Appendix A. Joint Powers Agreement

JOINT POWERS AGREEMENT
ONE WATERSHED, ONE PLAN FOR THE ROOT RIVER WATERSHED

Pursuant to Minnesota Statutes Chapter 471.59, this Joint Powers Agreement (this "Agreement") is made and entered into between the following parties:

> The Counties of Dodge, Fillmore, Mower, Olmsted, Houston, and Winona (Counties), by and through their respective County Boards of Commissioners; the Dodge, Fillmore, Mower, Olmsted, Root River, and Winona Soil and Water Conservation Districts (SWCDs), by and through their respective Soil and Water Conservation District Boards of Supervisors; and the Crooked Creek Watershed District, by and through its Board of Managers.

WHEREAS, the Counties of this Agreement are political subdivisions of the State of Minnesota, with authority to carry out environmental programs and land use controls, pursuant to Minnesota Statutes Chapter 375 and as otherwise provided by law; and

WHEREAS, the Soil and Water Conservation Districts (SWCDs) of this Agreement are political subdivisions of the State of Minnesota, with statutory authority to carry out erosion control and other soil and water conservation programs, pursuant to Minnesota Statutes Chapter 103C and as otherwise provided by law; and

WHEREAS, the parties to this Agreement have a common interest and statutory authority to prepare, adopt, and assure implementation of a comprehensive watershed management plan in the Root River Watershed to conserve soil and water resources through the implementation of practices, programs, and regulatory controls that effectively control or prevent erosion, sedimentation, siltation and related pollution in order to preserve natural resources, ensure continued soil productivity, protect water quality, reduce damages caused by floods, preserve wildlife, protect the tax base, and protect public lands and waters; and

WHEREAS, with matters that relate to coordination of water management authorities pursuant to Minn. Stat. Sections 103B, 103C, and 103D and with public drainage systems pursuant to Minn. Stat. 103E, this Agreement does not change the rights or obligations of the public drainage system authorities.

WHEREAS, pursuant to Minn. Stat. Section 103B.101 Subd. 14, the Board of Water and Soil Resources (BWSR) "may adopt resolutions, policies, or orders that allow a comprehensive plan, local water management plan, or watershed management plan, developed or amended, approved and adopted, according to chapter 103B, 103C, or 103D to serve as substitutes for one another or be replaced with a comprehensive watershed management plan," also known as the "One Watershed, One Plan".

WHEREAS, in early 2014, planning partners in this watershed area joined together to submit a nomination to pilot the One Watershed, One Plan in the Root River Watershed. In June 2014, the Root River was selected as one of five major watersheds across the state to pilot this program. The six-county watershed planning area includes those portions of Dodge, Olmsted, Winona, Houston, Fillmore, and Mower counties that drain to the Root River, the Minnesota portion of the Upper Iowa River watershed and the Mississippi-Reno watershed in Houston County. The planning area is shown in Attachment A to this Agreement and encompasses over 1.3 million acres. The pilot program continues to involve a broad range of stakeholders, including governments, state agencies, and community members and organizations as partners in the planning process.

WHEREAS, the parties previously entered into in 2014 a formal agreement through a Memorandum of Agreement for the purpose of planning the BWSR- One Watershed, One Plan for the Root River Watershed. The resulting plan will address the most significant threats to our water resources and the land use practices that provide the greatest environmental benefits to the watersheds.

WHEREAS, with the development of the initial One Watershed, One Plan for the Root River Watershed almost completed, the parties now enter into this Agreement so as to continue the cooperative and collaborative work of the Counties, SWCD's and Crooked Creek with BWSR in an advisory capacity for the continued planning and implementation of One Watershed, One Plan for the Root River Watershed in the future.

WHEREAS, it is understood by all the parties to this Agreement that the One Watershed, One Plan for the Root River Watershed does not replace or supplant local land use, planning, zoning authority, but, instead, provides a framework to provide increased opportunities for cooperation and consistency on a watershed basis.

WHEREAS, it is understood by all parties to this Agreement that the One Watershed, One Plan for the Root River Watershed is intended to provide a framework for consistency and cooperation on a watershed basis and to allow local governments to cooperatively work together to implement projects with the highest return on investment for improving water quality/quantity issues on a watershed basis.
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NOW, THEREFORE, the parties hereto agree as follows:

1. **Purpose of the Agreement:** The parties to this Agreement recognize that a guiding principle of One Watershed, One Plan for the Root River Watershed is that "implementation will be accomplished through formal agreements among participating local governments on how to manage and operate the watershed." The parties to this Agreement acknowledge "that the purpose of this principle is to provide assurances that decision-making spanning political boundaries is supported by an in-writing commitment from participants. " [The quoted sections

are from *One Watershed One Plan Operating Procedures for Pilot Watersheds,* Page 13 BWSR June 25, 2014 document.]

The parties working together for the purpose of planning the One Watershed, One Plan for the Root River Watershed, under the 2014 Memorandum of Agreement of the parties, now establish, through this Agreement, the process for the continued planning and the implementation of the Plan as they continue to recognize the importance of planning and implementing protection and restoration efforts for the Root River Watershed on a cooperative and collaborative basis together under this Agreement pursuant of the authority contained in Minn. Stat. Section 471.59.

This Agreement does not establish a joint powers entity but set outs the terms and provisions by which the parties " may jointly or cooperatively exercise any power common to the contracting parties or any similar powers, including those which are the same except for the territorial limits within which they may be exercised." Minn. Stat. Section 471.59. As is permitted under the joint exercise of powers statute, Minn. Stat. Section 471.59, the parties agree that under this Agreement, and as agreed upon and recommended by the Policy Committee, one or more of the parties may exercise any power common to them on behalf of the other participating units, such as they have done under the Memorandum of Agreement where the Fillmore County SWCD has provided the day-to-day administrative duties of the One Watershed One Plan for the Root River and the Winona County SWCD has been the fiscal agent for the current planning grant.

2. **Term:** This Agreement is effective upon signature of all parties in consideration of the BWSR Participation Requirements for One Watershed, One Plan; and will remain in effect until canceled according to the provisions of this Agreement, unless earlier terminated by law.

3. **Adding Additional Parties:** A qualifying party within the Root River Watershed that is responsible for water planning and resource management according to Minnesota State Statutes desiring to become a member of this Agreement shall indicate its intent by adoption of a governing board resolution that includes a request to the Policy Committee to join the One Watershed One Plan for the Root River Watershed and a statement that the qualifying party agrees to abide by the terms and conditions of this Agreement; including but not limited to the bylaws, policies, and procedures adopted by the Policy Committee.

4. **Procedure for Parties to Leave Membership of the Agreement:** A party desiring to leave the membership of this Agreement shall indicate its intent in writing to the Policy Committee in the

form of an official board resolution. Notice must be made 180 days in advance of leaving the One Watershed, One Plan Root River Watershed. A party that leaves the membership of the Agreement remains obligated to complying with the terms of any grants the One Watershed, One Plan Root River Watershed has at the time of the party's notice to leave membership and is obligated until the grant has ended.

5. **General Provisions**:

   a. **Compliance with Laws/Standards:** The parties agree to abide by all Federal, State or local laws; statutes, ordinances, rules and regulations now in effect or hereafter adopted pertaining to this Agreement.

   b. **Indemnification:** Each respective party to this Agreement shall be liable for the acts of its respective officers, employees or agents and the results thereof to the extent authorized or limited by law and shall not be responsible for the acts of the other respective parties, their officers, employees or agents. The provisions of the Municipal Tort Claims Act, Minnesota Statute Chapter 466 and other applicable laws govern liability of the parties. To the full extent permitted by law, actions by the parties, their respective officers, employees and agents, pursuant to this Agreement are intended to be and shall be construed as a "cooperative activity" and it is the intent of each party that this Agreement does not create any liability or exposure of one party for the acts or omissions of the other party pursuant to Minn. Stat. Section 471.59, Subd. 1a. (a).

   c. **Employee Status:** The parties agree that the respective employees or agents of each party shall remain the employees or agents of each individual respective party.

   d. **Data Practices and Records Retention:** The parties agree that each respective party will be responsible for complying with the Minnesota Government Data Practices Act (Minnesota Statutes Chapter 13), and the Official Records Act (Minnesota Statutes Section 15.17) for the data collected, created, received, maintained, disseminated or stored by each respective party pursuant to the terms of this Agreement.

   e. **Timeliness:** The parties agree to perform obligations under this Agreement in a timely manner and keep each other informed about any delays that may occur.

   f. **Termination:** The parties anticipate that this Agreement will remain in full force and effect until canceled by all parties, unless otherwise terminated in accordance with law or other provisions of this Agreement. The parties acknowledge their respective and applicable obligations, if any, under Minn. Stat. Section 471.59, Subd. 5 after the purpose of the Agreement has been completed.

6. **Structure:** To carry out the coordinated planning, development, and implementation of the One Watershed, One Plan Root River Watershed, the parties agree to continue the structure established under the Memorandum of Agreement, which includes the Policy Committee, the Technical Advisory Committee, and the Planning Workgroup.

   a. **The Policy Committee.** The parties agree that the Policy Committee established under the Memorandum of Agreement for the purpose of developing the One Watershed, One Plan shall continue to operate cooperatively and collaboratively, but not as a separate entity, for the purpose of continued planning of, review of, advising on, and coordinating of the implementation of the One Watershed, One Plan Root River Watershed plan. Membership on the Policy Committee shall remain as each party's designated representative. That individual who serves as their respective party's designated representative must be an elected or appointed member of that party's governing board. The governing boards may choose alternates to serve on the Policy Committee from their boards as needed. The Policy Committee will meet quarterly or as needed.

      i. Authority of Policy Committee Members: Each representative on the Policy Committee shall have one vote, and, subject to the authority delegated by their respective governing body, shall have the authority to act on behalf of the party they represent in the following matters: grant applications for grants the Policy Committee has voted to consider which are relevant to the implementation of the One Watershed, One Plan Root River Watershed; interim report review and approval, payments under One Watershed, One Plan Root River Watershed grant(s), professional contracts, and voting on the recommended plan to be submitted to local review and comment process. Each respective Policy Committee member will bring before their respective governing body any grants awarded to the One Watershed, One Plan Root River Watershed for a request to approve the grant(s) awarded. The Policy Committee will follow the bylaws adopted by the Policy Committee and will have the power to modify the bylaws.

      ii. Policy Committee Duties:

         a. Annual Report: The Policy Committee shall review and approve an annual work plan and budget consisting of an itemized statement of the One Watershed, One Plan Root River Watershed revenues and expenses for the ensuing calendar years which shall be presented to the respective governing boards that are represented on the Policy Committee

b. Individual Members Duties: Each Policy Committee member will serve as a liaison to their respective governing boards and keep their governing boards regularly informed on the work of the One Watershed, One Plan Root River Watershed.

b. **The Technical Advisory Committee**. The parties agree that the Technical Advisory Committee shall continue to provide technical support on the plan implementation to the Policy Committee, including identification of priorities. The Technical Advisory Committee will remain as consisting of the local Planning Workgroup, stakeholders, the state's main water agencies, and/or plan review agencies. The Technical Advisory Committee will meet annually or as needed.

c. **The Planning Workgroup**. The parties agree that the Planning Workgroup shall continue and shall consist of local staff, local water planners, local watershed staff, and local SWCD staff for the purposes of logistical and day-to-day decision-making in the implementation process. The Planning Workgroup shall prepare a draft annual work plan and budget consisting of an itemized statement of the One Watershed, One Plan Root River Watershed revenues and expenses for the ensuing calendar year which shall be presented to the Policy Committee for review and approval. The Planning Workgroup will meet quarterly or as needed.

7. **Implementation of the Plan.** The parties agree to adopt and begin implementation of the plan within 120 days of state approval and provide notice of plan adoption pursuant to Minnesota Statutes Chapter 103B and 103D.

8. **Fiscal Agent.** If a party is not already designated for a specific grant or project, the Policy Committee shall appoint annually one of the parties to the Agreement to be the Fiscal Agent for the One Watershed, One Plan Root River Watershed. Winona County Soil and Water Conservation District will be the initial Fiscal Agent for the purposes of this Agreement. The Fiscal Agent agrees to:

   a. Accept all fiscal responsibilities associated with grant agreements applied for and received by the One Watershed, One Plan Root River Watershed where no fiscal agent is already specifically designated .

   b. Perform financial transactions as part of contract implementation.

c. Pursuant to Minn. Stat. Section 471.59, Subd. 3, provide for strict accountability of all funds and report of all receipts and disbursements and annually provide a full and complete audit report.

d. Provide the Policy Committee and its members with such records as are necessary to describe the financial condition of the grant agreements the Policy Committee reviews.

e. Responsible for fiscal records retention consistent with the Fiscal Agent's records retention schedule until termination of this Agreement. At that time, the fiscal records will be turned over to the Day-to-Day Contact.

9. **Day-to-Day Contact**. If a party is not already designated for a specific grant or project, the Policy Committee shall appoint annually one of the parties to the Agreement to be the Day-to-Day Contact to be the point of contact for and handle the day-to-day administrative work of the One Watershed, One Plan Root River Watershed. The parties agree that for the first year of this Agreement, Fillmore County Soil and Water Conservation District will handle this function and continue thereafter until and unless the Policy Committee appoints a different Day-to-Day Contact.. The party that is the Day-to-Day Contact agrees to provide the following to the One Watershed, One Plan Root River Watershed for the purposes of this Agreement:

a. Handle all day-to-day administrative responsibilities associated with the ongoing planning and implementation of the One Watershed, One Plan Root River Watershed.

b. Be the day-to-day contact for the current One Watershed, One Plan Root River Grant Agreement and Plan and any subsequent grant agreements the One Watershed, One Plan Root River Watershed may receive.

c. Be responsible for the BWSR and other grant reporting requirements (ELink).

d. Assist the Policy Committee with the administrative details to oversee future planning and implementation of the watershed-based plan.

e. Maintain the One Watershed, One Plan Root River Watershed website and perform other duties to keep the Policy Committee, the Technical Advisory Committee, and the Planning Workgroup informed about the implementation of the watershed-based plan.

