environmental Office GBERBA, MPCA | 2012-2017 | 60 plans \$48,000.00 |
| Des Moines River 2.b.5 | Promote, assist and seek funding to assist landowners and operators with nutrient plans. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Plans – 10 plans/year; \$8,000/year | Soil and Water County Environmental Office GBERBA, MPCA | 2012-2017 | 50 plans \$40,000.00 |
| Little Cottonwood River 2.b.6 | Promote, assist and seek funding to assist landowners and operators with nutrient plans. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Plans – 5 plans/year; \$4,000/year | Soil and Water County Environmental Office GBERBA, MPCA | 2012-2017 | 25 plans \$20,000.00 |
| Watowan/ Blue Earth Rivers 2.b.7 | Promote, assist and seek funding to assist landowners and operators with nutrient plans. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Plans – 3 plans/year; \$2,400/year | Soil and Water County Environmental Office GBERBA, MPCA | 2012-2017 | 15 plans \$12,000.00 |

| Goals and Objectives | | | | |
|---|---|---|-------------------|--------------------------------|
| Priority Concern 2. Protect Groundwater | | | | |
| Goal 2: Assure long-term quality and quantity of groundwater supplies, with a priority for Drinking Water Supply Management Areas (DWSMA) and surficial aquifer areas. | | | | |
| Objective 2.c Prevent Groundwater Contamination from Unused Wells | | | | |
| Watershed | Action | Responsibility | Time Frame | Total Units/Cost |
| County Wide | Work with well contractors to promote proper well protection and sealing. Outreach – Direct mailings and personal contacts. Audience – Well Contractors (Cottonwood and surrounding counties) \$50/year | Soil and Water County Environmental Office Red Rock Rural Water System, Cities | 2012-2017 | Well Contractors \$250.00 |
| 2.c.1 | Provide information to County residents concerning proper well protection and sealing programs. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Audience – Well Contractors (Cottonwood and surrounding counties) \$500/year | Soil and Water County Environmental Office Red Rock Rural Water System, Cities | 2012-2017 | Well Contractors \$2,000.00 |
| 2.c.2 | Promote, assist and seek funding to prevent contamination of groundwater by providing cost-share for the sealing of unused wells. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 20 wells/year; \$10,500/year | Soil and Water County Environmental Office | 2012-2017 | 100 wells \$52,500.00 |
| Cottonwood River | Promote, assist and seek funding to prevent contamination of groundwater by providing cost-share for the sealing of unused wells. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 20 wells/year; \$10,500/year | Soil and Water County Environmental Office | 2012-2017 | 100 wells \$52,500.00 |
| 2.c.3 | Promote, assist and seek funding to prevent contamination of groundwater by providing cost-share for the sealing of unused wells. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 10 wells/year; \$5,250/year | Soil and Water County Environmental Office | 2012-2017 | 50 wells \$26,250.00 |
| Des Moines River | Promote, assist and seek funding to prevent contamination of groundwater by providing cost-share for the sealing of unused wells. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 20 wells/year; \$10,500/year | Soil and Water County Environmental Office | 2012-2017 | 100 wells \$52,500.00 |
| 2.c.4 | Promote, assist and seek funding to prevent contamination of groundwater by providing cost-share for the sealing of unused wells. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 10 wells/year; \$5,250/year | Soil and Water County Environmental Office | 2012-2017 | 50 wells \$26,250.00 |
| Little Cottonwood River | Promote, assist and seek funding to prevent contamination of groundwater by providing cost-share for the sealing of unused wells. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 20 wells/year; \$10,500/year | Soil and Water County Environmental Office | 2012-2017 | 100 wells \$52,500.00 |
| 2.c.5 | Promote, assist and seek funding to prevent contamination of groundwater by providing cost-share for the sealing of unused wells. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 20 wells/year; \$10,500/year | Soil and Water County Environmental Office | 2012-2017 | 100 wells \$52,500.00 |
| Watowan/ Blue Earth River | Promote, assist and seek funding to prevent contamination of groundwater by providing cost-share for the sealing of unused wells. Outreach – Direct mailings, news releases, USDA Update, personal contacts. Enrollment – 20 wells/year; \$10,500/year | Soil and Water County Environmental Office | 2012-2017 | 100 wells \$52,500.00 |
| 2.c.6 | | | | |

