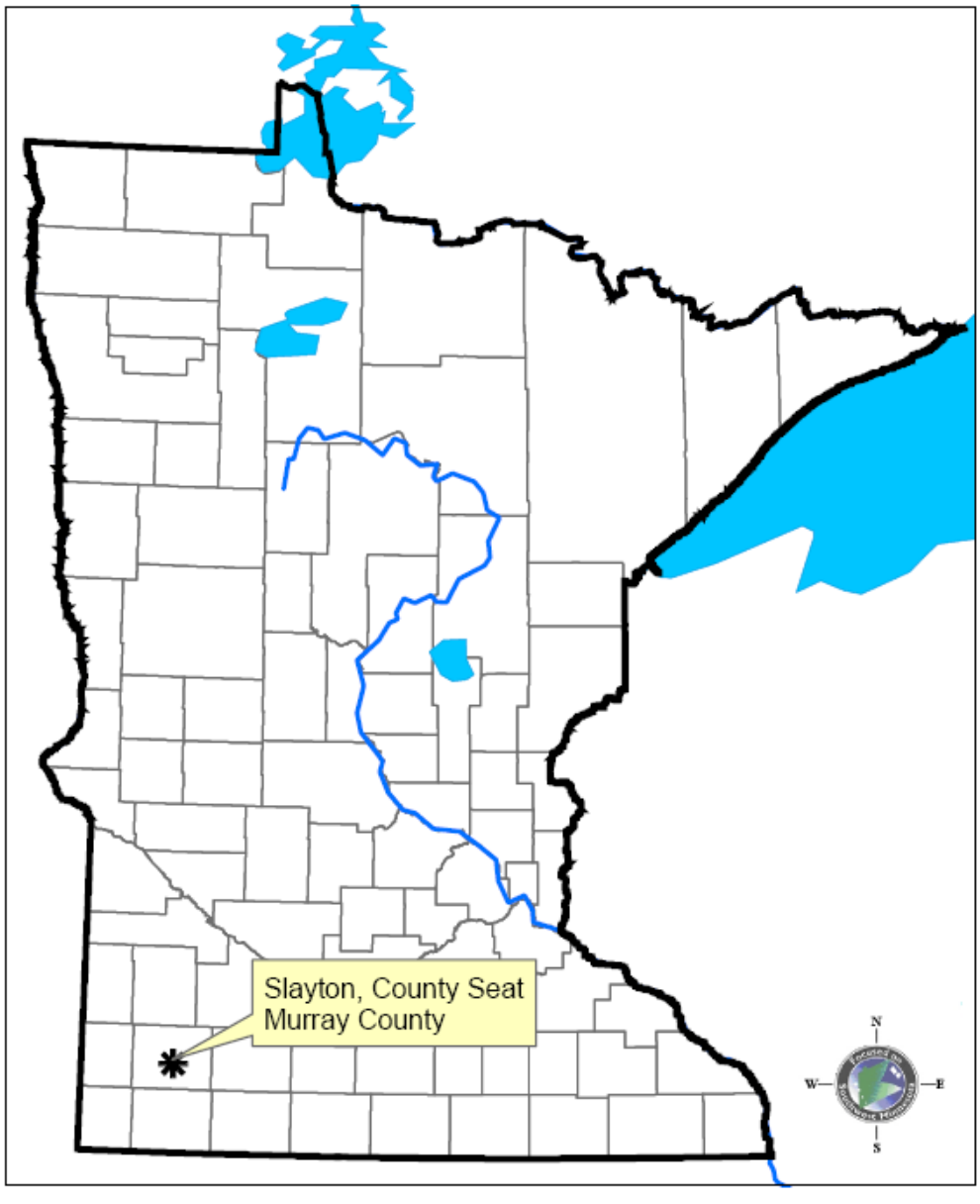
Murray County

Priority Concerns Scoping Document



2017

Prepared for the Murray County Local Water Management Plan Task Force

By Murray County Water Resources

Murray County Local Water Management Plan – Scoping Document

A 10-year plan with a 5-year implementation schedule. 2017-2027
Plan Update 2016-2017

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II. Appendix

1. Introduction

1.1.1 Map and Location

1.1.2. Murray County is located in the southwestern corner of Minnesota, adjacent to Cottonwood, Redwood, Lyon, Pipestone, and Nobles counties. The City of Slayton is the county seat. Murray County's population in the 2010 U.S. Census was 8,725, with a density of 12 persons per square mile. The Minnesota State Demographic Center estimates the current population (2014) is 8,475. The Demographic Center forecasts total population of 8,758 by 2045.

1.1.3. Murray County is typical prairie environment, with variation in land elevation from 1900 feet above sea level atop the Coteau de Prairies (Buffalo Ridge) to 1250 feet in the northeast corner of the county, with nine generalized soil areas. Murray County contains the headwaters of four major watersheds, including the Cottonwood and Redwood rivers which drain into the Minnesota River, the Rock River which drains into the Missouri River basin, and the Des Moines River which eventually drains into the Mississippi River.

Slayton (pop. 2,078) and Fulda (pop. 1,257) are the largest cities in the county. The Lakes CDP was designated for the 2000 Census, which found approximately 600 housing units with 600 permanent residents in the Lake Shetek and Lake Sarah area. The dominant land use in the county is agriculture. The 2008 *Murray County Comprehensive Plan* reports 79 % of land was under cultivation, 2% water, and 5% developed. The 2012 U.S. Census of Agriculture reports 895 farms on 407,919 acres in Murray County. Of these, 374,929 acres were in cropland. There were 229 farms with cattle, 76 with hogs, 33 with sheep, and 19 with poultry.

1.2. Plan Information

1.2.1. The Murray County Water Resources Department is responsible for local water management in Murray County, including facilitation of public input and convening the Murray County Local Water Management Plan Task Force. Task Force membership currently includes:

2016 Local Water Management Plan Task Force Members

Five County Commissioners	
Paul Posthuma	Agriculture/Murray SWCD
Duane Spartz	Private Business
Jon Hoyme	Shetek Area Water and Sewer Commission (SAWSC)
Larry Byers	Township Representative
Dave Kremer	Private Business
Justin Hoffmann	City of Slayton Representative
Jay Takle	State Park
Ken Bickner	SWCD
Robert Koehler	Extension
Amy Rucker	County EDA
Jon Bloemendaal	Murray County Ag & Solid Waste Administrator
Melissa Runck	Extension Educator
Rick Parker	Retired/Private Business
Jean Christoffels	Secretary/ Murray County Zoning Administrator
Chris Hansen	Water Plan Coordinator/Water Resources Administrator

1.2.2. The Murray County Board of Commissioners adopted a resolution on 10 October 1987 to develop a Comprehensive Local Water Plan according to Minnesota Statutes in effect at that time. This plan was developed as part of a multi-county project under the direction of the Redwood-Cottonwood Rivers Control Area. A committee was organized in August of 1988 to advise the Murray County Board, and give direction to RCRCA. A public hearing was held in January of 1990 where comments were heard by the County Board, and a final draft adopted by the Murray County Board of Commissioners on 4 September 1990.

On 7 December 1995, the Murray County Board of Commissioners adopted a resolution to update and revise the Comprehensive Local Water Plan. A public information meeting was held on 13 March 1995. After a one-year extension, draft copies of the revised plan was distributed for review in July 1996, and adopted on 1 April 1997. The Murray County Board of Commissioners adopted a resolution on 6 September 2005 to revise this plan, according to Minnesota Statutes now in effect. This plan is in effect from June 2007 through June 2017. The Murray County Board of Commissioners approved a resolution to revise this plan on 22 November 2011 and the plan was approved on 18 September 2012. On January 19, 2016, the Murray County Board of Commissioners adopted a resolution to update the current plan.

1.2.3. The expiration date of the current plan is June of 2017.

2. Priority Concerns Addressed by the Plan

2.1. Below are the selected priority concerns as chosen by the Murray county Local Water Management Plan Committee:

1. Improve Surface Water Quality and Quantity.

   This was chosen because Murray County is at the top of several different watersheds. Murray County has many of the prime lakes of Southwestern Minnesota. It has been a goal of the Water Plan Committee to keep the water quality in these lakes from degrading. Also, with the new buffer law taking effect, this will be a more noticeable priority concern.