10. **Authorized Representatives:** The following persons will be the primary contacts for all matters concerning this Agreement:

Dodge County
County Administrator
22 6th Street South
Mantorville, MN 55955
Telephone: (507) 635-6239

Dodge SWCD
District Manager
916 2nd Street SE
Dodge Center, MN 55927
Telephone: (507) 374-6364

Fillmore County
County Coordinator
101 Fillmore Street, PO Box 466
Preston, MN 55965
Telephone: (507) 765-4566

Fillmore SWCD
District Administrator
900 Washington Street NW
Preston, MN 55965
Telephone: (507) 765-3878

Houston County
County Auditor
304 South Marshall Street
Caledonia, MN 55921
Telephone: (507) 725-5800

Root River SWCD
District Manager
805 North Hwy 44/76, Suite 1
Caledonia, MN 55921
Telephone: (507) 724-5261

Mower County
County Coordinator
201 1st Street NE
Austin, MN 55912
Telephone: (507) 437-9494

Mower SWCD
District Manager
1408 21st Avenue NW, Suite2
Austin, MN 55912
Telephone: (507) 434-2603

Olmsted County
County Administrator
151 4th Street SE
Rochester, MN 55904
Telephone: (507) 328-6001

Olmsted SWCD
District Director
2122 Campus Drive SE, Suite 200
Rochester, MN 55901
Telephone: (507) 328-7130

Winona County
County Administrator
177 Main Street
Winona, MN 55987
Telephone: (507) 457-6355

Winona SWCD
District Manager
400 Wilson Street, PO Box 39
Lewiston, MN 55952
Telephone: (507)523-2171

Crooked Creek Watershed District
805 North Hwy 44/76, Suite 1
Caledonia, MN 55921
Telephone: (507) 724-5261

11. **Counterparts.** This Agreement may be executed in any number of counterparts, each of which shall constitute one and the same instrument.

[Remainder of page intentionally left blank]

IN TESTIMONY WHEREOF the parties have duly executed this Agreement by their duly authorized officers. ***(Repeat this page for each participant)***

[INSERT NAME OF ENTITY]: FILLMORE COUNTY

APPROVED:

BY: RANDY DAHL 1/10/2017

Board Chair Date

Randy Dahl

BY: BOBBIE VICKERMAN 1/10/2017

County Administrator/Coordinator or District Manager/Director/Administrator Date

APPROVED AS TO FORM

BY: BRETT CORSON 1/10/2017

County Attorney Date

APPROVED AS TO EXECUTION

BY: Brett Corson 4/4/17

County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this Agreement by their duly authorized officers. ***(Repeat this page for each participant)***

[INSERT NAME OF ENTITY]: Fillmore Soil & Water Conservation District

APPROVED:

BY: Craig Wheeler 1-12-2017
Board Chair Date

BY: Donna Rasmussen 1/12/2017
County Administrator/Coordinator or Date
District Manager/Director/Administrator

APPROVED AS TO FORM

BY: Brett Corson 1/23/17
County Attorney Date

APPROVED AS TO EXECUTION

BY: Brett Corson 1/23/17
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this Agreement by their duly authorized officers.

Dodge Soil and Water Conservation District

APPROVED:

BY: Larry Schreyer 1-19-17
Board Chair Date

BY: William Kinney 1/19/17
District Manager Date

APPROVED AS TO FORM

BY: _____
County Attorney Date

APPROVED AS TO EXECUTION

BY: _____
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this Agreement by their duly authorized officers.

Dodge County

APPROVED:

BY: _____ 4/28/2017
Board Chair Date

BY: _____ 4/28/17
County Administrator Date

APPROVED AS TO FORM

BY: _____ 5/2/2017
County Attorney Date

APPROVED AS TO EXECUTION

BY: _____ 5/2/2017
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this Agreement by their duly authorized officers.

(INSERT NAME OF ENTITY): Root River SWCD

APPROVED:

BY: Matthew W. Field 1/11/2017
Board Chair Date

BY: Dick Walter 1/11/17
District Manager Date

APPROVED AS TO FORM

BY: 1-18-17
County Attorney Date

APPROVED AS TO EXECUTION

BY: 1-18-17
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this Agreement by their duly authorized officers.

(INSERT NAME OF ENTITY): Houston County

APPROVED:

BY: _____ 1-10-17

Board Vice Chair Date

BY: Charlene Meiners 1-10-2017

County Auditor Date

APPROVED AS TO FORM

BY: _____ 1-10-17

County Attorney Date

APPROVED AS TO EXECUTION

BY: _____ 1-10-17

County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this Agreement by their duly authorized officers. ***(Repeat this page for each participant)***

MOWER SOIL AND WATER CONSERVATION DISTRICT

APPROVED:

BY: _____ 2-8-17
Randy Smith Mower SWCD Board Chair Date

BY: _____ 2-8-2017
Justin Hanson Mower SWCD Manager Date

APPROVED AS TO FORM

BY: _____ 2-13-17
County Attorney Date

APPROVED AS TO EXECUTION

BY: _____ 2-13-17
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this Agreement by their duly authorized officers. (Repeat this page for each participant)

MOWER COUNTY

APPROVED:

BY: _____ 1-10-17
Board Chair Date

BY: _____ 1-10-17
County Administrator/Coordinator or District Manager/Director/Administrator Date

APPROVED AS TO FORM

BY: _____ 1-12-17
County Attorney Date

APPROVED AS TO EXECUTION

BY: _____ 1-12-17
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this Agreement by their duly authorized officers.

Olmsted Soil and Water Conservation District

APPROVED:

BY: Andy R Hart acting Chair 2-23-17

Board Chair Date

BY: 2/23/17

District Director Date

APPROVED AS TO FORM

BY: _____

County Attorney Date

APPROVED AS TO EXECUTION

BY: _____

County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this Agreement by their duly authorized officers.

Olmsted County

APPROVED:

BY: Kenneth Brown 3-7-17
Board Chair Date

BY: 3-7-17
County Administrator Date

APPROVED AS TO FORM

BY: 3/13/2017
County Attorney Date

APPROVED AS TO EXECUTION

BY: 3/13/2017
County Attorney Date

Brent Eliot Walz
Civil Team Lead Attorney
Olmsted County Attorney's Office
151 4th Street SE
Rochester, MN 55904

IN TESTIMONY WHEREOF the parties have duly executed this Agreement by their duly authorized officers. ***(Repeat this page for each participant)***

[INSERT NAME OF ENTITY]: Winona County

APPROVED:

BY: _____ 2-22-17
Board Chair Date

BY: _____ 2-22-17
County Administrator/Coordinator or Date
District Manager/Director/Administrator

APPROVED AS TO FORM

BY: Karin J. Sonneman February 14, 2017
County Attorney Date

APPROVED AS TO EXECUTION

BY: Karin J. Sonneman 2-14-2017
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this Agreement by their duly authorized officers. ***(Repeat this page for each participant)***

Winona County Soil and Water Conservation District

APPROVED:

BY: _____ 2-8-17
Board Chair Date

BY: _____ 2-8-17
County Administrator/Coordinator or Date
District Manager/Director/Administrator

APPROVED AS TO FORM

BY: Karl J. Sonnenwald 2/14/17
County Attorney Date

APPROVED AS TO EXECUTION

BY: Karl J. Sonnenwald 2/14/17
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this Agreement by their duly authorized officers.

(INSERT NAME OF ENTITY): Crooked Creek Watershed District

APPROVED:

BY: Tim McCormick 1-13-17
Board Chair Date

BY: Bob Sanders 1-13-17
Watershed Administrator Date

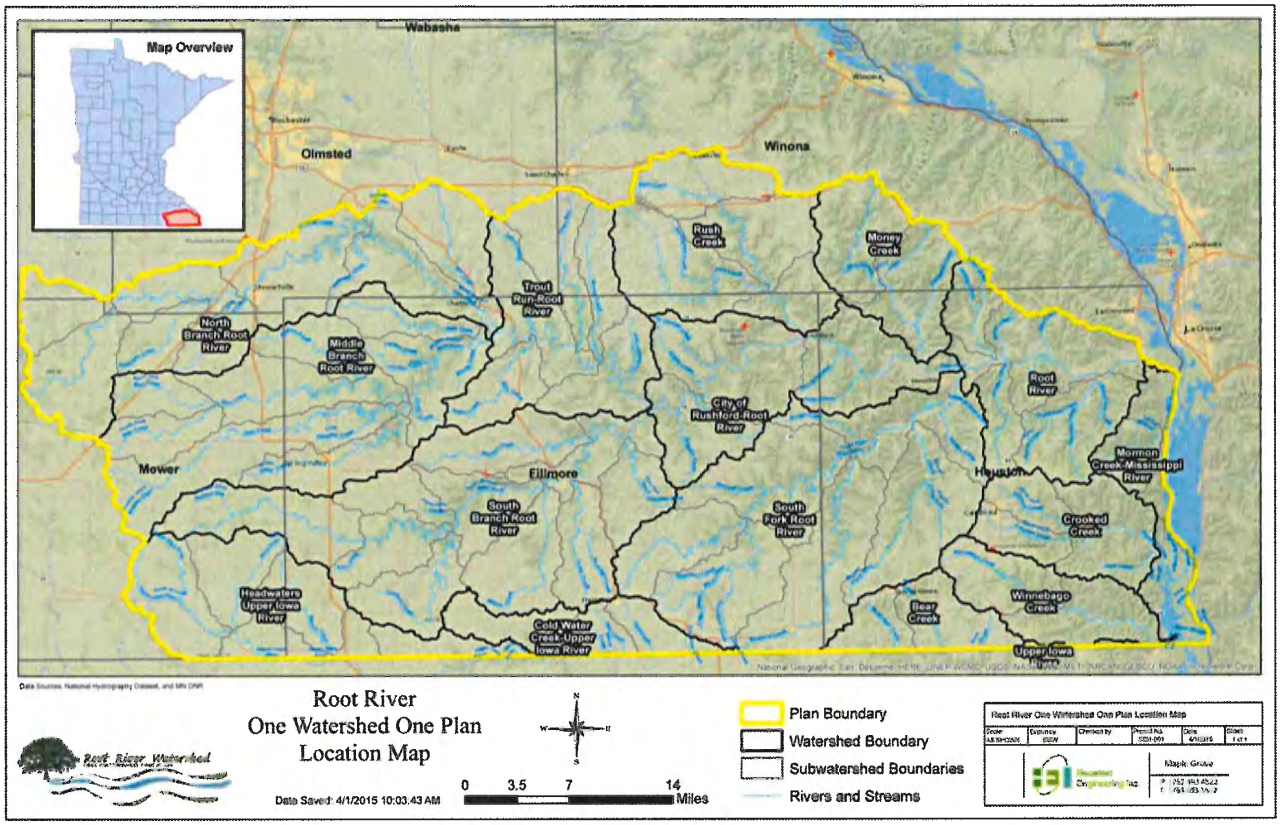
APPROVED AS TO FORM

BY: 1-18-17
County Attorney Date

APPROVED AS TO EXECUTION

BY: 1-18-17
County Attorney Date

Attachment A



Final version approved by the One Watershed, One Plan for the Root River Policy Committee on 12-19-16

Appendix B. Midpoint Evaluation

Technical Memorandum

To: Root River Planning Partnership

From: Rachel Olm, M.S.

Houston Engineering, Inc.

Subject: Five-Year Assessment of the Root River One Watershed, One Plan

Date: December 4, 2023

Project: 8861-0002

ACRONYM SUMMARY

1W1P	One Watershed, One Plan
AGOL	ArcGIS Online
BEAST	Benefits Estimator and Summary Tool
BMP	Best Management Practice
BWSR	Board of Water and Soil Resources
Esri	Environmental Systems Research Institute
HEI	Houston Engineering, Inc.
HSPF SAM	Hydrologic Simulation Program FORTRAN Scenario Application Manager
HUC	Hydrologic Unit Code
MDA	Minnesota Department of Agriculture
MPCA	Minnesota Pollution Control Agency
NRCS	Natural Resources Conservation Service
PRAP	Performance Review and Assistance Program
PTMApp	Prioritize, Target, and Measure Application
RR 1W1P	Root River One Watershed, One Plan
RRW	Root River Watershed
SMUMN	St. Mary's University of Minnesota
SWCD	Soil and Water Conservation District
WBIF	Watershed-Based Implementation Funding

INTRODUCTION

In 2014, the Root River One Watershed, One Plan (RR 1W1P) Planning Partnership was selected as a pilot on an evolutionary planning process to develop one of the first 1W1Ps in the state. The 1W1P initiative is designed to align water planning on major watershed boundaries to create prioritized, targeted, and measurable watershed plans developed and implemented locally.

The RR 1W1P is a 10-year comprehensive watershed management plan aimed at better managing water within a larger watershed planning area. The RR 1W1P planning area encompasses more than 1.3 million acres, which is spread across six counties: Dodge, Fillmore, Houston, Mower, Olmsted, and Winona. The local partners involved in implementation include counties, Soil and Water Conservation Districts (SWCDs), and a watershed district (Figure 1). In December 2016, the RR 1W1P was approved by the Minnesota Board of Water and Soil Resources (BWSR).

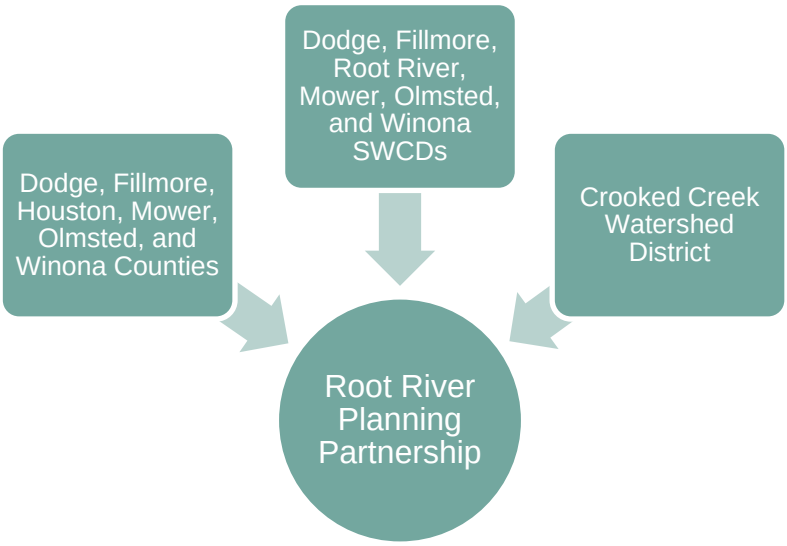


Figure 1. Local governments in the Root River Planning Partnership that partnered for plan implementation

In 2023, the RR 1W1P reached the midpoint in its 10-year plan lifespan. After six years of plan implementation, the Partnership is again piloting a new process to evaluate implementation efforts and assess progress toward plan measurable goals. The intent of the Five-Year Assessment of the RR 1W1P ("Project") was to:

- Gather and compile data about work activities (projects, practices, or programs) implemented by local government implementers and their partners that contributed to reaching goals in the plan;
- Compare the work activities (projects, practices, or programs) the Partnership completed with the work activities they set out to accomplish in the time frame specified by the plan;
- Compare the resource results associated with projects, practices, or programs to the stated resource goals/outcomes in the plan.

The process and outcomes from this Project are summarized in this memo.