| Goals and Objectives | | | | |
|---|---|---|-------------------|--|
| Priority Concern 2. Protect Groundwater | | | | |
| Goal 2: Assure long-term quality and quantity of groundwater supplies, with a priority for Drinking Water Supply Management Areas (DWSMA) and surficial aquifer areas. | | | | |
| Objective 2.d Protect Long-Term Water Supply | | | | |
| Watershed | Action | Responsibility | Time Frame | Total Units/Cost |
| County Wide 2.d.1 | Support water conservation by using existing educational materials. Outreach – Direct mailings, news releases, USDA Update, personal contacts, special programs, and displays Audience – 2,000 county residents/year; \$500/year | Soil and Water County Environmental Office Red Rock Rural Water System, Cities, MDH | 2012-2017 | 10,000 contacts \$2,000.00 |
| 2.d.2 | Protect long-term water supply by enforcing zoning ordinances through Conditional Use Hearings for municipal, industrial, irrigation and public water supply wells. Outreach – Direct mailings and personal contacts Audience – Planning Commission, Cities, Water Suppliers, landowners; \$50/year | County Environmental Office DNR | 2012-2017 | County Residents Planning Commission \$250.00 |
| Des Moines River 2.d.3 | Assist public water suppliers with water exploration within Cottonwood County. Outreach – Personal contacts Audience – Red Rock Rural Water Systems, other suppliers | County Environmental Office Soil and Water | 2012-2017 | Water Suppliers \$0.00 |
| 2.d.4 | Assist the DNR in collecting and compiling data on three local wells. Outreach – Direct contact Reading – 3 wells/8 months – 24 readings/year | Soil and Water DNR | 2012-2017 | 120 readings \$0.00 |

| Goals and Objectives | | | | |
|--|---|---|-------------------|--------------------------------|
| Priority Concern 3. Feedlots and SSTS (Subsurface Sewage Treatment Systems) | | | | |
| Goal 3: Protect public waters and assist residents in meeting feedlot and septic standards, focusing on immediate health and safety situations. | | | | |
| Objective 3.a Assist Feedlot Owners to Maintain Compliance with MN Statute 7020 Standards. | | | | |
| Watershed | Action | Responsibility | Time Frame | Total Units/Cost |
| County Wide 3.a.1 | Conduct annual meetings with Township Officials to promote AgBMPs for livestock producers. Outreach – Direct mailings and personal contacts Audience – 110 township officials/year | County Environmental Office Soil and Water | 2012-2017 | 550 contacts \$0.00 |
| 3.a.2 | Inspect 7% of all registered feedlots per year to verify compliance with MN Statute 7020. Outreach – Direct mailings and personal contacts Audience – Feedlot Owners and Operators 25 inspections/year; \$3,000/year | Soil and Water County Environmental Office | 2012-2017 | 125 inspections \$15,000.00 |
| 3.a.3 | Continue Delta reporting for registered feedlots in Cottonwood County. Outreach - Personal contacts Audience – Feedlot Owners and Operators 50 records/year | Soil and Water County Environmental Office | 2012-2017 | 250 records \$0.00 |
| 3.a.4 | Promote, assist and seek implementation funding through EQIP, State Cost-Share and Clean Water fund for livestock waste management BMPs. Outreach - Direct mailings, news releases, USDA Update, personal contacts Enrollment – 5 BMPs/year; \$150,000/year | Soil and Water NRCS RCRCA, TSA HLWD, GBERBA | 2012-2017 | 25 BMPs \$750,000.00 |
| 3.a.5 | Promote, assist and seek funding for livestock producers with feedlots containing 300-999 animal units to develop and maintain a manure management plan. Outreach - Direct mailings, news releases, USDA Update, personal contacts Plans – 20 plans/year; \$12,000/year | Soil and Water County Environmental Office GBERBA | 2012-2017 | 100 plans \$60,000.00 |
| 3.a.6 | Provide manure sample kits to livestock producers. Outreach - Direct mailings, news releases, USDA Update, personal contacts Kits –30 kits/year; \$3,000/year | Soil and Water County Environmental Office GBERBA MPCA | 2012-2017 | 150 kits \$15,000.00 |
| Des Moines River 3.a.7 | Assist the HLWD with a Level III Inventory and and site inspection. Outreach - Direct mailings, news releases, USDA Update, personal contacts Audience – Livestock producers Sites – 14 sites/year | Soil and Water County Environmental Office HLWD, NRCS, GBERBA MPCA | 2012-2015 | 70 sites \$0.00 |
| 3.a.8 | Promote, assist and seek funding to help livestock producers in the watershed that need waste management upgrades as found with the Level III Inventory. Outreach - Direct mailings, news releases, USDA Update, personal contacts Audience – Livestock producers Sites – 30% of those inventories – 4 BMPs/year; \$126,000/year | Soil and Water County Environmental Office HLWD, NRCS, GBERBA MPCA | 2012-2017 | 20 BMPs \$661,500 |