   The impairments from the approved Minnesota Pollution Control Agency's TMDL listing that will be addressed are fecal coliform, nutrients, and turbidity. Those listings were used as a justification to make this a priority concern. Practices will be targeted to areas listed with the 2016 Nonpoint Priority Funding Plan priority areas and criteria. We are also looking at protecting water resources for public use and public health, including drinking water. We are hoping to address the surface water quantity and quality through the natural restoration of drained wetlands. A priority area for this would be the Beaver Creek Watershed. This will provide benefits on multiple levels as it will also provide wildlife habitat. Other projects that have a multiple benefit BMP (quantity, quality, and habitat) will be considered a priority.

   The types of practices that will be completed are buffers, conservation tillage, terraces, sediment basins, nutrient management, assistance with the wetland banking program, wetland restorations, work with the ditch system on setting flow goals for public ditches, and outreach and education to lakeshore property owners on proper shoreline stabilization and restoration.

2. Improve Groundwater Quality and Quantity.

   Certain areas of the County, especially the Lake Shetek/Lake Sarah area, are in need of a rural water system due to both poor quality and lack of a water source. The Water Plan Board felt this was an important issue because of the need to improve the existing potable water sources as well as increasing the number of them for rural water systems. Since the inception of the Murray County Local Water Plan, the Board has approve to conduct annual testing of over 70 wells throughout the County. These wells have been specially selected for depth and location. The testing has provided close to 25 years of baseline data. The Water Plan Board has also funded the cities of Chandler, Lake Wilson, Iona and Fulda to complete wellhead protection plans. Other practices will be targeted to areas listed with the 2016 Nonpoint Priority Funding Plan priority areas and criteria. Projects that have a multiple benefit BMP will be considered a priority. The city of Chandler will be a priority area because of the elevated nitrate levels (as stated in the MDH letter).

Nitrates are of most concern for this priority concern. The practices that will be promoted to improve groundwater quality and help water quantity are encouraging wellhead protection plans to be written for the towns of Avoca, Currie, Hadley, and Slayton, encouraging the proper sealing of abandoned wells, and collaborating with other counties with the WRAPS planning process. We will also continue the annual monitoring of the test wells throughout the County.

3. Drainage Water Management/Water Retention.

   The Murray County Board of Commissioners as well as the Murray County Local Water Plan has continued to express interest in specifically creating new water retention structures. The Beaver Creek watershed has been the priority area. This is because over the last 100 years, it has been estimated that 90 percent of the tillable ground within the watershed has been tiled and drained. Because of this, we have seen an increase in stream flow and bank destabilization.

   The impairments from the approved Minnesota Pollution Control Agency's TMDL listing that will be addressed are fecal coliform, nutrients, and turbidity. Specifically, Beaver Creek has been listed with the impairments of fecal coliform and turbidity. Other practices will be targeted to areas listed with the 2016 Nonpoint Priority Funding Plan priority areas and criteria. Other projects that have a multiple benefit BMP will be considered a priority. We are also looking at protecting water resources for public use and public health, including drinking water. The projects that will be proposed are administration of the floodplain ordinances, rock inlets, drainage tile control structures, providing technical assistance and incentives to landowners, and outreach and education on managing runoff.

4. SSTS/Feedlots.

   Murray County has made great progress in both of these areas. All septic systems within shoreland have been upgraded, a centralized sewer system around the lakes area has been installed, and the Village of Lime Creek has a new compliant cluster system. Work within the Feedlot area has been in re-registering all feedlots within the County as well as completing Level III feedlot inventory. The Water Plan Committee has also committed to testing of pit tiles around all new hog confinement buildings to ensure that the pits are properly constructed and not leaking into the groundwater. These tests are done every two years on the pit tiles. The Board felt that the two items (SSTS/Feedlots) stood out and wanted them to be their own priority concern as much work has been done within the County on them and continues to be done.

   This is a county-wide priority concern. The impairments from the approved Minnesota Pollution Control Agency's TMDL listing that will be addressed are fecal coliform and nutrients. Those listings were used as a justification to make this a priority concern. These listings seem to be fairly consistent county-wide. One of the practices that will be addressed is non-compliant septic system replacement.

For feedlots, the inventory will continue in the Des Moines River watershed to complete the Level III feedlot inventory. When the inventory is completed, a targeted approach to fixing the non-complaint feedlots will take place. Examples of fixes that will be done are manure storage basins, clean water runoff diversion, roofs, manure management, and nutrient loading reduction.

3. Description of Priority Concern Identification Process

3.1.1. Below is the list all public and internal forums held to gather input regarding priority concerns:

1-19-16	The Murray County Board of Commissioners approved a resolution to update the Murray County Local Water Management Plan.
2-11-16	Invitation to submit priority concerns for the update of the Murray County Local Water Management Plan sent out by email and letter to local units of government, organizations, and other agencies as requested or required. (53 notices sent out, 6 received)
5-26-16	Meeting with the Murray County Local Water Management Plan Committee to discuss received priority concerns. (16 attended)
6-16-16	Murray County Water Management Plan Committee held an Open House. (0 attended)

3.1.2. List of Participants and Affiliated Organizations

2016-2017 Murray County Local Water Management Plan Task Force Members

James Jens	County Commissioner, District 1
Robert Moline	County Commissioner, District 2
Gerald Magnus	County Commissioner, District 3
Glenn Kluis	County Commissioner, District 4
Dave Thiner	County Commissioner, District 5
Paul Posthuma	Agriculture/Murray SWCD
Duane Spartz	Private Business
Jon Hoyme	Shetek Area Water and Sewer Commission (SAWSC)
Larry Byers	Township Representative
Dave Kremer	Private Business
Justin Hoffmann	City of Slayton Representative
Jay Takle	State Park
Ken Bickner	SWCD
Robert Koehler	Extension
Amy Rucker	County EDA
Jon Bloemendaal	Murray County Ag & Solid Waste Administrator
Melissa Runck	Extension Educator
Rick Parker	Retired/Private Business
Jean Christoffels	Secretary/ Murray County Zoning Administrator
Chris Hansen	Water Plan Coordinator/Water Resources Administrator

Other Participants

Ed Lenz	Board of Soil and Water Resources
Annette Fiedler	Southwest Regional Development

3.1.3. A summary of the proceedings, and supporting data.

- Murray County Resolution (2016-01-19-01) Resolution to update the Murray County Comprehensive Local Water Management Plan.
- Invitation to submit Priority Concerns for the Update of the Murray County Comprehensive Local Water Management Plan.
- Agenda – Murray County Local Water Management Plan Committee Meeting (05-26-2016)
- Ad for Open House - Murray County Local Water Management Plan Committee.

3.2. There were no written comments received at any public meeting.

3.3. Stakeholder Issues - Below are the written comments received by Local and State agencies:

Jan Voit, Heron Lake Watershed –
Sediment/turbidity
Phosphorus
Bacteria
Drainage systems and natural waterways
Biotic habitat
Wetlands
Education
Funding

Amanda Strommer, Minnesota Department of Health-
Drinking Water Quality (Groundwater)
Groundwater Quantity

Rob Sip, Minnesota Department of Agriculture-
Drainage water management
Water storage
Wind and water erosion
Lake protection
General information on Department of Ag

Wayne Cords, Minnesota Pollution Control Agency-
TMDL Impaired Waters
Watershed Approach
Agricultural Drainage Management

Ed Lenz, Minnesota Board of Water and Soil Resources-
Include drainage authority in update process
Nonpoint Priority Funding Plan
WRAPS plans
Level III feedlot inventories

Utilize Rock River TMDL report
1W1P
Utilize West Fork Des Moines River TMDL
Continue with data collection
Emerging issues
Groundwater issues and DWSMA's

4. Description of Priority Concern Selection Process

4.1. Priority Concern Selection

The Murray County Local Water Management Plan Task Force selected the priority concerns after reviewing the current water management plan's priority concerns as well as the priority concerns submitted by the other local, county, and State agencies. There was a consensus among the concerns to protect both groundwater and surface water.

4.2. Differences between the Plan's Priority Concerns and other State, Local, and Regional Concerns

The Murray County Environmental Services Office administers the Murray County Comprehensive Land Use Plan as well as the County's Zoning Ordinance. Both the Murray County Environmental Services Office and the Murray County Soil and Water Conservation District work together to make sure there are consistencies in the way environmental issues are handled throughout the County. The 2008 approved Murray County Comprehensive Land Use Plan was reviewed to ensure consistency with the proposed 2017 Murray County Local Water Management Plan.

As stated above, comments were received from six separate local and State agencies. There was a consistent thread among all comments received and the approved priority concerns. There were no major differences to resolve.