BACKGROUND AND PLAN ORIENTATION

The RR 1W1P outlines priority issues, resource goals, and expected actions to be implemented in the Root River Watershed from 2017-2027. Part of BWSR's Plan Content Requirements is for plan goals to be measurable so that progress toward goals can be evaluated and connections can be made between state funding and quantifiable resource improvements. As such, the RR 1W1P sets measurable goals for all priority resource concerns in Table 4-4 of the plan. Within Table 4-4, each priority resource concern is assigned two measurable goals:

Quantitative Measurable Goals are technical goals that are more quantitative in nature, such as target load reductions in sediment, nutrients, or runoff. These goals are generally connected to statewide strategies, such as the Minnesota Nutrient Reduction Strategy. Target dates for meeting these goals oftentimes fall outside of the 10-year lifespan of the plan.

Example: 45% reduction in nitrogen by 2040 to align with Minnesota Nutrient Reduction Strategy

Reporting Measurable Goals use metrics to track progress towards the quantitative measurable goals. These metrics are tracked at the HUC-10 scale and represent implementation outputs.

Example: 10 BMPs implemented in Bear Creek planning region per year

Many of the reporting measurable goals are to implement practices in each HUC-10 annually as defined in the "implementation approach". The RR 1W1P implementation approach was defined by the Planning Work Group during the RR 1W1P planning process, and includes the BMPs selected using the Prioritize, Target, and Measure Application (PTMApp) to provide the greatest total nitrogen reduction locally and the greatest sediment reduction downstream. The reporting measurable goals for each HUC-10 are further defined in the "field practices table" (Plan Table 4-7) of the plan. PTMApp was also used to provide quantitative measurable goals for each HUC-10 in the field practices table, based on the modeled sediment, nitrogen, and phosphorus benefits of implementing BMPs within each HUC-10's implementation approach.

Progress towards both quantitative and reporting measurable goals is made through the implementation of actions, specified in the "targeted implementation schedule" (Plan Table 4-6) of the plan. Together, actions were developed to address issues identified in groundwater, surface water, infrastructure, landscape features, and social capacity/sustainability of communities.

ASSESSMENT PROCESS

Compiling Information

Over the last six years of implementation efforts, progress towards plan goals has been made through implementation of field practices, education and outreach, and research initiatives. Implementation of field practices has been a prominent means of addressing priority issues and making progress toward plan goals.

Field practices can be defined as projects that are implemented on the landscape to prevent or reduce water pollution. Within the plan, these practices are categorized based on their primary treatment mechanism to prevent or reduce pollution as modeled by PTMApp: storage, filtration, source reduction, or infiltration.

From 2017-2022, local planning partners recorded information about field practice implementation in two primarily locations: a “Local Tracking Table” and eLINK, BWSR’s conservation tracking system for practices implemented using BWSR grants. The Local Tracking Table is a spreadsheet maintained by Fillmore SWCD which included information at a per-practice scale on the BMP/conservation practice implemented, the location of the practice implemented (at least to the township level), and the load reductions estimated for sediment, phosphorus, nitrogen, and soil loss reductions. The eLINK system summarizes information at a per-practice scale on the BMP/conservation practice implemented, the location of the practice implemented (using x and y coordinate systems), the load reductions estimated for sediment, phosphorus, nitrogen, and soil loss reductions, and more.

To compile all relevant field practice activity over the past six years, HEI downloaded statewide eLINK data from Minnesota Geospatial Commons, then clipped actions to only those implemented within the watershed boundary from 2017- most current. There were 289 entries for field practices entered into eLINK for that specified time within the watershed. BWSR also provided HEI a dataset of additional actions not yet available on the Minnesota Geospatial Commons eLINK dataset. This added another 157 entries for field practices. Lastly, HEI received the Local Tracking Table from Fillmore SWCD, which included a list of 116 NRCS practices implemented in the watershed.

Since Local Tracking Table actions could be entered in eLINK as well, these were checked against each other for duplicates so that field practices and associated load reduction benefits were not unintentionally counted twice. Actions in the Local Tracking Table were matched with duplicate entries in eLINK by matching the reported reductions in sediment, phosphorus, and nitrogen. Local Tracking Table actions that had identical load reductions to multiple eLINK actions were matched by further checking the NRCS practice, the location, and the acres of the practice. One practice in the Local Tracking Table was flagged as an outlier and was removed based on local planning partner feedback due to likely user error in entering the action load reduction benefits.

An “Implementation Spreadsheet” was created as a comprehensive list of all field practice implementation actions from the three sources along with any data associated with those actions. It indicates if actions came from eLINK, the newer BWSR-provided eLINK, the Local Tracking Table, or multiple. **In total, 487 unique field practices are inventoried in the Implementation Spreadsheet from 2017-2022.**

St. Mary’s University of Minnesota (SMUMN) added subwatershed (HUC-10 and HUC-12) attributes to this table based on the known practice location at the finest scale provided. eLINK practice data came with x and y coordinates, so the exact location is known. The Local Tracking Table data was only identified to the township/section/range scale, thus specific practice location was set to be in the center of this range. Associating each action with its HUC-10 and HUC-12 subwatershed is useful for tracking the density of actions, or where in the landscape implementation was occurring most. This allows the Partnership to compare where implementation has been most prominent and if it aligns with the subwatershed that have been prioritized during annual work planning efforts.

Summarizing Implementation

SMUMN created an interactive ArcGIS dashboard (available at https://smumn.maps.arcgis.com/apps/dashboards/549404b784ed4218a5aae23e9e352129) that visually summarizes field practice implementation efforts over the past six years. The dashboard includes an interactive map of the watershed in which the view can see the locations where field practices have been implemented, and the density of practice implementation in a geographic area compared to the subwatersheds that have been prioritized by annual work planning efforts. In addition to a map, the dashboard also has a histogram summarizing the count of field practices that have been implemented in each HUC-10 subwatershed. This information is also summarized in a static map later in this memo (Figure 2).

Tables in the RR 1W1P were amended to add on additional information gathered from the assessment. The targeted implementation schedule was delivered to the Partnership to review the progress. The targeted implementation schedule (Plan Table 4-6) lists all actions, their categories, lead and partners, along with a year and cost planned for implementation. To support the Partnership in their Performance Review and Assistance Program (PRAP) process, the following columns were added to the table:

- Accomplishments to date
- Actual implementation date
- Next steps
- BWSR Scoring (left blank for BWSR to complete)

The field practices table (Plan Table 4-7) summarizes the quantitative and reporting measurable goals for each HUC-10 based on the modeled sediment, nitrogen, and phosphorus benefits of implementing BMPs within each HUC-10's implementation approach. Through the assessment process, additions were made to the table to show the following for each HUC 10:

- 5-year goal for number of BMPs
- Actual number of BMPs implemented
- Percent progress towards Number of BMP goal
- Types of BMPs implemented
- 5-year actual load reduction
- Percent towards the 5-year load reduction goal

A summary of the field practices table that only shows the load reductions for each drainage basin is included in the Executive Summary BMP table (Plan Table ES-2). This sums the total load reductions in each HUC-10 either draining into the Mississippi River or to Iowa and shows the percent progress towards the 5-year goal for sediment, nitrogen, and phosphorus.

FINDINGS

During implementation, the estimated sediment and phosphorus load reduction benefits of a given BMP were estimated using the BWSR calculator. This calculator estimates sediment loss pre and post implementation then uses a sediment to phosphorus relationship to estimate TP reduction. Nitrogen load reduction estimates were obtained for some BMPs using HSPF SAM or literature values. It is important to note that these load reduction numbers are modeled based on inputs about the BMP type and location, and not measured load reductions. It is also important to note that PTMApp was the tool used to model the implementation approach

and set quantitative measurable goal numbers found in the field practices table. As PTMApp, HSPF SAM, and the BWSR Calculator all estimate mass load reduction benefits of BMPs differently, this creates a challenge in comparing load reduction benefits in the Implementation Spreadsheet to HUC-10 quantitative load reduction goals in the field practices table (Plan Table 4-7). For this reason, and based off input from BWSR and the Partnership, this assessment compares progress towards HUC-10 reporting goals as the mechanism for evaluating implementation efforts in this Project.

Within the field practices table, the HUC-10 reporting measurable goals are reported as the number of BMPs that should be implemented per year. For purposes of this mid-point (5-year) evaluation, this Project multiplied the number of BMPs shown in the reporting measurable goals by five to create a mid-point reporting goal. Then, the number of unique BMPs inventoried in Implementation Spreadsheet were summarized for each HUC-10. It should be noted that implementation dates in the Implementation Spreadsheet ranged from 2017 – 2022. The final progress to-date toward the mid-point reporting measurable goal is shown for each HUC-10 below in **Table 1**, with entries in yellow showing over 50% of progress made and entries in green indicating the reporting measurable goal has been achieved to-date.

Table 1. Progress towards mid-point reporting measurable goals.

HUC 10 Name	Number of BMPs (Mid-Point Reporting Goal)	Number of BMPs Implemented	Progress Towards Mid-Point Reporting Goal
Bear Creek	50	19	38%
Canoe Creek	18	0	0%
City of Rushford - Root River	45	29	64%
Cold Water Creek-Upper Iowa River	50	6	12%
Crooked Creek	52	47	90%
Headwaters Upper Iowa River	50	9	18%
Middle Branch Root River	51	36	71%
Money Creek	51	19	37%
Mormon Creek-Mississippi River	44	10	23%
North Branch Root River	51	34	67%
Root River	52	44	85%
Rush Creek	53	34	65%
South Branch Root River	51	48	95%
South Fork Root River	52	111	216%
Trout Run-Root River	50	20	40%
Upper Iowa River	14	0	0%
Winnebago Creek	52	21	41%

The most common BMPs implemented in the RRW are grassed waterways and swales, cover crops, and grade stabilization structures. The number of BMPs was recorded as the total number of field practices implemented (487). However, some field practices were implemented with multiple components- for example a landowner may have 5 grassed waterways installed. If the count within each field practice project is summed, the total is 716 BMPs. To be on track to meet the 10-year goal of 1,562 BMPs, the midpoint BMP goal would be 781. Additionally, the Implementation Spreadsheet only considers the field practices that have been implemented with state funding (primarily Watershed-Based Implementation Funding). It is very likely that additional progress toward reporting measurable goals has been made through other sources of funding (i.e., federal funding, EQIP).

These are not the only actions being implemented in the watershed. As part of the Healthier Watershed effort, the Minnesota Pollution Control Agency (MPCA) tracks additional BMPs including those from NRCS, Minnesota Department of Agriculture (MDA), and BWSR. These are summarized in **Table 2** and are likely making additional progress towards plan goals.

Table 2. Healthier Watersheds data by BMP installed in the RRW 2017-2022.

	Easements (BWSR)	Agricultural BMP Loan Program (MDA)	Minnesota Agricultural Water Quality Certification Program (MDA)	Conservation Stewardship Program (NRCS)	Environmental Quality Incentives Program (NRCS)
Acres	2,140	10,070	2,220	2,390	18,640
Feet			48,200	3,850	89,360

Figure 2 summarizes the number of practices that have been implemented in each HUC-10. The South Fork subwatershed is the largest hotspot for implementation activities- 111 BMPs have been installed there, more than doubling its reporting measurable goal. This is largely due to the targeted implementation efforts associated with the Field to Stream Partnership in this subwatershed.

Figure 2 also shows the subwatersheds that have been prioritized during annual work planning efforts. Showing these two data sets together allows the Partnership to evaluate if implementation efforts have been effectively targeted to priority subwatersheds. Most practice efforts have been focused in priority subwatersheds, reflecting a change in how conservation has been delivered since the RR 1W1P. However, there is opportunity to implement additional conservation efforts in the Money Creek and a subset of Trout Run-Root River priority subwatersheds, as these priority areas have the least amount of BMPs implemented.

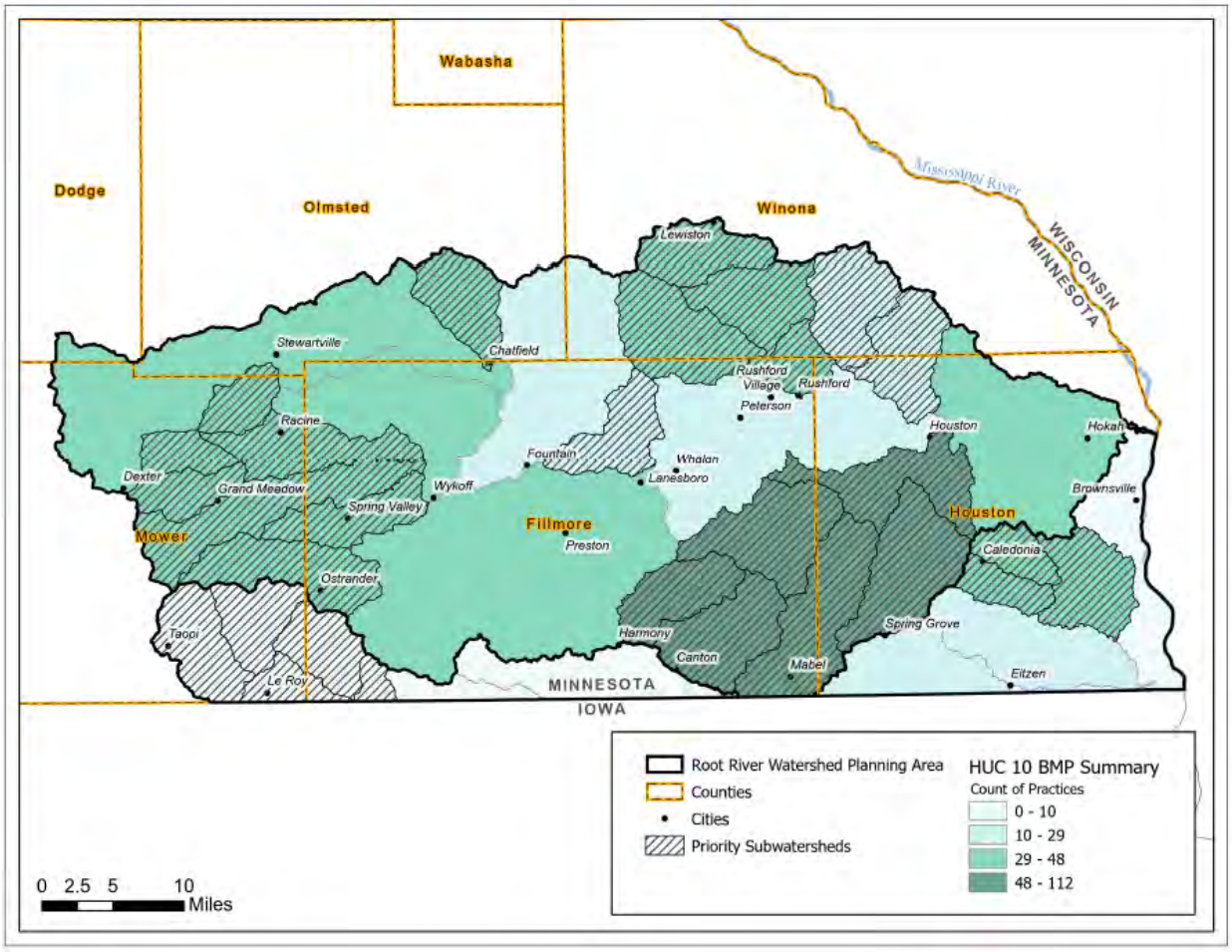


Figure 2. Count of BMPs implemented in HUC-10 subwatersheds and priority subwatersheds.