| Goals and Objectives | | | | |
|--|---|--|-------------------|--|
| Priority Concern 3. Feedlots and SSTS (Subsurface Sewage Treatment Systems) | | | | |
| Goal 3: Protect public waters and assist residents in meeting feedlot and septic standards, focusing on immediate health and safety situations. | | | | |
| Objective 3.b Continue to bring Nonconforming Subsurface Sewage Treatment Systems into Compliance with State Standards. | | | | |
| Watershed | Action | Responsibility | Time Frame | Total Units/Cost |
| County Wide 3.b.1 | Promote, assist and seek funding to upgrade non-compliant systems through qualifying loan programs. Outreach - Direct mailings, news releases, USDA Update, personal contacts Enrollment – 40 systems/ year; \$440,000/year | Soil and Water County Environmental Office MPCA, MDA | 2012-2017 | 200 systems \$2,200,000.00 |
| 3.b.2 | Promote, assist and seek additional funding for SSTS construction with an emphasis on imminent health threat. Outreach - Direct mailings and personal contacts Enrollment – 10 systems/year; \$110,000/year | Soil and Water County Environmental Office MPCA, MDA | 2012-2017 | 50 systems \$550,000.00 |
| 3.b.3 | Provide an informational packet regarding SSTS maintenance to every homeowner that installs a new or upgraded system Outreach - personal contacts Audience – 50 homeowners/year; \$500/year | Soil and Water County Environmental Office MPCA | 2012-2017 | 250 contacts \$2,500.00 |
| 3.b.4 | Develop a GIS layer for all septic systems in the County. Technology – Computer and software | Soil and Water County Environmental Office | 2012-2017 | \$0.00 |
| 3.b.5 | Provide information on state SSTS rules and educate property owners about the public health threats and environmental harm pose by non-complying systems. Outreach - Direct mailings, news releases, USDA Update, personal contacts Audience – 300 homeowners/year; \$400.00/year | Soil and Water County Environmental Office Red Rock Rural Water System | 2012-2017 | 1,500 contacts \$2,000.00 |
| 3.b.6 | Provide contractor and realtor meetings annually to inform of changes and invite feedback. Outreach - Direct mailings and personal contacts Attendance – 50 realtor-contractors contacts/year; \$100.00/year | Soil and Water County Environmental Office MPCA | 2012-2017 | Contractors and Realtors \$500.00 |
| 3.b.7 | Complete revision of the Cottonwood County SSTS Ordinance and adoption by Cottonwood County. Outreach - Direct mailings and personal contacts Audience – Cottonwood County residents and Planning Commission | County Environmental Office Soil and Water MPCA | 2012 | County Residents Planning Commission \$2,500.00 |
| 3.b.8 | Keep public informed on the Cottonwood County SSTS Ordinance. Outreach - Direct mailings, news releases, USDA Update, personal contacts Audience – 3,000 county residents/year; \$500.00/year | Soil and Water County Environmental Office MPCA | 2012-2017 | 15,000 contacts \$1,500.00 |
| Cottonwood River 3.b.9 | Promote, assist and seek funding to bring unsewered homes into compliance. Outreach - Direct mailings and personal contacts Audience – Homeowners – Cluster System – One System | Soil and Water County Environmental Office RCRCA, MPCA, MDH | 2012-2017 | Homeowners \$200,000.00 |
| Des Moines River 3.b.10 | Promote, assist and seek funding to bring unsewered businesses and homes into compliance. Outreach - Direct mailings and personal contacts Audience – One Business and 10 homeowners | Soil and Water County Environmental Office City of Windom, MPCA, MDA, | 2012-2017 | Business/ Homeowners \$50,000.00 |