5. Priority Concerns Not Addressed by the Plan

5.1. Description of why each Concern Submitted for Consideration was not Chosen

When looking back at the 2007 revision of the Murray County Local Water Management Plan, consistencies were seen with the proposed 2017 plan priority concerns. Ground and surface water quality are still of great importance. Also, water retention seems to be a priority within the County. Although feedlots and septic systems were of importance in the last plan revision, the Committee felt it was pertinent to create a stand-alone priority concern for them for the 2017 plan.

II. Appendix

1. Acronyms Used

CDP – Census Designated Place

EDA – Economic Development Authority

DWSMA – Drinking Water Supply Management Area

RCRCA – Redwood/Cottonwood Rivers Control Area

SAWSC – Shetek Area Water and Sewer Commission

SSTS – Subsurface Sewage Treatment System

SWCD – Soil and Water Conservation District

TMDL – Total Maximum Daily Load

WRAPS – Watershed Restoration and Protection Strategy

2. Murray County Resolution

Murray County Board of Commissioners
2848 Broadway Ave. PO Box 57
Slayton, MN 56172

EXCERPT FROM THE PROCEEDINGS OF
THE MURRAY COUNTY BOARD OF COMMISSIONERS
MURRAY COUNTY GOVERNMENT CENTER SLAYTON, MINNESOTA
January 19, 2016

Commissioner Moline introduced the following resolution and moved its adoption:

Resolution 2016-01-19-01
Resolution to Update
the Murray County
Comprehensive Local Water Management Plan

Whereas, Minnesota Statutes, §103B.301, Comprehensive Local Water Management Act (Act), authorizes Minnesota counties to develop and implement a Comprehensive Local Water Management Plan, and

Whereas, the Act requires that a county update and revise their Comprehensive Local Water Management Plan on a periodic basis, and

Whereas, the Act encourages that a county coordinate its planning with contiguous counties, and solicit input from local governmental units and state review agencies, and

Whereas, the Act requires that plans and official controls of other local governmental units be consistent with the Comprehensive Local Water Management Plan, and

Whereas, Murray County has determined that the revision and continued implementation of a Comprehensive Local Water Management Plan will help promote the health and welfare of the citizens of Murray County, and

Now, Therefore, Be it Resolved, that the Murray County Board of Commissioners resolve to revise and update its current Comprehensive Local Water Management Plan.

Be it Further Resolved that Murray County will coordinate its efforts in the revision and update of its Comprehensive Local Water Management Plan with all local units of government within the county, and the state review agencies; and will incorporate where appropriate any existing plans and rules which have been developed and adopted by watershed districts having jurisdiction wholly or partly within Murray County into its Comprehensive Local Water Management Plan.

Be it Further Resolved that the Murray County Board of Commissioners authorizes the establishment of a Water Management advisory committee with the responsibility of revising and updating the plan and who shall report to the County Board on a periodic basis.

Be it Further Resolved that the Murray County Board of Commissioners delegates the Water Resources Department the responsibility of coordinating, assembling, writing and implementing the revised Comprehensive Local Water Management Plan pursuant to Minnesota Statutes, §103B.301.

The foregoing resolution was duly seconded by Commissioner Kluis and thereupon being put to a vote all members voted in favor.

I, Aurora Heard, County Coordinator of the County of Murray, State of Minnesota, do hereby certify that the foregoing copy represents a true and correct copy of the original thereof on file in Murray County.

Dated: February 1, 2016

Aurora Heard
Murray County Coordinator

3. Invitation to Submit Priority Concerns

Murray County Environmental Services Office

Murray County Government Center - 2500 28th Street, PO Box 57, Slayton, MN 56172-0057
Phone : (507) 836-1167 – Fax: (507) 836-8904

Date: February 11, 2016

To: _____

From: Chris Hansen, Murray County Water Resources Administrator

Re: Invitation to Submit Priority Concerns for the Update to the Murray County Comprehensive Local Water Management Plan

The Murray County Board of Commissioners adopted a resolution on January 19, 2016 requiring the update and revision of the Comprehensive Local Water Management Plan (Plan), as authorized under the Comprehensive Local Water Management Act, Minnesota Statutes, §103B.301. The Plan will focus on priority water management concerns.

The county invites all recipients of this notice to submit water management issues they feel the Plan should address. For each issue submitted, please consider including the following information:

1. Why is it important the plan focus on this issue or concern (include or cite relevant data)?
2. What actions are needed to address the concern?
3. What resources may be available to accomplish the actions (include contact names, funding sources, partnerships, citizen volunteers, etc.)?
4. What specific areas of the county are highest priority in regards to this issue?

Also, please submit any water and related land resources plans and official controls so that these items can be reviewed to ensure consistency with the Comprehensive Local Water Management Plan. These items may be submitted as a website link.

Please submit the requested information or direct inquiries by April 1, 2016, to:

Chris Hansen
Murray County Water Resources Administrator
2500 28th Street, PO Box 57
Slayton, MN 56172
(507)-836-1165
chansen@co.murray.mn.us

cc: file
enclosures: none

Jon Bloemendaal	Chris Hansen	Jean Christoffels	Laurie Hill
jbloemendaal@co.murray.mn.us	chansen@co.murray.mn.us	jchristoffels@co.murray.mn.us	lhill@co.murray.mn.us
Ag & Solid Waste Administrator	Water Resources Administrator	Zoning Administrator	Secretary

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4. Murray County Water Management Plan Task Force Agenda

Murray County Environmental Services Office

Murray County Government Center - 2500 28th Street, PO Box 57, Slayton, MN 56172-0057
Phone : (507) 836-1167 – Fax: (507) 836-8904

MEMORANDUM

DATE: May 18, 2016

TO: Local Water Management Plan Task Force

FROM: Chris Hansen – Water Resources Administrator

RE: WATER MANAGEMENT PLAN MEETING
May 26, 2016

(Please note this is a 1:00 p.m. meeting)

(It is important that you call the office to indicate whether you will attend or not as we need to have a quorum.)

There will be a meeting of the Murray County Local Water Management Plan Task Force on Thursday, May 26, 2016 at 1:00 p.m. in Meeting Room B of the Murray County Government Building, Slayton, MN.

AGENDA

1. Minutes
2. Water Plan Update, Priority Concerns Scoping Document
3. Next Meeting/Adjourn

If you have any questions or concerns, or would like any additional information, please contact me at telephone # 507-836-1165 or through an e–mail at <chansen@co.murray.mn.us>. Thank-you for your time, interest and participation.

cc: file
enclosures: none

Jon Bloemendaal
jbloemendaal@co.murray.mn.us
Ag & Solid Waste Administrator

Chris Hansen
chansen@co.murray.mn.us
Water Resources Administrator

Jean Christoffels
jchristoffels@co.murray.mn.us
Zoning Administrator

Laurie Hill
lhill@co.murray.mn.us
Secretary

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5. Description of Current Priority Concerns

Description of Priority Concerns

The Priority Concerns listed below were selected by the Water Plan Task Force members by consensus, after carefully reviewing submitted concerns and comments. 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 A. Improve Surface Water Quality.

Protecting surface water is a challenge in any community. 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. Sub-Surface Treatment System (SSTS) compliance is also a continued challenge.

Priority Concern B. Protect Groundwater.

Murray County has enjoyed abundant groundwater supplies, although 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 C. Stormwater Retention.

While drainage improvements have improved our ability to manage stormwater, hastening flows has often led to problems downstream. Particular concerns include slowing runoff, promoting land conservation, and active wetland restoration, focused on the Beaver Creek, Shetek, and Heron Lake watersheds.

6. Ad for Open House

OPEN HOUSE NOTICE

There will be an open house on Thursday June 16, 2016 at 2:00 p.m. through 6:00 p.m. in Meeting Room B of the Murray County Government Center to take public comment on the Murray County Local Water Management Plan proposed Priority Concerns. These concerns are: 1. Improve Surface Water Quality/Quantity, 2. Improve Groundwater Quality/Quantity, 3. Drainage Water Management/Water Retention, and 4. SSTS/Feedlots.

The current plan is available for review in its entirety in the Murray County Water Resource's Office and on the Murray County website at http://murray-countymn.com/wp-content/uploads/2015/05/WaterPlan.pdf. Written comment can also be submitted to the Murray County Water Resources Administrator (P.O. Box 57, Slayton, MN 56172). All interested parties are welcomed to stop by.