The cumulative load reductions from field practices in the Implementation Spreadsheet are summarized in **Figure 3**. **This graphic was created to align with the Executive Summary BMP table, showing the cumulative benefits of conservation practices either flowing to the Mississippi River or south into Iowa**. It should be noted that this benefit takes into account estimates from HSPF-SAM and the BWSR calculator cumulatively. Practically, these estimators have different means of estimating the load reduction benefit of conservation practices implemented on the landscape.

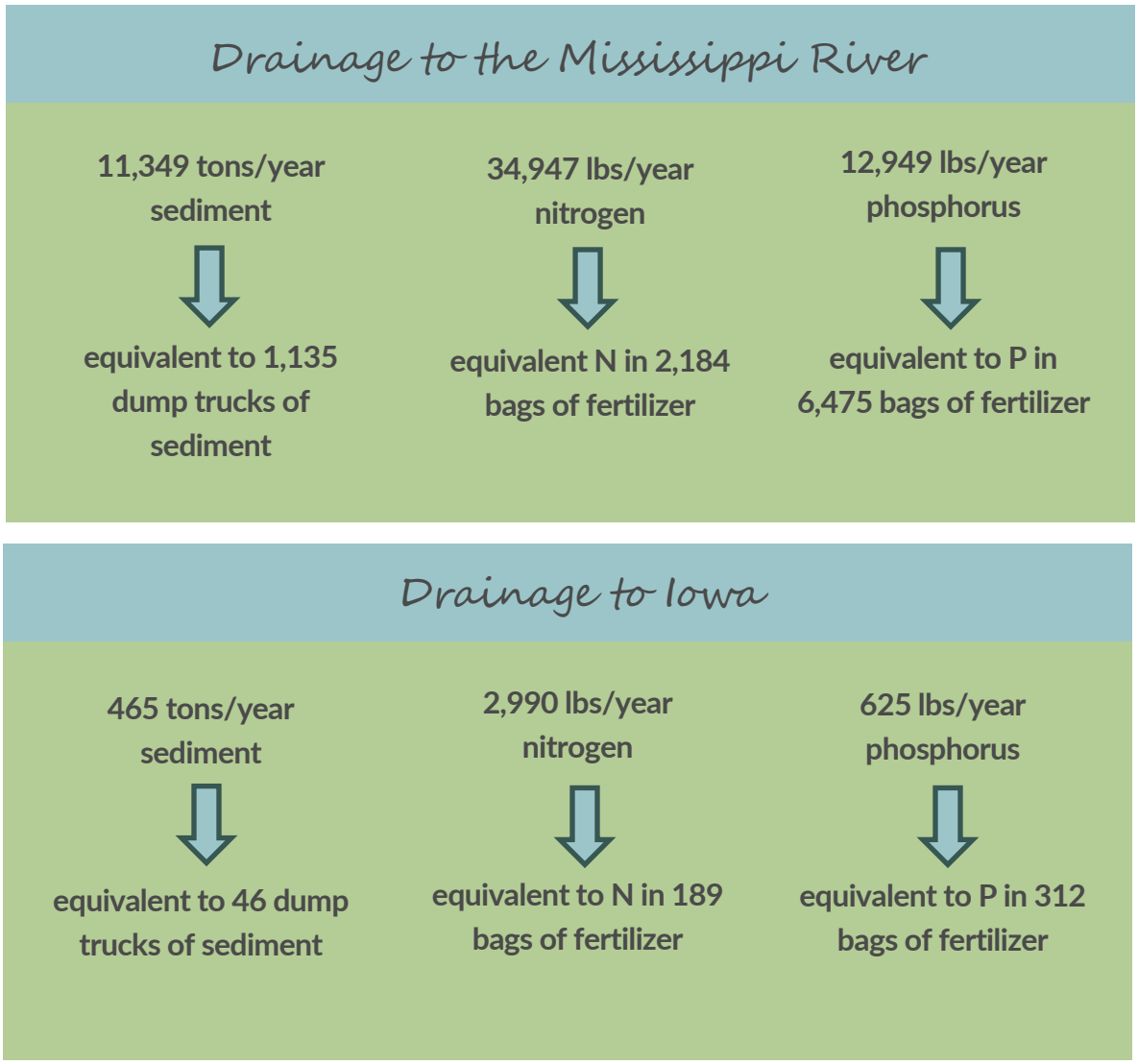


Figure 3. The load reduction due to the RR1W1P implementation in the Mississippi River and entering Iowa (edge of field benefits cumulatively reported).

The MPCA collects water quality samples and conducts pollutant concentration trends at multiple locations across the watershed. Trends for the Root River near Mound Prairie for 2008-2020 show significant decreases across all flow regimes for phosphorus and total suspended solids and no significant trend for nitrate + nitrite. While data to support this trend analysis began prior to plan implementation, continuing to reevaluate water quality trends will be important for understanding the resource impacts of conservation action on the landscape.

EVALUATING IMPLEMENTATION

HEI facilitated a workshop with the Planning Work Group and Advisory Committee in May 2023 to show findings from the assessment. As part of this workshop, an activity was conducted with the Planning Work Group to identify conservation barriers they experienced or became aware of while implementing the plan. Barriers were

organized into themes of staff capacity, staff expertise, political support, regulatory, social acceptance, and financial barriers. Outcomes from the activity are summarized in **Figure 4.** Identifying barriers to conservation action is useful for guiding implementation efforts in the next five years.

Figure 4. LGU-identified barriers to plan implementation efforts

HEI then facilitated a discussion with Planning Work Group members about the plan and the achievability of its measurable goals. Outcomes from the discussion included:

- Quantitative measurable goals are useful guides for resource improvements;
- Reporting measurable goals for each HUC-10 are useful guiding targets, but for some HUC-10s, accomplishing the reporting measurable goals will only be attainable with additional staff;
- Utility of the RR 1W1P would be improved with simplified and a reduced number of goals
- Utility of reporting progress toward quantitative goals would benefit from using a consistent tracking system for estimating the load reduction benefits of field practices, informed by PTMApp data.

RECOMMENDATIONS

Based on outcomes from this Project, HEI has summarized recommendations for the Partnership in three categories, which will be summarized in the following sections below.

- Plan Amendments
- Estimating and Tracking
- Utilizing Geospatial Information

Plan Amendments

The RR 1W1P is a ten-year plan that extends through 2026. As such, the plan will need to be amended before it expires. In accordance with BWSR 1W1P Operating Procedures, HEI recommends a Plan Renewal Amendment to incorporate results of this assessment and new data, remove actions that are no longer relevant, and simplify RR 1W1P priority concerns, resources, and most notably, measurable goals.

Estimating and Tracking

HEI recommends utilizing a consistent method across plan implementors for estimating the benefits of field practices implemented. HEI also recommends this method align with new PTMApp data available for the Root River Watershed. This could be accomplished through use of the Benefits Estimator and Summary Tool (BEAST). The BEAST is a calculation spreadsheet for consistently estimating water quality benefits (sediment, total phosphorus, and total nitrogen load reduction) and storage volume of implemented BMPs on the landscape. The spreadsheet can provide load reduction and water storage estimates with as few as two inputs, general location of an implemented or proposed BMP, and the treated acreage of that BMP. It is built using watershed-specific PTMApp data and presented in a simplified and generalized manner to reduce the necessary effort of PTMApp data analysis. The Benefits Estimator and Summary Tool is provided as an excel file and includes a user guide.

HEI also recommend use of a common platform for tracking implementation efforts consistently and aggregating outcomes compared to measurable goals in real time. There are several mechanisms for tracking implementation efforts, including:

- Tracking excel spreadsheets that automatically calculate progress toward goals
- ArcGIS Online dashboards
- Software systems, such as MS4Front

Selection of one of these systems would be dependent on the Partnership's desired outcomes and weighing of cost, ease of use, and consistency with neighboring planning efforts.

Utilizing Geospatial Information

Accurate geospatial data is useful for informing implementation efforts and tracking projects implemented. Sharing large geospatial datasets can be challenging across 13 unique entities in the Partnership. As such, SMUMN recommends the implementation of Environmental System Research Institute (Esri) ArcGIS Online (AGOL) organizations as the best strategy to facilitate the sharing of geospatial information across Partnership organizations. Esri is the developer of the world's leading GIS software and is also a leader in the creation of

cutting-edge web GIS technology. Esri developed AGOL as part of this initiative, which has become the world's largest and most comprehensive web GIS platform. For creating, managing, analyzing and sharing geographic data across partner organizations, AGOL would offer the most comprehensive and cost-effective solution.

The creation of AGOL organizations would provide partners with a number of major advantages, including the following:

- AGOL is based on the software-as-a service (SaaS) model and managed entirely by Esri IT and GIS professionals on a cloud-based architecture, requiring no investment in additional hardware, staff or training.
- AGOL provides tools for creating geospatial data, interactive web maps, 3D scenes and web applications to share internally, with other partner organizations, or with the general public.
- With AGOL you can set up group collaborations with partner organizations to share and work on each other's content.
- AGOL provides templates to create powerful, interactive web applications such as story maps and dashboards, without the need to write code.
- Data and applications published to AGOL can be accessed through web browsers running on PCs and mobile devices and requires no prior GIS training or experience.
- The AGOL platform and data published to AGOL easily integrate with current and popular Esri GIS software products such as ArcGIS Pro.
- AGOL provides free access to a sizable collection of authoritative GIS data, basemaps and imagery maintained and continuously updated by Esri.
- Flexible licensing based on user types can be used limit costs based on the capabilities and apps required for your organization's work.
- Esri is constantly developing the AGOL platform to accommodate the changing needs of the AGOL user community, and to incorporate the latest advances and innovations in web GIS technology.

In sum, AGOL would offer partners with a cost effective, ready to use platform for developing and disseminating geospatial content online. Partners will be able to start using the platform without making significant investments in computer hardware, software or training. AGOL would provide instant access to powerful, interactive web applications and tools for sharing of geospatial data with the local community, local organizations or internally with colleagues.

Appendix C. Priority Letters

DEPARTMENT OF HEALTH

Protecting, Maintaining and Improving the Health of All Minnesotans

7-31-25

Nikki Wheeler
Water Management Coordinator
912 Houston St. NW
Preston, MN 55965

Dear Nikki,

Subject: Initial Comment Letter – Root River 1W1P Plan Amendment

Thank you for the opportunity to submit comments regarding water management issues for consideration in the One Watershed One Plan (1W1P) planning process for the Root River Watershed Planning Area. Our agency looks forward to working closely with the local government units, stakeholders, and other agency partners on this watershed planning initiative.

The Minnesota Department of Health's (MDH) mission is to protect, maintain, and improve the health of all Minnesotans. An important aspect to protecting citizens health is the protection of drinking water sources. MDH is the agency responsible for implementing programs under the federal Safe Drinking Water Act (SDWA).

Source Water Protection (SWP) is the framework MDH uses to protect drinking water sources. The broad goal of SWP in Minnesota is to protect and prevent contamination of public and private sources of groundwater and surface water sources of drinking water using best management practices and local planning. Core MDH programs relevant to watershed planning are the State Well Code (MR 4725), Wellhead Protection (MR 4720) and surface water / intake protection planning resulting in a strong focus in groundwater management and protecting drinking water sources.

One of the three high level state priorities in Minnesota's Nonpoint Priority Funding Plan is to "Restore and protect water resources for public use and public health, including drinking water" which aligns with our agency's mission and recommendations to your planning process.

MDH Priority Concerns:

SE Minnesota Petition Area Within the Root River Watershed 1W1P.

On November 3, 2023, the U.S. Environmental Protection Agency (EPA) requested the Minnesota Department of Health (MDH), Minnesota Pollution Control Agency (MPCA), and Minnesota Department of Agriculture (MDA) develop a coordinated and comprehensive work plan to reduce nitrate contamination of drinking water in eight southeastern Minnesota counties. The eight counties included are Dodge, Fillmore, Goodhue, Houston, Mower, Olmsted, Wabasha, and Winona. The Petition has raised the awareness of drinking water in Minnesota to a national scale. The Root River Watershed lies entirely within this geographic region. As part of the response the agency's mentioned above developed a work plan on how to address nitrate in Southeast Minnesota. The amended Root River Watershed 1W1P should incorporate those portions of the workplan within their control into their 1W1P. MDH encourages watersheds to include strategies to protect private well users and reduce the risk of contaminants present in their drinking water. These strategies include:

- Conducting a well inventory to identify where private wells are located especially those that are not recorded or don't have an accurate location in the Minnesota Well Index.
- Providing free private well testing for the top five contaminants including:
    - Coliform Bacteria
    - Nitrate
    - Arsenic
    - Lead
    - Manganese
- Promoting outreach and education about private wells
- Providing resources for sealing unused wells
- Reviewing ordinances and/or policies and updating to protect private well users (additional information can be found on the Local Government as Well Partners) webpage.

Also, because of the petition a Southeast Minnesota Nitrate Strategies Work Group was formed and worked over the course of a year to develop long term nitrate strategies for the eight-county petition area. The recommendations resulting from the workgroup are captured in a final report released in July of 2025. The practices recommended in this final report should be incorporated into the Root River 1W1P implementation efforts for nitrate reduction. In 2025 the MPCA completed its update to the Statewide Nutrient reduction strategy. This document should also be relied upon to provide a list of practices that can help to prevent surface and groundwater contamination. The drinking water protection strategies within the Nutrient Reduction Strategy align closely with the nitrate the recommendation with the SE Workgroup report.

There are several sources of information that can be used to further evaluate the vulnerabilities and potential contaminants sources impacting the source water of private drinking water wells within the watershed and petition region. These sources of

information include County Geologic Atlases, MDH GRAPS Report, Source Water Protection Plans, Nitrate Probability Maps, the Volunteer Nitrate Nitrogen Monitoring Network Study, well logs, and water chemistry data from Southeastern Minnesota
Water Analysis Laboratory (SEMWAL) and MDH laboratory. Some interpretation of regional information has been completed by MDH staff.