D. Implementation Schedule of Ongoing Activities

This section identifies other local activities and programs in Cottonwood County that contribute toward the goals and objectives of local water management. There are also many other public and private efforts at the regional, state and federal levels which serve to promote the regulatory and informational goals of sound water management. These particular ongoing activities typically encompass all watersheds in the county, reaching a broad cross-section of local residents and businesses.

D.1 Priority Concern 1. Improve Surface Water Quality.

- Administer and provide assistance for the State Revolving Fund for Ag BMP's.
- Assist with testing and providing services for commercial pesticide applicators.
- Continue to administer Wetland Conservation Act.
- Promote technical assistance for conservation programs.
- Promote the SWCD tree program.
- Promote conservation retirement programs. (RIM, RIM/WRP, CRP)

D.2 Priority Concern 2. Protect Groundwater.

- Continue provide Household Hazardous Waste Program.
- Provide a collection program for waste pesticides and empty containers.
- Promote recycling and solid waste management.
- Provide electronics and appliance disposal.
- Provide cost-share assistance for well sealing.
- Promote conservation retirement programs. (RIM, RIM/WRP, CRP)

D.3 Priority Concern 3. Feedlots & SSTS (Subsurface Sewage Treatment Systems).

- Continue to be a delegated County in the MPCA Feedlot Program and provide data to state databases.
- Inspect and assist producers in maintaining compliance with State rules.
- Promote and provide assistance for manure management plans and practices.
- Inspect and assist producers in maintaining compliance with County and State feedlot rules.
- Administer regulations, permit, and inspect individual sewage treatment systems.

D.4 Additional Programs.

- Assist landowners with setback permits and zoning regulations.
- Facilitate and track biological control of noxious weeds.
- Educate Townships on the noxious weed program.
- Participate in the State's Rainfall monitoring program.
- Administer Shoreland and Floodplain Management Program.
- Update County Zoning Ordinances as necessary with the County Planning and Zoning Commission.

E. Appendix

E.1 Acronyms Used

AgBMPs - Agricultural Best Management Practices
Area II - Area II Minnesota River Basin Projects, Inc.
BWSR - Board of Water and Soil Resources
BNC - Brown Nicollet Cottonwood Joint Powers Water Quality Board
CDP - Census Designated Place
CRP - Conservation Reserve Program
CWF - Clean Water Fund
CWP - Clean Water Partnership
DMP - Drainage Management Plan
DNR - Department of Natural Resources
DWSMA - Drinking Water Supply Management Area
Env - Cottonwood County Environmental Office
GIS - Geographic Information Systems
GBERBA - Greater Blue Earth River Basin Alliance
HLWD - Heron Lake Watershed District
LCMR - Legislative Commission on Minnesota Resources
L&CRWS - Lewis & Clark Rural Water System
MDA - Minnesota Department of Agriculture
MDH - Minnesota Department of Health
MPCA - Minnesota Pollution Control Agency
NRCS - Natural Resources Conservation Service
NWI - National Wetlands Inventory
PF - Pheasants Forever
RCRCA - Redwood-Cottonwood Rivers Control Area
RIM - Reinvest in Minnesota Program
RRRWS - Red Rock Rural Water Systems
SSTS - Subsurface Sewage Treatment System
SWCD - Soil and Water Conservation District
TMDL - Total Maximum Daily Load
USCOE - United States Corp of Army Engineers
USDA - United States Department of Agriculture
USF&WS - United States Fish and Wildlife Service
WRP - Wetland Reserve Program