7. Heron Lake Watershed Priority Concerns

Heron Lake Watershed District Priority Concerns

Why is it important that the plan focus on this issue or concern (include or cite relevant data)?

Priority Concerns

In the HLWD, sediment, phosphorus, and bacteria, have been identified as primary constituents of concern. Locating the sources of each of the aforementioned contaminants is integral to reducing the effect they have on a waterbody.

Sediment/Turbidity

The MPCA listed several stream reaches in the HLWD as impaired for turbidity on the 2002, 2004, and 2006 impaired waters lists. **Table 5** lists the reaches that were addressed in the TMDL Report. Data used for assessment was collected through several endeavors from 1994-2004.[1] Possible sources of origination include lack of filter strips, inadequate residue management, and streambank erosion due to lack of buffers.

Table 5. Stream reaches impaired because of turbidity in the HLWD

Reach	Assessment Unit ID #	Affected Use	Pollutants/Stressors
Jack Creek, North Branch Headwaters to Jack Creek	07100001-505	Aquatic Life	Turbidity
Okabena Creek Elk Creek to South Heron Lake	07100001-506	Aquatic Life	Turbidity
Elk Creek Headwaters to Okabena Creek	07100001-507	Aquatic Life	Turbidity
Jack Creek JD 26 to Heron Lake	07100001-509	Aquatic Life	Turbidity
Heron Lake Outlet Heron Lake (32-0057-01) to Okabena Creek	07100001-527	Aquatic Life	Turbidity
Division Creek Heron Lake (32-0057-01) to Okabena Creek	07100001-529	Aquatic Life	Turbidity

Phosphorus

The MPCA listed North Heron Lake and South Heron Lake as impaired due to phosphorus in 2006 (**Table 6**). Related to the Heron Lake nutrient impairment is a listing for pH in the Heron Lake outlet. Data used for assessment was collected through several endeavors from 1992-2002.[2] Potential sources of origination include fertilizer runoff through direct overland flow into ditches and open tile inlets, resuspension of stream and lake sediment, leaking septic systems, inadequate manure management, and wastewater treatment facilities.

[1] West Fork Des Moines River Watershed Total Maximum Daily Load Final Report: Excess Nutrients (North and South Heron Lake), Turbidity, and Fecal Coliform Bacteria Impairments, October 2008.

[2] West Fork Des Moines River Watershed Total Maximum Daily Load Final Report: Excess Nutrients (North and South Heron Lake), Turbidity, and Fecal Coliform Bacteria Impairments, October 2008.

Table 6. Waterbodies impaired because of phosphorus in the HLWD

Lakes	Lake ID#	Affected Use	Pollutants/Stressors
Heron (North Marsh)	32-0057-01	Aquatic Recreation	Nutrient/Eutrophication Biological Indicators
Heron (Duck)	32-0057-02	Aquatic Recreation	Nutrient/Eutrophication Biological Indicators
Heron (North Heron)	32-0057-05	Aquatic Recreation	Nutrient/Eutrophication Biological Indicators
Heron (South Heron)	32-0057-07	Aquatic Recreation	Nutrient/Eutrophication Biological Indicators
Second Fulda	51-0020-00	Aquatic Recreation	Nutrient/Eutrophication Biological Indicators
First Fulda	51-0021-00	Aquatic Recreation	Nutrient/Eutrophication Biological Indicators
East Graham	53-0020-00	Aquatic Recreation	Nutrient/Eutrophication Biological Indicators
West Graham	53-0021-00	Aquatic Recreation	Nutrient/Eutrophication Biological Indicators

Bacteria

The MPCA listed three stream reaches in the HLWD as impaired for bacteria on the 2002, 2004, and 2006 Impaired Waters Lists (**Figure 11**). **Table 7** lists the reaches that were addressed in the TMDL Report. Data used for assessment was collected through several endeavors from 1994-2004.[3] Possible areas of origination include leaking septic systems, inadequate manure management, and confined animal feeding operations.

Table 7. Stream reaches impaired because of bacteria in the HLWD

Reach	Assessment Unit ID #	Affected Use	Pollutants/Stressors
Okabena Creek Elk Creek to South Heron Lake	07100001-506	Aquatic Recreation	Fecal Coliform
Elk Creek Headwaters to Okabena Creek	07100001-507	Aquatic Recreation	Fecal Coliform
Jack Creek JD 26 to Heron Lake	07100001-509	Aquatic Recreation	Fecal Coliform

Water Quantity and Flooding

Flooding of agricultural lands and roadways within the Heron Lake Basin is a serious economic and resource management concern. Seasonal flooding can occur during and following snowmelt and late spring rains after soils have been partially saturated. The late spring lake-level rises of Heron Lake can range from about four to six feet, resulting in damage to crops and roadway structures. Storm flooding can cause a lake-level rise of about three feet within 48 hours.

Flooding not only damages agricultural production and roadway structures, it also results in a number of problems associated with sediment transport. Streambank erosion and associated sediment discharge into Heron Lake following storms can result in increased siltation in the lake and adjacent lowlands. Runoff from agricultural lands also may carry pesticides and nutrients in both dissolved and particulate forms.

Drainage Systems and Natural Waterways

Drainage systems are interconnected within natural waterways in the HLWD (**Figure 13**). Eighty-six percent of the cropland in the watershed is in a corn/soybean rotation. The use of drainage ditches, increasing cropland tiling and channelization can lead to increased water movement through waterways. Furthermore, reducing channel buffers increases the potential for

[3] West Fork Des Moines River Watershed Total Maximum Daily Load Final Report: Excess Nutrients (North and South Heron Lake), Turbidity, and Fecal Coliform Bacteria Impairments, October 2008.

streambanks to fail. The combination of increased water movement and bank destabilization results in streambank erosion and ditch cleanouts that contribute to increasing turbidity in streams and lakes.

Biotic Habitat

Much of the fish habitat-related issues in the HLWD can be addressed by looking at watershed hydrology. The hydrology of watershed streams and rivers dictate the quantity and quality of fish habitat. Mankind, in land use and stewardship, has altered the hydrology by drainage and tiling. This has an adverse impact on the habitat within streams and rivers. By increasing drainage and losing storage, the quantity and timing of the stream and river flow is altered and can lead to the erosion of streams and drainage systems. As a result of the increased flow and erosion, there is an increase in sedimentation and siltation to not only streams, but also lakes. The sedimentation causes a decrease in the frequency and number of deeper water pools typically used by fish during winter. It also decreases the amount and quality of spawning habitat for some fish species that require hard substrates.

Wetlands

Presently, less than one percent of the basin consists of wetlands. Jackson and Nobles Counties, which includes most of the Heron Lake Basin, have less than one percent of the wetlands that were present at the time of settlement by European-Americans. Wetlands have been reduced in the two counties from greater than 284,000 acres in the late 1800's to presently about 2,000 acres. A primary issue in wetland loss is the loss of water storage, as well as the water quality and other ecological services that wetlands provide.

The restoration of wetlands in the Heron Lake Basin may reduce peak and total runoff by increasing available depressional storage and by increasing the potential for evaporation and transpiration. Riparian wetlands adjacent to streams provide hydraulic and hydrologic benefits. Additional storage in riparian wetlands and increased resistance to downstream flow provided by additional wetland vegetation reduces peak discharges following storms. [4]