Drinking Water Within the Watershed

It can be assumed that all households within the planning area are utilizing groundwater as the source of drinking water. This should be emphasized within the watershed plan based upon the unique nature of karst geology and the surface water/ groundwater interactions that help to define karst geology. These households obtain their drinking water from private wells or from wells managed by community public water suppliers. Of the roughly estimated 55,800 people living in the planning area, approximately 59% utilize 27 community public water supply systems for their water and 41% of the population obtain water from private wells. In addition to the community public water systems, there are nine nontransient public water systems and over 110 transient public water supply wells. Source water assessments have been completed for all noncommunity public water supplies. These assessments and water chemistry data collected by MDH can be used to prioritize protection and restoration activities. Source water assessments are available at http://www.health.state.mn.us/divs/eh/water/swp/swa/swainfo/. Water chemistry data from these system wells can be obtained from MDH.

There are 27 community public water supply systems within the watershed. All but one of the systems has a delineated wellhead protection area and a wellhead protection plan in place. The remaining system should be brought into the wellhead protection planning process over the life of the amended plan. DWSMA boundaries establish a protection area through an extensive evaluation that determines the contribution area of a public water supply well, aquifer vulnerability and provide an opportunity to prioritize specific geographic areas for drinking water protection purposes. DWSMA boundaries that extend beyond city jurisdictional limits or are established in Wellhead Protection (WHP) Action Plans for nonmunicipal public water supplies, like mobile home parks, can be a special focus for local partners prioritizing drinking water protection activities. Aquifer vulnerability determines the level of management required to protect a drinking water supply and provides an opportunity to target implementation practices in accordance with the level of risk different land uses pose. The attached Public Water Supply Summary Spreadsheet highlights the primary drinking water protection activities for many DWSMAs in the watershed. PDF maps of the DWSMAs can be downloaded from the individual Source Water Assessment tool on the MDH Website. http://www.health.state.mn.us/divs/eh/water/swp/swa/. Of the 27 public water supply systems within the watershed five have a delineated DWSMA in which at least a portion of which is considered highly vulnerable to surface contamination. The watershed contains 3 moderately vulnerable systems, and the remaining systems are considered low vulnerability.

As with the initial plan the Drinking Water Supply Management Areas should continue to be a priority area to target for land practices. Especially those considered vulnerable. Higher vulnerable drinking water supplies require a greater and more complex set of management

activities than low vulnerable systems. Efforts should be made to collaborate this plan's Ag BMPs with MDA efforts with Level 2 DWSMAs they are working with under the Groundwater Protection Rule. Groundwater management issues within DWSMA's vary with the vulnerability of the recharge areas to surface contaminants. The Maximum Contaminant Level for public water supplies as set by the Safe Drinking Water Act is 10 mg/l. Within the watershed the city of Utica's primary well is over 8mg/l, which means it meets the definition of a MDA level DWSMA. The Nitrate level is continuing to trend upwards. The city is currently in the process of drilling a new well to mitigate their nitrate issue. Once completed the city is planning on keeping their current primary well so the DWSMA should continue to be a focus of nitrogen reduction practices. Chatfield and Spring Grove have nitrate levels between 3mg/l and 5.4 mg/l. Chatfield is the only other PWS which fall under the MDA groundwater protection rule. One of Chatfield's wells has hit a nitrate level of 5.4mg/l which makes it a level one DWSMA under the Groundwater Protection Rule. The city of Lewiston drilled a deeper well to mitigate their nitrate issues during the life of the 1st watershed plan. Other identified contamination concerns that should be mentioned but are difficult to address within the 1W1P plan are Spring Grove's TCE trichloroethylene contamination and radium found in deeper public supply wells well most noticeably the Mt. Simon aquifer.

One important tool to protecting groundwater is the sealing of old wells. Unused, unsealed wells can provide a conduit for contaminants from the land surface to reach the sources of drinking water. This activity is particularly important for abandoned wells that penetrate a confining layer above a source aquifer. Sealing wells is a central practice in protecting groundwater quality, however when resource dollars are limited it is important to evaluate private well density to identify the populations most at risk from a contaminated aquifer. Old municipal wells and other high-capacity wells should be a focus of the plan since these are often deep multi-aquifer wells that can impact many private and other public wells in the vicinity.

As stated above many residents rely on a private well for the water they drink. However, no public entity is responsible for water testing or management of a private well after drilling is completed. Local governments are best equipped to assist private landowners through land use management and ordinance development, which can have the greatest impact on protecting private wells. Other suggested activities to protect private wells include hosting well testing or screening clinics, providing water testing kits, working with landowners to better manage nutrient loss, promoting household hazardous waste collection, managing storm water runoff, managing septic systems, and providing best practices information to private well owners.

Within the watershed public and private wells utilize the same aquifers. Land use practices that are implemented on the landscape will benefit both.

Additions or continuations to the plan amendment based upon review of the initial Root River1W1P plan

MDH uses an in-house evaluation tool to help evaluate existing plans and to help shape the plan amendment. The existing plan identified drinking water as a top priority within the plan. MDH would recommend that drinking water continue to be a top priority of the plan amendment. Public and private wells within the watershed utilize the same aquifers. Public water supplies within the watershed continue to see elevated nitrates when vulnerability correspond to high impact land uses. The EPA petition regarding elevated nitrates within private wells emphasizes the need to keep drinking water and private wells at the top of the plan priority. Besides nitrates the other man-made contaminate of concern in the region would be bacteriological contamination due to the karst geology of the region. There are several actions identified within the plan to address these issues, and they should move forward in the amended plan. Examples include sealing old wells, addressing surface water contribution areas within DWSMA's, protecting karst recharge features, BMPs for feedlots and land application, upgrading SSTS's and implementing ag BMPs to manage nitrates. The Best Management Practices within the plan are the standard practices utilized to manage nitrate impacts or drinking water. Some of these practices are used to prevent impacts thus making results difficult to measure or interpret. The agricultural BMPs are in line with strategies established within the updated State Nutrient Reduction Strategy and the recommendation of the SE Minnesota Nitrate Strategies Workgroup. These documents should be reviewed to determine if any new ideas for nitrate management can be utilized. The actions could be targeted towards vulnerable groundwater areas and edges of confining units which recharge aquifers that serve both public and private well users. Programs are evolving that include long term agreements to implement nitrate management practices without permanent easements or the transfer of property to government control. Currently these programs are implemented by BWSR and can be found under the RIM Drinking Water Easement Program.

There are also geogenic contaminants that impact drinking water within the watershed. Since these are naturally occurring within specific aquifers there is nothing on the landscape that can be done to mitigate these contaminates. These contaminants are tested for in public water supply systems but not private wells. The exception being arsenic which is required to be tested for upon well completion. In private wells this is the only time testing for arsenic is required. Testing of drinking water, especially private wells, and public education are the two management tools which should be utilized for these contaminants. Geogenic contaminants include arsenic, manganese and radionuclides. Some of these contaminants are found in deep wells within protected aquifers which contains very old groundwater.

The original plan accurately reflects the watersheds geology. Within the plan public and private drinking water supplies were a top priority. Surficial subsurface hydrologic conditions were in the second tier of priorities and spring sheds and karst were in the 3rd tier. It might be beneficial to raise all of these to the top tier since the groundwater and surficial hydrologic connections are so prominent with the karst region. Along with this, elevate the karst features such as spring sheds

to the top tier. The 'Karst Features' section specifically identifies certain cave systems that transport surface water to the bedrock (Mystery Cave) and return subsurface water to the surface (Pine Cave, Tyson's Spring Cave, Stagecoach Cave) an immediate way of strengthening the hydrogeologic content of the plan would be to incorporate this Section 3 of the Appendix into the main plan document.

The GRAPS report was not completed at the time the plan was prepared. The 1W1P partners can anticipate the GRAPS report in fall 2025. GRAPS aggregates existing state information and data to provide a high-level overview of groundwater quality and quantity for the watershed. This information informs recommended strategies based on potential risks for partners to consider. MDH can further support the development of the amended plan with information available from individual WHP plans and modeling activities for the watershed. A partnership between MDH and MGS is a developing a 3D geologic groundwater model for the watershed that compiles both surface and subsurface geologic data in a format suitable for both modelers and the general public. Building off the MGS model MDH is developing a groundwater model that will better define regional aquifers providing additional information for targeted implementation.

Extensive drinking water monitoring was carried out within the life of the plan by MDH under our Drinking Water Ambient Monitoring Program. These results are pending and should be mentioned within the plan. In conjunction with that MDH's PFAS dashboard should also be mentioned as a source of information regarding PFAS levels within the watershed. Information regarding Drinking Water Ambient Monitoring Program and the PFAS dashboard can be found on the MDH website.

MDH can support implementation of the amended plan by several projects underway by various partners to gather more data regarding aquifers regional aquifers and private well aquifer information. Any grant opportunities offered by MDH should be pursued including accelerated implementation grants. The "Find my Aquifer Tool "being developed by MGS and Kevin Kuehner with MDA might be one potential fit for an implementation grant. The Minnesota Department of Agriculture has started on outreach to townships that were identified by their Nitrate township testing program. The initial outreach and field work in Spring Grove township began in April of 2025 and has been completed. Those efforts resulted in the development of over 20 conservation projects from grassed waterways to buffer strips, terraces, etc. Most of the projects are in the process of applying for federal EQIP dollars to assist with implementation. MDA has a joint powers agreement with Root River SWCD to provide technical assistance to producers who are interested in developing conservation practices on their farm. Root River SWCD technicians will be working on survey and design of the practices and will assist the land operators throughout construction and follow up phases. MDA staff worked with over 30 producers who operate and control over 70% of the cropland in the township to evaluate their nitrogen use. Those producers were given advice on how to adjust their fertilizer programs and fine tune their nitrogen use to match the University of Minnesota's nitrogen recommendations for corn in SE MN. It was found during the conversations that most producers were close to the university's recommendations. Those that

were above recommended rates were inadequately crediting other sources of nitrogen including manure, legumes, and other sources of nitrogen fertilizer including the nitrogen found in diammonium phosphate and ammonium sulfate. Simple nitrogen-based management plans were developed for those who are using manure as a nitrogen source. Others were also given advice on how to effectively credit all sources of nitrogen. MDA staff is commencing work in four other Houston County Townships where 10% or more of the tested wells were above the health risk limit of 10 mg/L of nitrate. A similar approach is taking place with an initial focus on registered feedlots where manure is part of the fertilizer system. Additional partnerships are also being developed. One such partnership includes dairy nutrition staff from a local co-op who will be mentioning our work and opportunities as they converse with local dairy producers. A list of conservation practices is being developed including practices that consider nutrient management (manure storage, roof runoff structures, and prescribed grazing practices). Education and outreach will continue in these four townships throughout 2025 and into 2026. The Fillmore County SWCD is also working with MDA and has hired a private company (Kanati) to develop similar work in Preble Township. All outreach and technical assistance efforts will be handled by the company with a focus on nitrogen management for corn production along with upland conservation practices that are noted during farm walk overs. This work started in June and will be continuing throughout the rest of 2025 and into 2026. This initiative could be included as an area to focus resources within the plan based on consultation with MDA.

In closing, here is a list of resources for consideration and reference when developing implementation efforts within the plan. The state Nutrient Reduction Strategy, the SE Nitrate Workgroup Report, MDA's Field to Stream data and monitoring results, measures within MDH's Wellhead Plans, Minnesota Ag Water Quality Certification Program along with the traditional NRCS funded programs.

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Targeting Groundwater & Drinking Water Activities in the 1W1P Planning Process

Limitation of Existing Tools –

Watershed models used for prioritizing and targeting implementation scenarios in the 1W1P, whether PTMapp, HSPF-Scenario Application Manager (SAM) or others, leverage GIS information and/or digital terrain analysis to determine where concentrated flow reaches surface water features. While this is an effective approach for targeting surface water contaminants, it does not transfer to groundwater concerns because it only accounts for the movement of water on the land's surface. Unfortunately, targeting tools are not currently available to model the impact on groundwater resources. The Minnesota Department of Health suggests using methodologies applied by the agency to prioritize and target implementation activities in the Source Water Protection program.

Using the Groundwater Restoration and Protection Strategies (GRAPS) Report –

The MDH, along with its state agency partners, are developing a Groundwater Restoration and Protection Strategies (GRAPS) report for the *Name of watershed*. GRAPS will provide information and strategies on groundwater and drinking water supplies to help inform the local decision making process of the 1W1P. Information in a GRAPS Report can be used to identify risks to drinking water from different land uses. Knowing the risks to drinking water in a specific area allows targeting of specific activities.

- Prioritize Actions Identified in the Groundwater Restoration and Protection Strategies (GRAPS) report.

Using Wellhead Protection Plans –

- Identify Drinking Water Supply Management Areas (DWSMA) located in the watershed.
- Examine the vulnerability of the aquifer to contamination risk to determine the level of management required to protect groundwater quality. For example, a highly vulnerable setting requires many different types of land uses to be managed, whereas a low vulnerability setting focuses on a few land uses due to the long recharge time and protective geologic layer.
- Use the Management Strategies Table in a Wellhead Protection Plan to identify and prioritize action items for each DWSMA

Using Guidance Documents to Manage Specific Potential Contaminant Sources –

The MDH has developed several guidance documents to manage impacts to drinking water from specific potential contaminant sources. Topics include mining, stormwater, septic systems, feedlots, nitrates, and chemical and fuel storage tanks. This information is available at

https://www.health.state.mn.us/communities/environment/water/swp/resources.html

Attached you will find a listing of MDH data and information to help you in the planning process. Thank you for the opportunity to be involved in your watershed planning process. If you have any questions, please feel free to contact me at (507) 206-2734 or scott.j.hanson@state.mn.us.