Education

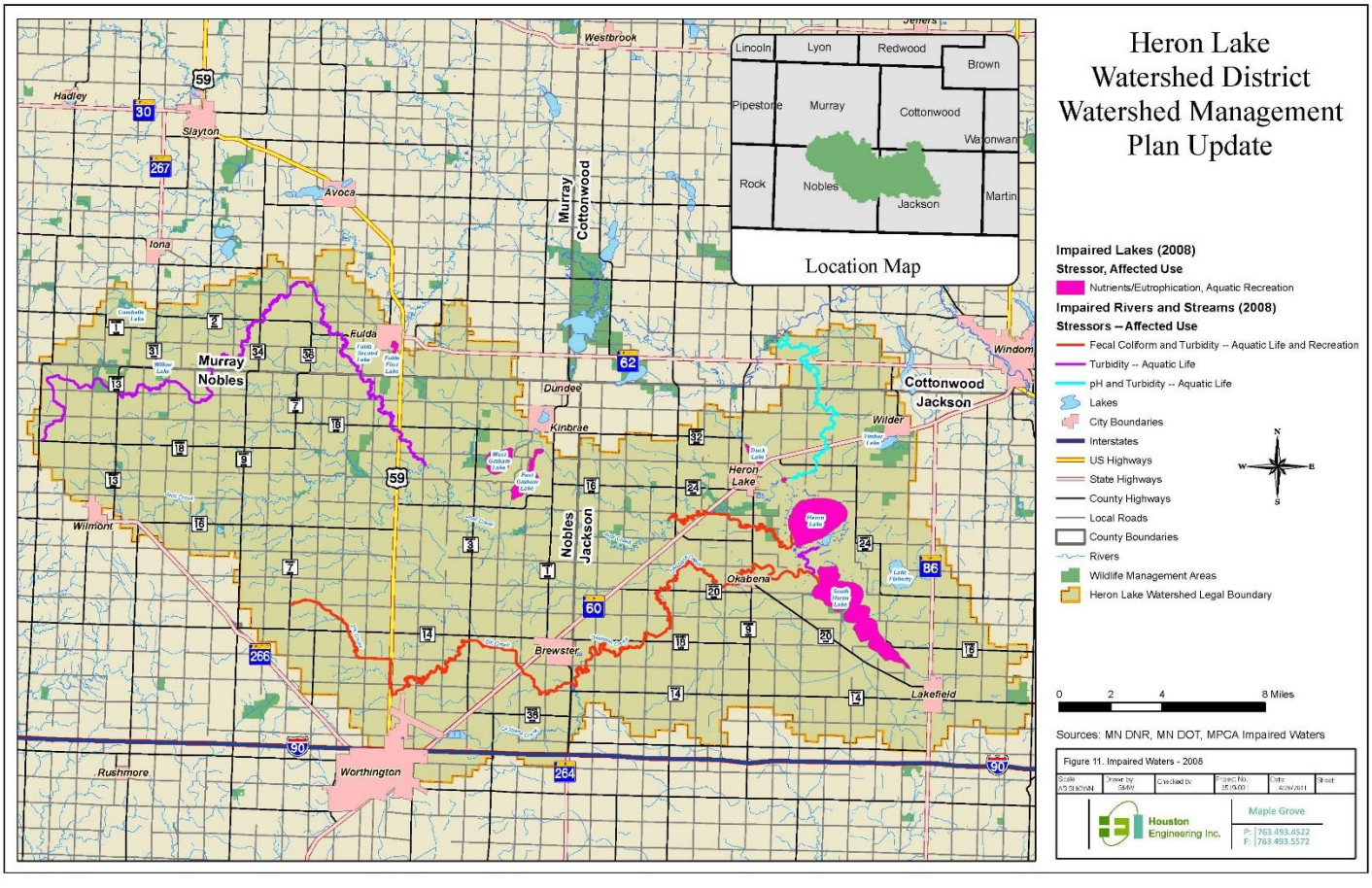
Watershed residents have significant impacts on the environment and its resources. Education seems to be the best tool for providing the public with an understanding of the ramifications of their actions and behavior patterns in order to increase awareness of environmental issues. The largest issue faced by the HLWD relative to education is effectively changing behavior to improve resource condition.

Funding

The operation of the HLWD is funded primarily through the ad valorem levy which is the only stable source of funding. Nearly all of the remaining programs and projects of the HLWD are funded through the use of grant dollars. In the absence of either an increase in the ad valorem levy or the continued success in obtaining grant dollars, the efforts of the HLWD to address the issues identified within this WMP are limited.

[4] Jones, Perry M. and Winterstein, Thomas A. 1999. *Characterization of Rainfall-Runoff Response and Estimation of the Effect of Wetland Restoration on Runoff, Heron Lake Basin, Southwestern Minnesota, 1991-97.*

Impaired waterbodies



8. Minnesota Department of Health Written Comments

Minnesota Department of Health Priority Concerns

Priority Concerns Input
Water Management Plan for Murray County

Submission Deadline: April 1, 2016
SUBMITTED BY:
Agency / Organization: Minnesota Department of Health, Source Water Protection Unit
Name of Person Completing Form: Amanda Strommer, Principal Planner

PRIORITY CONCERNS:

For each priority concern, provide a brief description and answer the questions listed after each priority concern.

PRIORITY CONCERN 1: ***Drinking Water Quality (Groundwater)***

Why is it important the plan focus on this issue? (Include or cite relevant data)
The current plan does a nice job highlighting the issues with groundwater. MDH appreciates continued coordination with public water suppliers regarding implementation of wellhead protection plans and drinking water protection.

What actions are needed?
-Consider wellhead protection areas in land use decisions.
-Support locating and properly sealing abandoned wells.
-Locally discuss and evaluate how to use WRAPS and 1W1P watershed planning in the future to target and prioritize drinking water protection activities.
-Support ongoing data collection efforts to enhance future wellhead protection activities.
-Work with the City of Chandler on elevated nitrate issues. Coordinate on ways to reduce nitrate in source water for the public water supply.

What resources may be available to accomplish the actions? Do you or your organization or agency have a role in addressing this priority concern? (Please include names, funding sources, partnerships, volunteers, etc.)
Grant funds for public water supplies.
http://www.health.state.mn.us/divs/eh/water/swp/grants/index.html
Up to date wellhead protection information can be found at:
http://www.health.state.mn.us/divs/eh/water/swp/swa/swainfo/default.cfm
Maps and geospatial data can be found at:
http://www.health.state.mn.us/divs/eh/water/swp/maps/index.htm

What areas of the County are the highest priorities?

Wellhead protection plans have been completed for the following communities:
Vulnerable/susceptible to contamination:
Chandler
Lake Wilson

Non-Vulnerable/Protected aquifer:
Fulda

Iona
Wellhead Protection Plans not yet started:
Avoca
Currie
Hadley
Slayton

PRIORITY CONCERN 2**: **Groundwater Quantity

Why is it important the plan focus on this issue? (Include or cite relevant data)
Adequate supply of drinking water will continue to be an important due to growth and development.

What actions are needed?
-Encourage water conservation efforts and education.
-Encourage land uses and the installation of best management practices which recharge groundwater.
-Increase awareness among public officials, land owners, and the general public regarding the interaction between groundwater and surface water sources in order to make informed water management decisions.

What resources may be available to accomplish the actions? Do you or your organization or agency have a role in addressing this priority concern? (Please include names, funding sources, partnerships, volunteers, etc.)
Many water suppliers include water conservation in wellhead protection plan measures.
Grant funds for public water supplies.
http://www.health.state.mn.us/divs/eh/water/swp/grants/index.html

What areas of the County are the highest priorities?
Entire County

9. Minnesota Department of Ag Written Comments

Fri 3/25/2016 12:14 PM
Sip, Rob (MDA) <rob.sip@state.mn.us>
Murray County Comprehensive Local Water Management Plan Update

Chris,

Below is a website that MDA has developed to discuss and illustrate priority concerns. The MDA is in the process of updating this website and MDA realizes that recommendations are implemented based on staff, financial and technical resources. The MDA also realizes that this is a 5 year update. In addition to the website recommendations, the MDA is providing additional information below to highlight priorities.

MDA Water Planning Assistance Website:
http://www.mda.state.mn.us/en/protecting/waterprotection/waterplanning.aspx

1. Drainage Water Management (DWM) - The MDA recommends additional effort be focused on encouraging landowners and farmers to implement DWM practices and management plans. The Murray County SWCD can play a important role in working with drainage authorities, landowners and agricultural groups to determine how best to promote and implement DWM practices. Attached are drainage related recommendations from the MDA, which are also being updating. A fact sheet from the Red River Watershed Management Board regarding ditch system maintenance is also attached. Please distribute this factsheet when appropriate as you work with area farmers and landowners. The MDA also recommends that Murray County consider the development of a Multipurpose Drainage Management Plan in conjunction with its partners and here is a recent example that you are probably aware of: http://www.co.martin.mn.us/images/Ditch%20Admin/Martin%20County%20Multipurpose%20Drainage%20Management%20Plan.pdf

2. Water Storage - The MDA recommends that Murray County along with its water management partners consider the development of a water storage plan for both public drainage systems and for private on-farm water storage. This plan may build off of the existingwater or drainage management plans and may include but not be limited to the following:

- Communication of the development of a water storage plan with private landowners in Murry County.
- Setting flow goals agreed upon by landowners within each public ditch systems or sub-watersheds.
- Prioritizing public ditch systems or sub-watersheds based on flow goals with input from landowners.
- Assessment of where short-term and long-term water storage projects can be located. This may include several types of water storage, including smaller scale (wetland restorations) or larger scale projects such as constructed impoundments. However, larger scale projects are costly and require significant financial resources to engineer, construct, operate and maintain.
- Development of an implementation plan or schedule that would include discussion of funding considerations, again with landowner input.
- Operation and maintenance plans for each project.

3. Wind and Water Erosion - Attached is a map of prime soils that was recently updated by the USDA NRCS and please share this at public meetings that your SWCD may have in the future to create additional awareness about prime soils. The MDA recommends that the Murray County SWCD renew efforts to reduce wind and water erosion and that efforts continue to implement more conservation practices such as WASCOBs, grassed waterways, etc., in priority areas. Field windbreaks, farmstead windbreaks and small

areas of trees or other vegetation have been removed from the landscape at unprecedented levels in recent years. However, the MDA also realizes that many of the field windbreaks that have been removed were beyond their lifespan. Windbreaks and vegetative plantings that also incorporate pollinator habitat can serve dual purposes. It is also critical that cover crops, residue management and other soil health initiatives be implemented at an increased levels.

4. Lake Protection - The MDA recommends that a process be considered for development to prioritize lake management in Murray County. As an example, Crow Wing County developed a process (attached) to prioritize lake protection efforts. Recently two additional counties have adopted components of this process or have created similar lake protection efforts.

5. General Information about the MDA - you may wish to incorporate the following language if there is a need to illustrate state agency duties and responsibilities:

The MDA is statutorily responsible for the management of pesticides and fertilizer other than manure to protect water resources. The MDA implements a wide range of protection and regulatory activities to ensure that pesticides and fertilizer are stored, handled, applied and disposed of in a manner that will protect human health, water resources and the environment. The MDA works with the University of Minnesota to develop pesticide and fertilizer Best Management Practices (BMPs) to protect water resources, and with farmers, crop advisers, farm organizations, other agencies and many other groups to educate, promote, demonstrate and evaluate BMPs, to test and license applicators, and to enforce rules and statutes. The MDA has broad regulatory authority for pesticides and has authority to regulate the use of fertilizer to protect groundwater. The MDA is the lead agency for all aspects of pesticide and fertilizer environmental and regulatory functions as directed in the Groundwater Protection Act (Minnesota Statute 103H). These include but are not limited to the following:

- Serve as lead agency for groundwater contamination from pesticide and fertilizer nonpoint source pollution.
- Conduct monitoring and assessment of agricultural chemicals (pesticides and nitrates) in ground and surface waters.
- Oversee agricultural chemical remediation sites and incident response.
- Regulate use, storage, handling and disposal of pesticides and fertilizer.

Thank you for the opportunity to comment. Please do not hesitate to contact me if you have any questions.

Robert L. Sip
Environmental Policy Specialist
Pesticide and Fertilizer Management Division
Minnesota Department of Agriculture
3725 12Th Street North
St. Cloud, MN 56303

320-223-6531 (Office)
651-319-1832 (Cell)
651-201-6120 (Fax)

rob.sip@state.mn.us
www.mda.state.mn.us

10. Minnesota Pollution Control Agency Written Comments

Minnesota Pollution Control Agency
Willmar Office | 1601 East Highway 12 | Suite 1 | Willmar, MN 56201-6002 | 320 214 3786
800 657 3864 | Use your preferred relay service | info.pca@state.mn.us | Equal Opportunity Employer

March 18, 2015

Mr. Chris Hansen
Murray County Water Resources Administrator
2500 - 28th Street, P.O. Box 57
Slayton, MN 56172

RE: Murray County Local Water Management Plan, Five Year Amendment

Dear Mr. Hansen:

This letter responds to a request that the Minnesota Pollution Control Agency (MPCA) provide water management priorities of concern for consideration in amending the Murray County (County) Local Water Management (LWM) Plan.

1. Impaired Waters/Total Maximum Daily Loads (TMDL)
The federal Clean Water Act requires states to adopt water quality standards to protect water resources. Water quality standards are fundamental tools that help protect Minnesota's water resources from pollution. The states are also required to monitor and assess their waters to determine if they meet water quality standards and thereby support the beneficial uses they are intended to provide. These standards define how much of a pollutant can be in a surface and/or ground water while still allowing it to meet its designated uses, such as for drinking water, fishing, swimming, irrigation or industrial purposes. Many of Minnesota's waters do not meet their designated uses because of pollution problems from a combination of point and nonpoint sources. Waters that do not meet their designated uses, because of water quality standard violations, are considered impaired. States are then required to develop a list (Impaired Waters 303 (d) List) of impaired waters that require TMDL studies, and to submit an updated list to the U.S. Environmental Protection Agency for approval.Grant funding applications for TMDL impaired water implementation projects may request citations from local water plans identifying water bodies as County priorities. This documented commitment by a county may improve an applications ranking and ultimately the County's ability to secure implementation funding.

As a priority issue to consider in the amended LWMP, the County should focus on impaired waterbodies that are on the approved Impaired Waters 303 (d) List. The waters that are on the proposed approved 2014 Impaired Waters 303(d) List for Murray County are provided in the tables below.

Streams

Reach name	Reach Description	River AUID	Basin	Year Listed	Affected designated use	Pollutant or stressor	TMDL Status
Beaver Creek	CD 20 to Des Moines R	07100001-503	DesM	2004	Aquatic Life	Turbidity	Approved
				2002	Aquatic Recreation	Fecal Coliform	Approved
Champepadan Creek	Headwaters to Rock R	07100201-520	MoR	2014	Aquatic Life	Aquatic Macroinvertebrate Bioassessments	Required
				2014	Aquatic Life	Fishes Bioassessments	Required
				2014	Aquatic Life	Turbidity	Required
				2014	Aquatic Recreation	*Escherichia coli*	Required

Chanarambie Creek	Headwaters to Rock R	10170204-522	MnR	2014	Aquatic Life	Aquatic Macroinvertebrate Bioassessments	Required
				2014	Aquatic Life	Fishes Bioassessments	Required
				2014	Aquatic Life	Turbidity	Required
				2014	Aquatic Recreation	*Escherichia coli*	Required
Chanarambie Creek, North Branch	Unnamed cr to Unnamed cr	10170204-560	MnR	2014	Aquatic Life	Aquatic Macroinvertebrate Bioassessments	Required
County Ditch 20	Headwaters to Beaver Cr	07100001-504	DesM	2002	Aquatic Recreation	Fecal Coliform	Approved
Des Moines River	Lime Cr to Heron Lk outlet	07100001-533	DesM	2004	Aquatic Life	Turbidity	Approved
				2004	Aquatic Recreation	Fecal Coliform	Approved
Des Moines River	Lk Shetek to Beaver Cr	07100001-515	DesM	2006	Aquatic Life	Turbidity	Approved
Des Moines River	Beaver Cr to Lime Cr	07100001-546	DesM	2004	Aquatic Life	Turbidity	Approved
				2004	Aquatic Recreation	Fecal Coliform	Approved
Dutch Charlie Creek	Headwaters to Highwater Cr	07020008-518	MnR	2006	Aquatic Life	Fishes Bioassessments	Required
				2006	Aquatic Life	Turbidity	Required
Jack Creek, North Branch	Headwaters to Jack Cr	07100001-505	DesM	2006	Aquatic Life	Turbidity	Approved
				2002	Aquatic Recreation	Fecal Coliform	Approved
Lime Creek	Lime Lk to Des Moines R	07100001-535	DesM	2004	Aquatic Life	Turbidity	Approved
				2004	Aquatic Recreation	Fecal Coliform	Approved
Lower Lake Sarah Outlet	First Unnamed cr on Lk Sarah outlet str to Lk Shetek inlet	07100001-508	DesM	2002	Aquatic Recreation	Fecal Coliform	Approved
Pell Creek	Headwaters to T109 R38W S26, east line	07020008-535	MnR	2010	Aquatic Life	Turbidity	Required
Plum Creek	Headwaters to Cottonwood R	07020008-516	MnR	2006	Aquatic Life	Turbidity	Required
				2006	Aquatic Recreation	Fecal Coliform	Approved
				1998	Aquatic Consumption	Mercury in fish tissue	Approved
Redwood River	Headwaters to Coon Cr	07020006-505	MnR	2002	Aquatic Life	Fishes Bioassessments	Required
				2008	Aquatic Recreation	Fecal Coliform	Approved
Unnamed creek	Unnamed cr to unnamed cr	07100001-517	DesM	2002	Aquatic Recreation	Fecal Coliform	Approved
Unnamed creek	Unnamed cr to Lk Shetek	07100001-519	DesM	2002	Aquatic Recreation	Fecal Coliform	Approved
Unnamed creek	Unnamed cr to N br Chanarambie Cr	10170204-559	MnR	2014	Aquatic Life	Aquatic Macroinvertebrate Bioassessments	Required
Upper Lake Sarah Outlet	Lk Sarah outlet to Unnamed cr	07100001-514	DesM	2002	Aquatic Recreation	Fecal Coliform	Approved