Sincerely,

Scott Hanson, Principal Planner
Minnesota Department of Health
Source Water Protection Unit
3425 40th Ave NW, Suite 115
Rochester, MN 55904

Attachments

CC: Mark Wettlaufer, MDH Planner Supervisor Source Water Protection Unit
John Woodside, MDH Hydrologist Supervisor Source Water Protection Unit
Carrie Raber, MDH GRAPS Program Coordinator Source Water Protection Unit
Dereck Richter, MDH Surface Water Program Administrator SWP Unit
Steve Robertson, MDH Health Program Manager Source Water Protection Unit
Jeff Weiss, DNR Hydrologist
Justin Watkins, MPCA Watershed Supervisor
Dave Copeland, BWSR Southern Board Conservationist
Reid Christianson, MDA Supervisor Clean Water Technical Assistant Unit
Riley Buley, Fillmore SWCD District Manager

PWSID	Name	Wellhead Program-DWSMA VULNERABILITY
1230001	Canton	Moderate
1230002	Chatfield	High
1230003	Fountain	Low
1230004	Greenleafton	Low
1230005	Harmony	Moderate
1230006	Lanesboro	Low
1230007	Mabel	Low
1230008	Ostrander	Low
1230009	Peterson	Low
1230010	Preston	Low (3 DWSMAs)
1230011	Rushford	Low
1230012	Spring Valley	Low
1230013	Wykoff	Low
1230014	Rushford Village	Low
1280002	Caledonia	Low
1280003	Eitzen	Moderate
1280004	Hokah	High
1280005	Houston	High
1280010	Spring Grove	High
1500006	Dexter	Low
1500008	Grand Meadow	Low
1500009	LeRoy	Low
1500012	Racine	Low
1500023	Haven Industries	Not presently in WHP Program Wellhead
1550026	Stewartville	Low
1850006	Lewiston	Low
1850011	Utica	High

Map Summary

Drinking water sources and pollution sensitivity in the "watershed"

The Drinking water sources and pollution sensitivity map shows the drinking water suppliers and privates wells within the watershed. You can turn on and off the map layers to explore aquifers used, drinking water sources, and evaluate areas of pollution sensitivity that increase the risk for surface contamination to enter underlying aquifers. By understanding the areas at greatest risk to pollution it provides the starting point to prioritize areas for targeting groundwater protection. The Pollution Sensitivity Rating provides a quick assessment of risk across the watershed. Areas with a high pollution sensitivity rating pose the greatest risk to contamination and therefore require an increased level of land management. By layering data sources, it can further refine areas for targeting drinking water protection goals.

Drinking water sources and pollution sensitivity in the Root River Watershed

Turn map layers on and off by using the "layers" button on the right side of the Adobe Acrobat window. Expand "Map Frame" and "Main Map", then click the eye icon to turn layers off.

Data source: MDH, DNR
Base layer source: Esri, CGIAR, USGS, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

0 5 10 20 Miles

N

PWSS

- Community
- NonTransient
- Transient
- DWSMAs
- HUC-12 watersheds

Private Wells (located, by aquifer)

- Surficial sand and gravel
- Buried sand and gravel
- Unspecified sand and gravel
- Sandstone bedrock
- Carbonate bedrock (limestone)
- Other

Heatmap of PWSS

Population served

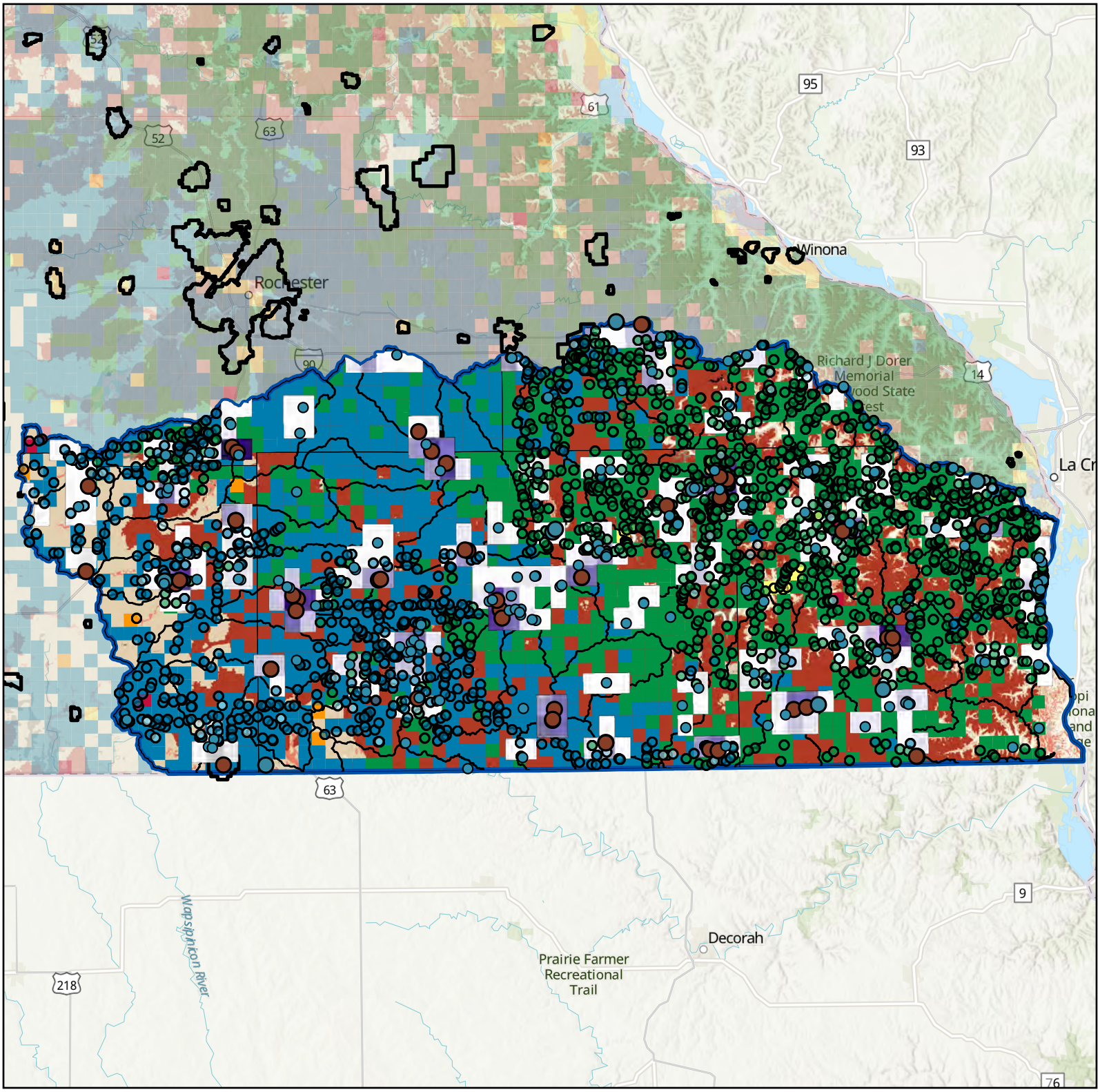
- 1 - 13
- 14 - 37
- 38 - 73
- 74 - 122
- 123 - 245
- 246 - 450
- 451 - 1,727

Primary Aquifers by Section

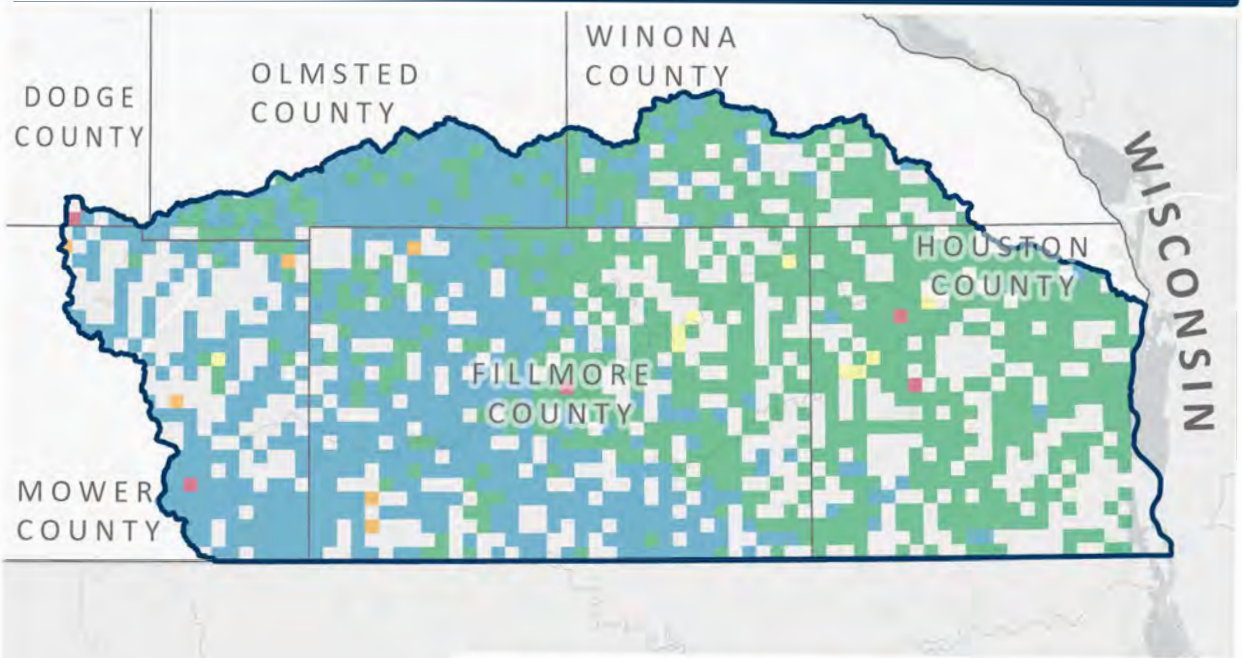
- Surficial sand and gravel
- Buried sand and gravel
- Unspecified sand and gravel
- Sandstone bedrock
- Carbonate bedrock (limestone)

Pollution Sensitivity of Near-Surface Materials

- Karst
- Water
- Bedrock at or near surface
- High
- Moderate
- Low
- Very low



Primary Aquifers



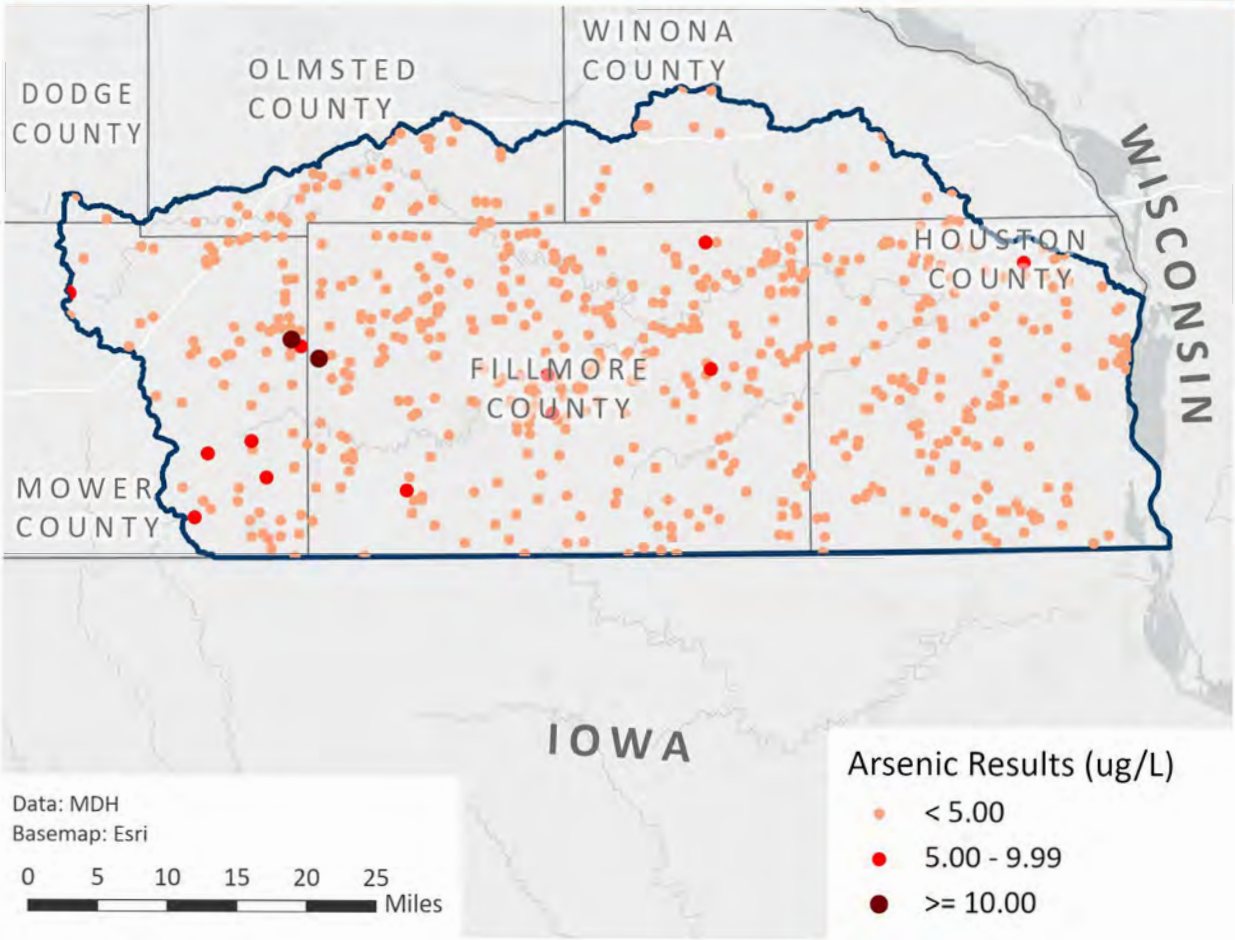
Primary Aquifer by Section

- Surficial sand and gravel
- Buried sand and gravel
- Unspecified sand and gravel
- Sandstone bedrock
- Carbonate bedrock (limestone)