Lakes

Name	Lake AUID	Basin	Year Listed	Affected designated use	Pollutant or stressor	TMDL Status
Current	51-0062-00	DesM	2008	Aquatic Recreation	Nutrient/Eutrophication Biological Indicators	Required
Sarah	51-0063-00	DesM	2006	Aquatic Recreation	Nutrient/Eutrophication Biological Indicators	Required
Shetek	51-0046-00	DesM	2006	Aquatic Recreation	Nutrient/Eutrophication Biological Indicators	Required

Bloody	51-0010-00	DesM	2010	Aquatic Recreation	Nutrient/Eutrophication Biological Indicators	Required
Talcot	47-0060-00	DesM	2010	Aquatic Recreation	Nutrient/Eutrophication Biological Indicators	Required
First Fulda	51-0021-00	DesM	2008	Aquatic Recreation	Nutrient/Eutrophication Biological Indicators	Required
Lime	51-0024-00	DesM	2010	Aquatic Recreation	Nutrient/Eutrophication Biological Indicators	Required

Wetlands

Name	Wetland AUID	Basin	Year Listed	Affected designated use	Pollutant or stressor	TMDL Status
Unnamed	51-0128-00	MnR	2010	Aquatic Life	Aquatic macroinvertebrate bioassessments	Required
			2010	Aquatic Life	Aquatic Plant Bioassessments	Required
Unnamed	51-0124-00	MnR	2010	Aquatic Life	Aquatic macroinvertebrate bioassessments	Required
			2010	Aquatic Life	Aquatic Plant Bioassessments	Required

It is suggested that the following actions be considered in the amended LWM Plan:

- The MPCA strongly encourages the County to focus restoration implementation actions on impaired waters listed for pollutants/stressors (other than mercury and polychlorinated biphenyls) in the amended LWM Plan;
- identify the pollutant(s) source(s) causing the impairment; and
- describe implementation actions to reduce the pollutant(s) causing the impairments to address impaired waters from approved implementation plans, TMDLs, and selected strategies.

The following resources are available to accomplish the previous suggested actions:

MPCA Environmental Data Access System (EDA)

The water quality section of the MPCA's EDA system allows visitors to find and download data from surface water monitoring sites located throughout the state. Where available conditions of lakes, rivers or streams, that have been assessed, can be viewed. We encourage the County to visit this site for water quality monitoring data, which may be useful with LWM Plan planning efforts
http://cf.pca.state.mn.us/water/watershedweb/wdip/search_more.cfm

Previous approved Studies, Implementation Plans, and Strategies

There are several approved TMDLs/ TMDL Implementation Plans, Clean Water Partnership Projects, and Strategies that have been developed that apply to the County and are recommended to be used as a guidance for the Priority Concerns, Objectives and Actions in the amended LWM Plan.

West Fork Des Moines River Watershed TMDL:
https://www.pca.state.mn.us/water/tmdl/west-fork-des-moines-river-watershed-multiple-impairments-tmdl-project.

Lake Shetek Clean Water Partnership (CWP) Diagnostic Study and Implementation Plan:
Currently no link to this report and implementation plan. The MPCA and the County have hard copies on file.

Minnesota River Low Dissolved-Oxygen TMDL:
https://www.pca.state.mn.us/water/tmdl/lower-minnesota-river-low-dissolved-oxygen-tmdl-project.

Redwood River Fecal Coliform TMDL:
http://www.pca.state.mn.us/index.php/view-document.html?gid=20169.

Cottonwood River Fecal Coliform TMDL:
http://www.pca.state.mn.us/index.php/view-document.html?gid=20167.

Cottonwood River Clean Water Partnership:
http://www.rcrca.com/images/GrantReports/CR_finalreport_Implementation.pdf.

Redwood River CWP Diagnostic Study and Implementation Plan:
Currently no link to this report and implementation plan. The MPCA and Redwood Cottonwood River Control Area have copies on file.

Rock River Turbidity and Fecal coliform TMDL:
https://www.pca.state.mn.us/water/tmdl/rock-river-near-iowa-border-ammonia-fecal-coliform-turbidity-tmdl-project.

Sediment Reduction Strategy:
http://www.pca.state.mn.us/index.php/view-document.html?gid=20703.

Nutrient Reduction Strategy:
http://www.pca.state.mn.us/index.php/view-document.html?gid=20213.

High priority areas would include impaired water bodies on the Clean Water Act Impaired Waters 303(d) List, though any area with high resource value waters should be considered.

2. Watershed Approach

Since 2007, the MPCA has been assessing waters by the process known as the Watershed Approach (https://www.pca.state.mn.us/water/watershed-approach-restoring-and-protecting-water-quality) as recommended by the Clean Water Council and directed by the Minnesota Legislature (http://www.pca.state.mn.us/index.php/view-document.html?gid=6175). The Watershed Approach is a 10-year rotation for addressing waters of the state on the level of Minnesota's major watersheds.

The Watershed Approach process begins with the Intensive Watershed Monitoring and Assessment phase of the project area that is at the eight digit hydrologic scale. The Watershed Approach focuses on the watershed's condition as the starting point for water quality assessment, planning, implementation, and measurement of results. This approach may be modified to meet local conditions, based on factors such as watershed size, landscape diversity and geographic complexity. This approach will ultimately lead to a more comprehensive list of impaired and non-impaired waters. This list will be used to develop TMDLs and Watershed Restoration and Protection Strategies (WRAPS) that will provide restoration strategies for impaired waters, as well as protection strategies for non-impaired waters. The development of strategies will rely greatly on county participation and counties will likely be asked to identify critical areas to target restoration and protection activities. Targeted critical areas will be an important step toward receiving funding for implementation activities.

The MPCA and its partners have begun implementing this approach, also referred to as the WRAPS approach. As you are aware, WRAPS that are currently underway for your county are the Missouri River Basin and Des Moines River Watershed. The Cottonwood River and the Redwood River Watersheds are currently scheduled to begin in 2017. The MPCA encourages the County to incorporate the Watershed Approach in the amended LWM Plan. Once the WRAPS are completed, they will most likely be incorporated into the next phase of water planning such as the One Watershed One Plan.

It is suggested that the following actions be considered in the amended LWM Plan:

- **Monitor and gather data and information.** The MPCA employs an intensive watershed monitoring schedule that will provide comprehensive assessments of all of the major watersheds on a 10-year cycle. This schedule provides intensive monitoring of streams and lakes within each major watershed, to determine overall health of the water resources, to identify impaired waters, and to identify those waters in need of additional protection in order to prevent future impairments. It is suggested that the amended LWM Plan address Surface Water Assessment Grants (SWAGS) and additional county monitoring that may be used in the WRAPS.
- **Assess the data.** Based on results of intensive watershed monitoring in step one, MPCA staff and its partners conduct a rigorous process to determine whether water resources meet water quality standards and designated uses. Waters that do not meet water quality standards are listed as impaired waters. It is suggested that the amended LWM Plan also address data submittal and representation to participate in the assessment process for use in the WRAPS.
- **Establish implementation strategies to meet standards.** Based on the watershed assessments, a TMDL study and WRAPS report with restoration and/or protection strategies are completed. Existing LWM Plans and water body studies are incorporated into the planning process. It is also suggested that the amended LWM Plan address participation in development of restoration and protection strategies.
- **Implement water quality activities.** Included in this step are all traditional permitting activities in addition to programs and actions directed at nonpoint sources. Partnerships with state agencies and various local units of government, including watershed districts, municipalities, and soil and water conservation districts, will be necessary to implement these water quality activities. It is also suggested that the amended LWM Plan address implementation of restoration and protection strategies once developed through the WRAPS.

It is suggested that the County maintain the current relationships with local watershed organizations and partners for continued participation in the watershed project efforts. Financial resources for coordination and communication between counties could include, but are not be limited to, grants from the Clean Water Fund (CWF), CWP, SWAG, Legislative Citizen Commission on Minnesota Resources (LCCMR), and federal Section 319. Technical assistance could be sought from an advisory group of local and state agency staff, local decision makers, and landowners.