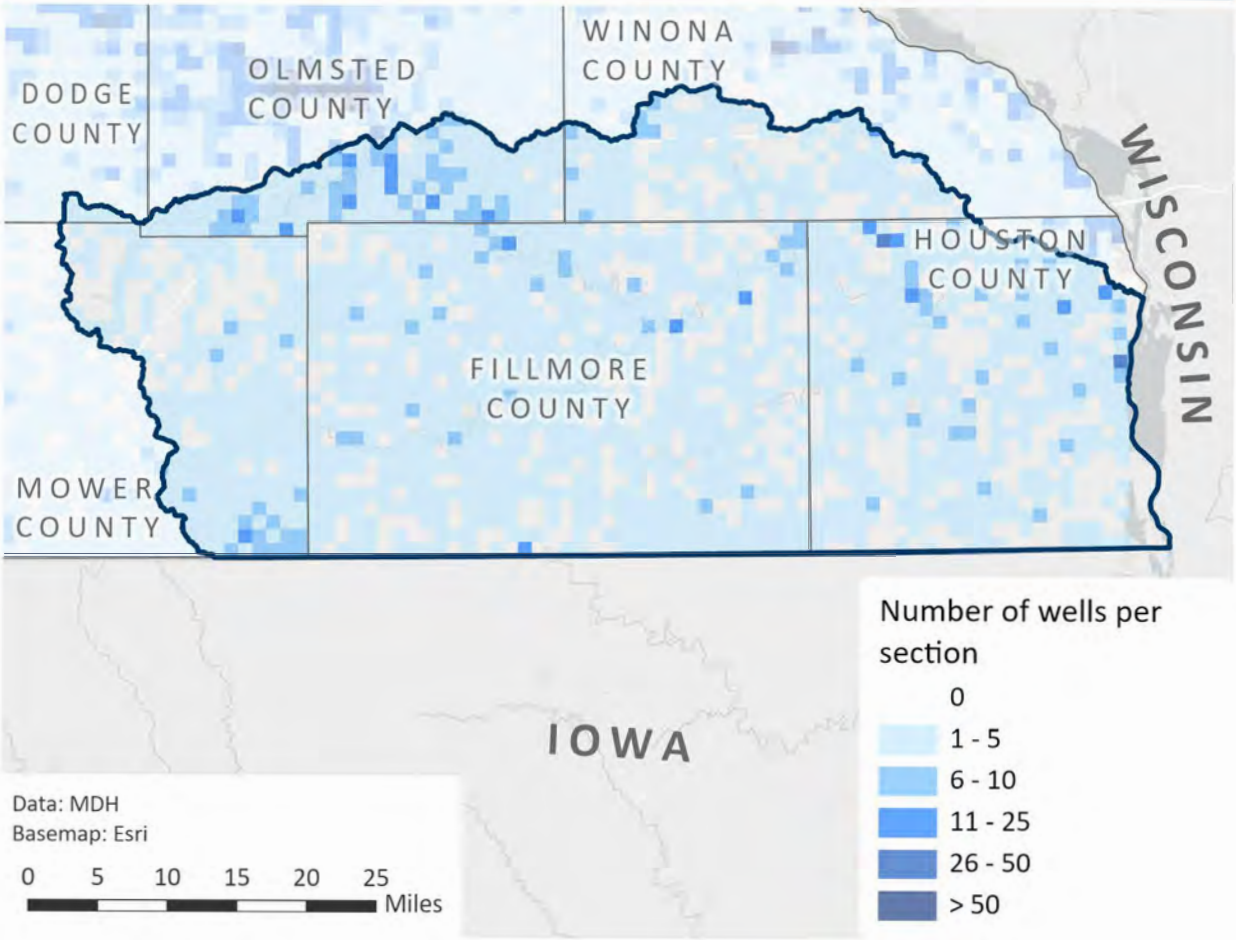
Data: MDH
Basemap: Esri

0 5 10 15 20 25 Miles

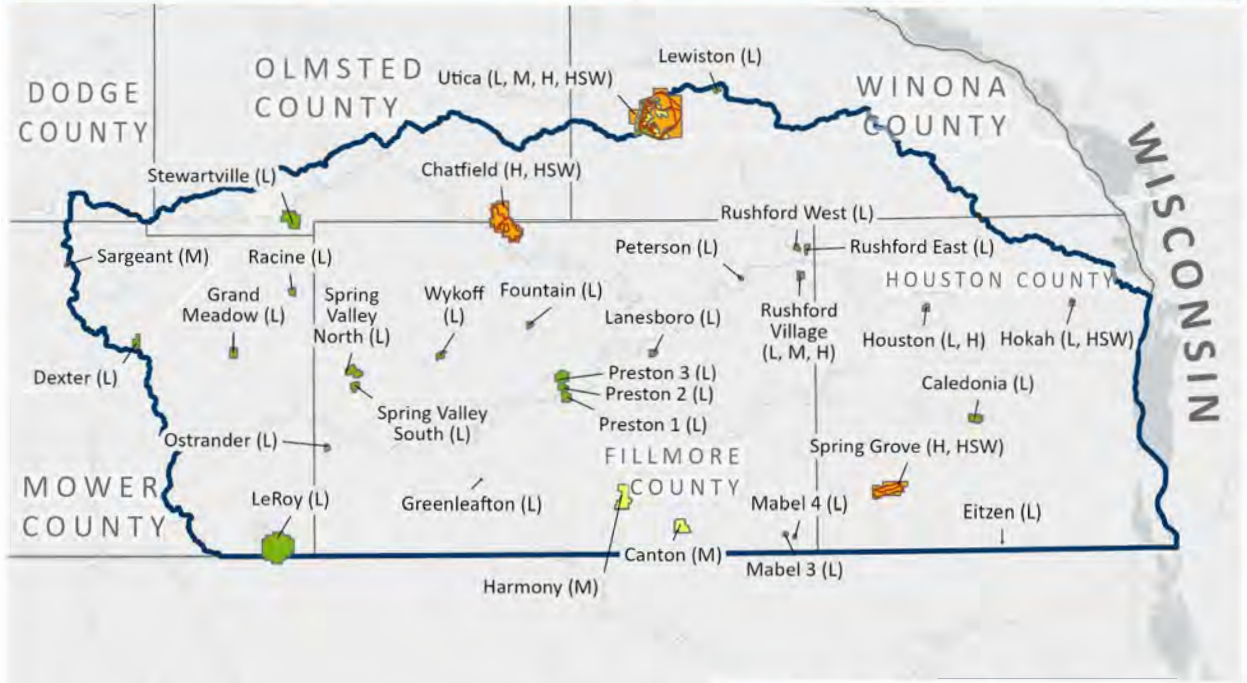
Arsenic Results



Drinking Water Wells



Drinking Water Supply Management Areas



Surface water contribution area

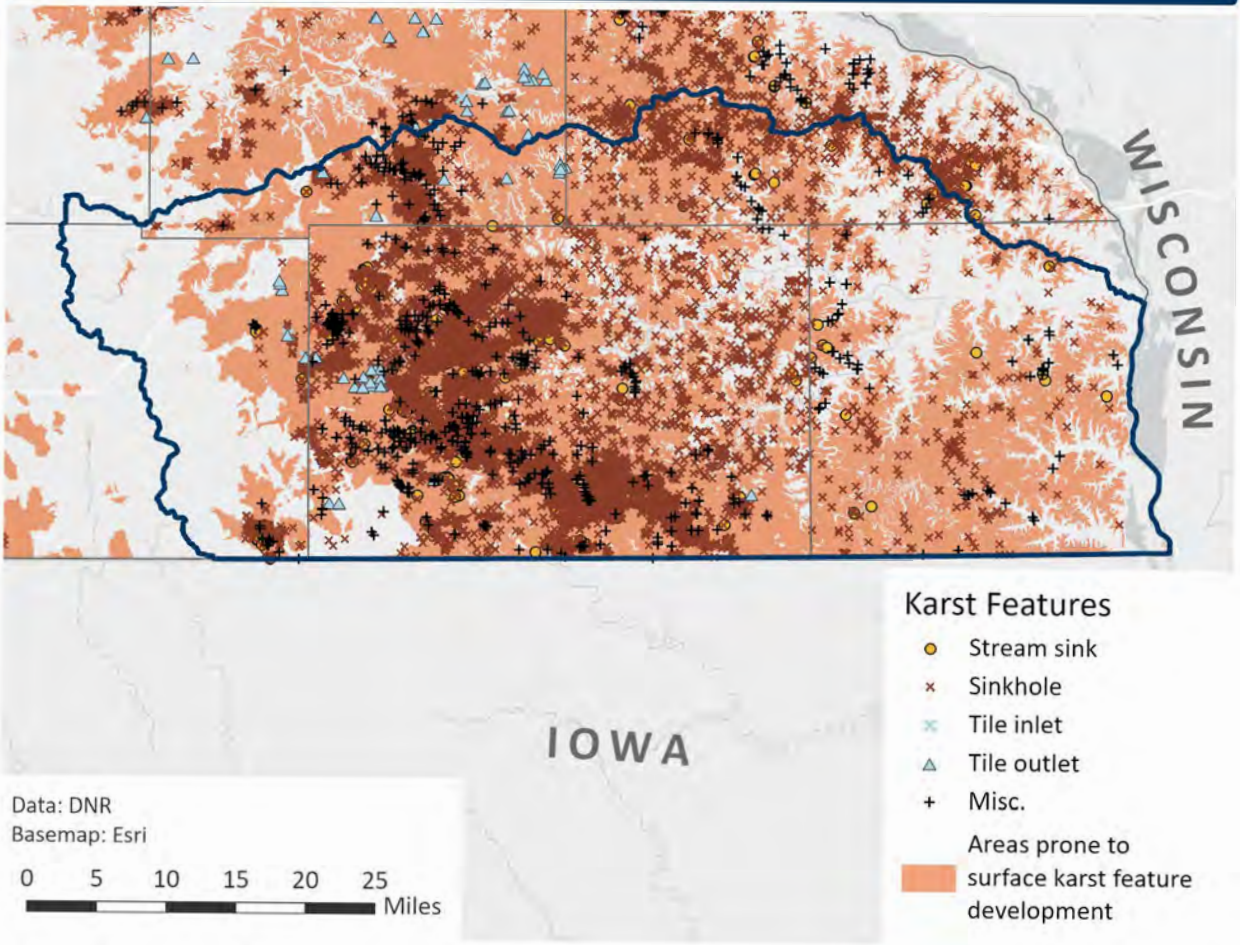
DWSMA vulnerability

- High/very high
- Moderate
- Low/very low

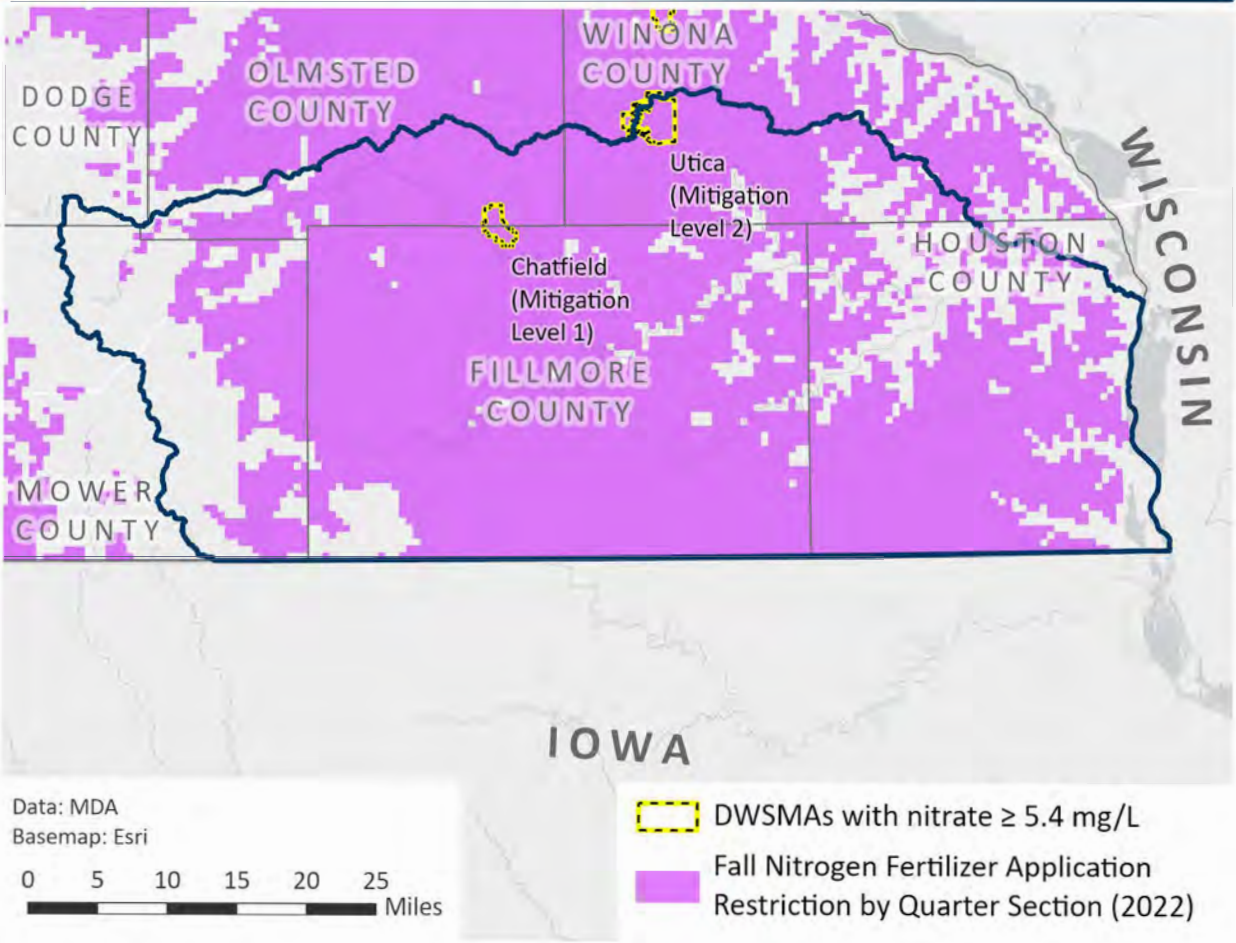
Data: MDH
Basemap: Esri

0 5 10 15 20 25 Miles

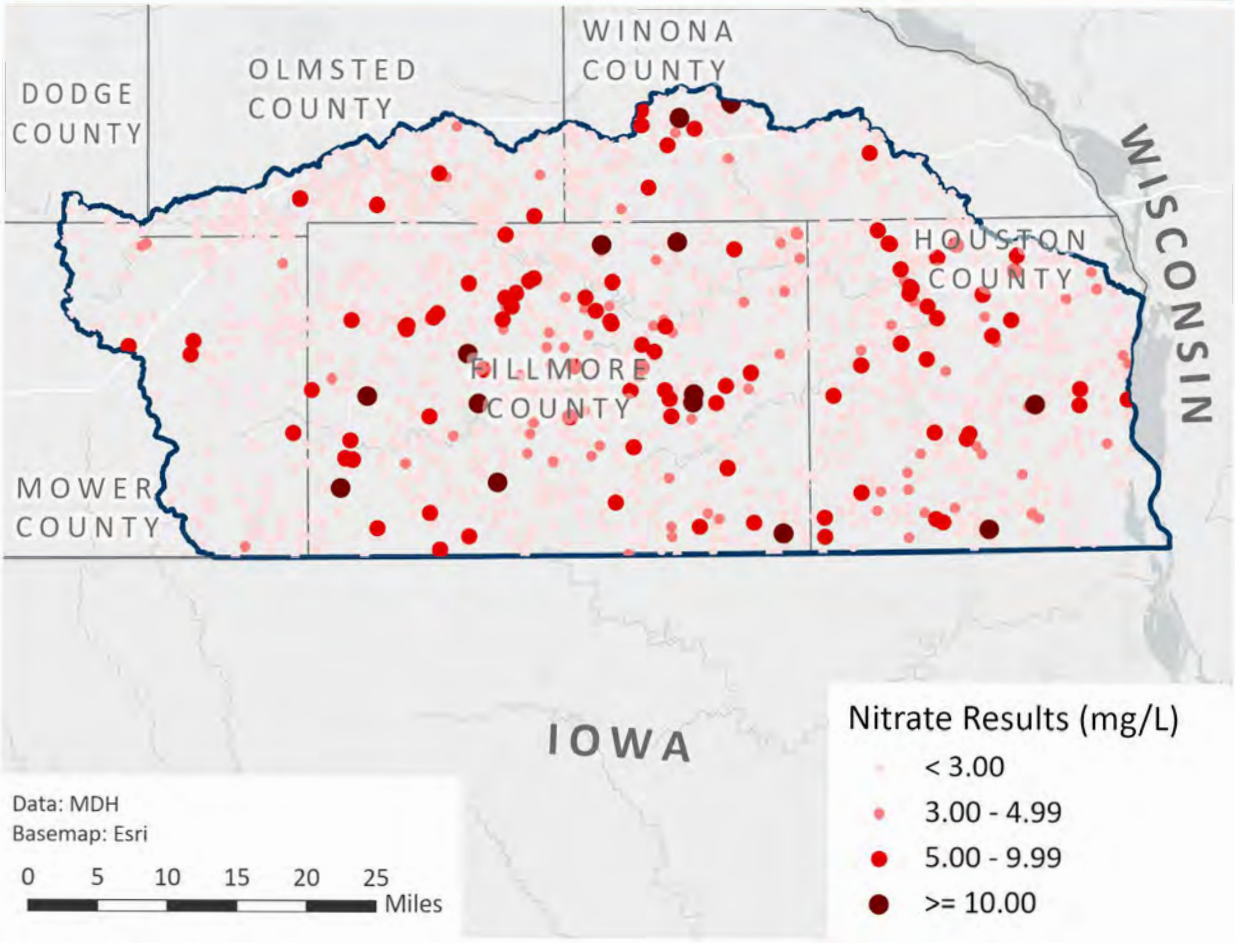
Karst Features



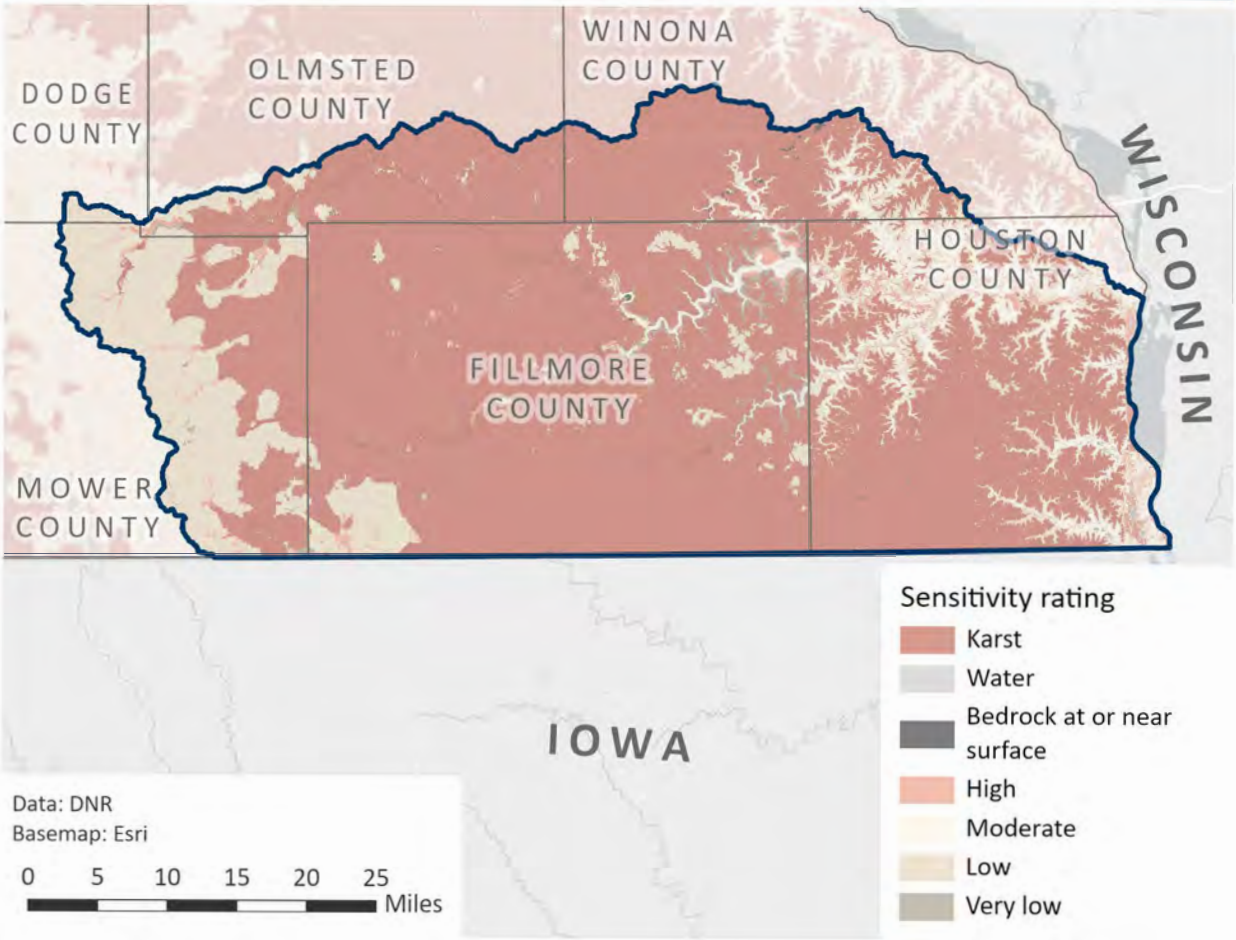
MDA Fall Fertilizer Restrictions



Nitrate Results



Pollution Sensitivity of Near-Surface Materials



HOUSTON COUNTY
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Phone: (507) 725-5800 ● Fax: (507) 725-5590

Houston County National Leader in Recycling

Root River Watershed 10-Year Plan Renewal

August 13, 2025

Attn: Nikki Wheeler
Fillmore SWCD
912 Houston St NW
PO Box 45
Preston, MN 55965

To Whom It May Concern,

Houston County is in support of renewal of the Root River One Watershed, One Plan. We have no specific comments at this time, but we would be happy to review any draft documents in the future.

Respectfully,

Amelia Meiners

Amelia Meiners
Environmental Services Director
Houston County

DEPARTMENT OF AGRICULTURE

August 4, 2025

RE: Request for comments, Plan Renewal Amendment of the Root River Comprehensive Watershed Management Plan

Dear Nikki,

Thank you for the opportunity to provide comments and suggestions regarding the renewal amendment of the Root River Comprehensive Watershed Management Plan.

Nitrate and pesticides in surface and groundwater continue to pose concerns across the watershed, and the Minnesota Department of Agriculture (MDA) remains committed to partnering with local and state partners to advance shared water quality goals. One of MDA's key roles in the 1W1P process is to provide technical assistance and help apply the most recent and relevant research and tools to promote and accelerate conservation practices. We also have strategies to work directly with farmers and the ag community.

MDA Priority Concerns

- The Nitrogen Fertilizer Management Plan and Groundwater Protection Rule provide a framework for addressing elevated nitrate in groundwater associated with agricultural activities. There may be opportunities to align plan, rule, and funding timelines.
- Recently, the MDA has expanded efforts to accelerate conservation planning and implementation within townships that have elevated nitrate levels. Preble in Fillmore County and Spring Grove in Houston County were selected as pilot townships in 2025.
- The MDA is interested in exploring opportunities to partner with SWCDs to accelerate and scale up both surface runoff and nitrate leaching reduction practices through a streamlined 'batch and build' conservation planning and delivery approach.
    - This holistic approach could address multiple goals mentioned in the Statewide Nutrient Reduction Strategy, Southeast Minnesota Nitrate Strategies Collaborative Workgroup recommendations and response to EPA's nitrate petition.
- A potential performance measure could include increasing Ag Water Quality Certification rates in targeted townships, with aspirational benchmarks such as 80% of crop acres certified.
- Additional targeting, coordination, cost-share, and technical assistance (e.g., site risk assessments, nutrient and manure management planning, etc.) will be needed to scale conservation adoption efforts within priority townships in the Root River watershed planning area.
- Diversified crop rotations offer potential benefits for water quality and soil health. MDA supports exploring market-based strategies to make these rotations more economically viable for producers.

Programs and Projects that may Support Local Clean Water Goals

- Practices currently under evaluation through the Field to Stream Partnership include prairie strips, grassed waterways, low disturbance manure injection, cover crops, nitrogen rate and timing BMPs and real-time manure sensor technologies.
- Nutrient Management Initiative (NMI) and BMP Outreach
- Minnesota Ag Water Quality Certification Program and Cost-Share Program
- Soil Health Equipment Grants
- Water treatment filtration grants through TAP-IN
- AgBMP Loan program
- Agricultural Growth, Research and Innovation Grant programs
- BMP mapping and high runoff risk targeting at township scales

Technical Findings from the Field to Stream Partnership

A leading example of our collaborative work is the Root River Field to Stream Partnership. Since its launch in 2009, the project has advanced understanding of how agricultural practices shape long-term water quality trends and how those trends are best interpreted. A few important lessons learned from this study include:

Pesticides

- Results from an eight-year pesticide loss study[1] show that 88% of the pesticide loading to the study streams in the Root River Watershed occurred during storm flow conditions with acetochlor, atrazine, and metolachlor detected most often.
- Most of the elevated concentrations and losses occurred during high runoff risk periods in May (14%) and June (75%), with most transport associated with overland runoff.
- With an increasing trend towards more precipitation and the number of days with heavy rainfall, it may not be feasible for farmers to avoid pesticide applications during these high-risk time periods. Additional protection layers may be needed to reduce the off-site movement.