Priorities by year (start-completion) include: Des Moines River Watershed 2015-2019, Cottonwood River Watershed 2017-2021, and Redwood River Watershed 2017-2021.

3. Agricultural Drainage Management

The MPCA recognizes the importance of agricultural drainage for maintaining crop production in the County. Agricultural drainage can have unintended consequences on the hydrology and water quality of lakes and rivers. Public and private drainage systems provide a direct conduit for transport of pollutants such as nutrients, pesticides, and herbicides to water bodies degrading their recreational, aesthetic, and functional value. In addition, drainage can short-circuit the landscape's water storage potential resulting

in flashier river systems with higher peak flows. The higher flows result in bank and channel erosion as the streams adjust to the increased energy and force. The down cutting and widening of the channel limits stream access to the natural floodplain, reducing sediment deposition, and increasing sediment transport.

It is suggested that the following actions be considered in the amended LWM Plan:

- The County should consider working towards the development of 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. To ensure the DMP is maintained and utilized, the MPCA recommends it be incorporated into the amended LWM Plan and that it include explicit language that the county drainage authority should consult the plan with any petition to improve a public drainage system, and elect options that mitigate increases in flow volume in areas where the increase has or may cause impairments to occur. 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 water quality. As soon as possible, the MPCA recommends that the County use its authority to implement Best Management Practices such as alternative tile intakes, wetland restorations, vegetated buffer strips/zones, and other new technologies, such as saturated buffers, two stage ditches, and wood chip bioreactors into drainage projects.

Financial resources for development of a comprehensive DMP could include, but are not be limited to, grants from the CWF, LCCMR, and Section 319. Technical assistance for development of the plan could be sought from the state Drainage Management Team and/or an advisory group of local and state agency staff, local decision makers and landowners.

High priority areas would include impaired water bodies on the Clean Water Act Impaired Waters 303(d) List, though any area with high resource value waters should be considered.

We trust these recommendations will help with the County's LWM Plan planning efforts. If we may be of further assistance, please contract Katherine Pekarek-Scott in the Willmar office at 320-441-6973 or Mark Hanson in the Marshall office at 507-476-4259.

Thank you and please let us know if we may be of further assistance.

Sincerely,

Wayne Cords

This document has been electronically signed.
Wayne Cords
Manager, Southeast Region
Watershed Division

cc Ed Lenz, BWSR

WC/KPS:mjs/jlb

11. Minnesota Board of Water and Soil Resources Priority Concerns

Minnesota Board of Water & Soil Resources

3/24/2016

Chris Hanson, Water Resources Administrator
Murray County
2500 28th Street, PO Box 57
Slayton, MN 56172

RE: Response to invitation to submit priority concerns for the Murray County Priority Concerns Scoping Document for the Local Water Management Plan Update

Dear Murray County Commissioners:

Thank you for providing the opportunity to provide priority issues and plan expectations for the update and revision of the Murray Comprehensive Local Water Management Plan, as authorized under the Comprehensive Local Water Management Act, Minnesota Statutes, §103B.301.

The Board of Water and Soil Resources (BWSR) has the following specific priority issues:

- The County is strongly encouraged to include the drainage authority as a stakeholder in the plan update process as well as include projects and activities consistent with multipurpose drainage criteria outlined in Minnesota Statutes §103E.015, Subd. 1.
- The State's Nonpoint Priority Funding Plan (NPFP) outlines a criteria-based process to prioritize Clean Water Fund investments—if the County is intending to pursue Clean Water Fund as a future source of funding, partners are strongly encouraged to consider the high-level state priorities, keys to implementation, and criteria for evaluating proposed activities in the NPFP.
- The Watershed Restoration and Protection Strategies (WRAPS) development for the Missouri, Cottonwood, and Des Moines Watersheds are ongoing, and at their current stage, may have identified specific stressors and priority locations within all three watersheds. Considering that these WRAPS are not yet completed, and final reports are unavailable, utilizing the current monitoring efforts and collected data could provide valuable information as to the stressors and priority locations for implementation activities.

Bemidji
Brainerd
Detroit Lakes
Duluth
Mankato
Marshall
New Ulm
Rochester
Central Office / Metro Office 520 Lafayette Road North Saint Paul, MN 55155 Phone: (651) 296-3767 Fax: (651) 297-5615
www.BoardofWaterSoil.org TTY: (800) 627-3529 An equal opportunity employer

- Continue to strive for achieving your goal of completing Level III feedlot inventories on all feedlots within Murray County. Ongoing partnering with the Heron Lake Watershed District should be considered in implementing this compliance goal. Consider the requirement for the County or SWCD to inventory streambank erosion, non-compliant septic systems, and other possible pollutant contributing issues within Murray County and to incorporate those inventories into the Local Water Management Plan.
- BWSR recommends you utilize the TMDL Report for the Rock River Watershed (EPA, April 2008) when considering implementation efforts to address bacteria and turbidity. Additionally, BWSR recommends that you review and consider the Rock River Fecal Coliform and Turbidity TMDL Implementation Plan (October 2008) in which Murray County was part of the technical committee. As identified in the Rock River TMDL Report in regards to bacteria "A reduction of 63 percent is needed to meet the water quality standard". And similarly in Rock River TMDL specific to turbidity," A 27 percent reduction is needed to meet the water quality standard"
- Continue to collaborate with BWSR, MPCA and local partners on development of One Watershed One Plan efforts for the Missouri River Basin, and to work with the West Fork Des Moines and Cottonwood Watersheds on planning efforts as opportunity to transition arises.
- BWSR recommends you utilize the TMDL Report for the West Fork Des Moines River (EPA, December 2008) when considering implementation efforts to address bacteria, turbidity, and excess nutrients within the watershed. Additionally, BWSR recommends that you review and consider the West Fork Des Moines River and Heron Lake TMDL Implementation Plan (September 2009) in which Murray County was part of the technical committee. Murray County is a large part of the West Fork Des Moines Watershed and has multiple stream reaches listed as impaired. The TMDL Implementation Plan identifies a bacteria reduction need of 35 to 86 percent and a turbidity reduction of 54 to 71 percent in streams within Murray County.
- Data collection and monitoring activities necessary to support implementation schedules and to reasonably assess and evaluate plan progress are suggested and should be coordinated with other organized local governmental and state efforts. It is important that data collection efforts are developed and be continued. The associated data already collected should be taken into consideration when developing the watershed-based Comprehensive Local Water Management Plan.
- Emerging issues: There are a number of emerging issues that could have an effect on water quality and quantity in Murray County. These could include, but are not limited to, riparian buffer protection, drainage technology, urban stormwater management, conversion of grassland, changes in crop rotations, and cover crops. The Plan should assess strategies related to their resiliency based on expected changes in climate, land use, etc. This includes an understanding and use of current precipitation frequency and distribution information in the National Oceanic and Atmospheric Administration (NOAA) Atlas 14.

- Groundwater issues and Drinking Water Supply Management areas should be considered with development of priority concerns. Protection efforts should be incorporated into the development of the plan as well as support of planning efforts within Wellhead Protection Areas. Initiating the development of a County Geological Atlas within Murray County should be an important implementation effort. Groundwater Atlases are very beneficial for the prioritization of BMP's that provide both surface water and groundwater improvements and protection efforts.

When developing the County's Priority Concerns Scoping Document that will be distributed for State Agency review and comments, don't forget to add a brief section that talks about implementing the County's ongoing programs and ordinances. Although these ongoing programs and ordinances may not be among the selected priority concerns for the next five or ten years, implementing them will work hand-in-hand with the selected priority concerns to protect and improve the natural resources of the county.

Local prioritization, detailed targeting, and measureable outcomes are vital in the creation of priority concerns, goals, and actions. A more targeted approach down to the sub watershed or specific site level should include answers to the following questions: who is involved; what is going to be done; where is it located; why is it being done; and how will it be done? Answering these five questions for the goals and objectives will be key to a quality, useable plan.

We look forward to working with you through the rest of the plan development process. If you have any questions, please feel free to contact Ed Lenz, 507-537-6374, ed.lenz@state.mn.us.

Sincerely,

Ed Lenz
Board Conservationist
Minnesota Board of Water and Soil Resources

cc: Robert L. Sip, MDA (via email)
Amanda Strommer, MDH (via email)
Catherine Fouchi, DNR (via email)
Juline Holleran, MPCA (via email)
Jeff Nielsen, BWSR Regional Manager (via email)