- One key practice to reduce overland runoff delivery of pesticides to streams is to ensure that areas with concentrated flow and high runoff risk are prioritized and targeted with grassed waterways or CRP Prairie Strips (CP43).
- Targeted grassed waterways and prairie strips can serve multiple benefits by reducing runoff, sediment, and nutrient loss.
- The Stream Power Index (SPI) combined with recent air photos, is a powerful yet often underutilized tool for identifying high runoff risk locations.
- The MDA developed a mapping tool to help farmers and conservation staff access and use SPI data in the Root River Watershed.
    - https://mnag.maps.arcgis.com/apps/MapSeries/index.html?appid=7a6538ffc8994715ba668f0579fe53a2

[1] https://wrl.mnpals.net/islandora/object/WRLrepository%3A3852

Nitrate in groundwater

- A recent study[2] evaluated nitrate concentration trends across nearly 1,200 well, spring, and stream monitoring locations in the Driftless Area in southeast Minnesota. To better interpret trend results, groundwater residence time or age was also quantified.
- Results found that groundwater ranged from 10 to 40 years old in many shallow springs and wells, to thousands in deeper aquifers.
    - Younger water typically has high nitrate levels (typically >4 mg/) that are relatively stable or declining.
    - In contrast, many older water sources with lower nitrate levels are showing gradual increases, which will continue until current and historical land-use practices are in balance.
- These findings have important implications since they indicate nitrate in many streams, springs, and wells in deeper geological settings, especially in the eastern half of the watershed, will continue to increase despite efforts to reduce nitrate loading on the land surface.
- The report adds that although it may be difficult to measure the impact of clean water activities in certain aquifers in the near term, the cumulative effect of today's practices will help reduce nitrate entering groundwater over the long-term.
- Surrogate performance metrics, such as more detailed accounting of corn acres utilizing nitrogen Best Management Practices (BMPs) will be needed to demonstrate clean water activities.

Additional Opportunities for Collaboration and Coordination

The MDA is exploring the development of decision support tools that could enhance watershed planning, education, and implementation efforts in the Root River Watershed Planning Area. These tools may help improve understanding of groundwater systems, support performance-based conservation strategies, and assist farmers and landowners in making informed nutrient and cover crop management decisions.

For example, future tools could provide information about well positioning and aquifer sources, estimate cover crop growth and performance, or help farmers assess nitrogen application rates relative to recommended guidelines. These concepts are still in early stages and may evolve over time, but they reflect ongoing efforts to support local decision-making and water quality outcomes.

---

[2] Kuehner, K.J., Runkel, A.C. & Barry, J.D. Informing nitrate concentration trends: estimating groundwater residence time in a karstic, multiaquifer system using anthropogenic tracers (Minnesota, USA). *Hydrogeol J* **33**, 167–192 (2025). https://doi.org/10.1007/s10040-024-02871-2

These comments reflect a partial list of current priorities and areas of interest. Implementation of specific initiatives will depend on available resources, partnerships, and alignment with broader agency goals.

Thank you again for the opportunity to provide comments during this process, and we look forward to continued collaboration to advance shared water quality goals in the Root River Watershed Planning Area.

Sincerely,

Kevin Kuehner
Hydrologist
Minnesota Department of Agriculture

CC: Margaret Wagner, MDA Manager, Fertilizer Non-point Section
Reid Christianson, MDA Supervisor, Clean Water Technical Assistance Unit
Dave Copeland, BWSR Southern Board Conservationist
Jeff Weiss, DNR Hydrologist
Justin Watkins, MPCA Watershed Supervisor
Scott Hanson, MDH Principal Planner
Riley Buley, Fillmore SWCD District Manager

MINNESOTA POLLUTION CONTROL AGENCY

Rochester Office | 7381 Airport View Drive SW | Rochester, MN 55902 | 507-285-7343

800-657-3864 | Use your preferred relay service | info.pca@state.mn.us | Equal Opportunity Employer

August 4, 2025

Nikki Wheeler
c/o Fillmore SWCD
PO Box 45
Preston, MN 55965
nikki.wheeler@fillmoreswcd.org

RE: Public Notice of Intent to Amend and Renew the Root River Comprehensive Watershed Management Plan through the One Watershed, One Plan Program 60-Day Comment Period Open for Public Input on Water Management Issues

Dear Nikki Wheeler:

The Minnesota Pollution Control Agency (MPCA) appreciates the invitation to participate in the Root River Watershed Comprehensive Watershed Management Plan (Plan) 10-year amendment (developed through the One Watershed, One Plan [1W1P] program) process. As you begin, we hope you will consider the following comments and resources supporting our priority issues and concerns, and we look forward to discussing these further with you in the months ahead.

There has been significant effort in recent years to understand and address nitrate issues in southeast Minnesota. The MPCA has coordinated and funded many efforts in the Root River Watershed that will provide technical information, tools and strategies for use the Root River 1W1P 10-year update. A summary of priority products and concerns is included in the letter body. Others are summarized on MPCA's watershed web pages:

Root River: https://www.pca.state.mn.us/watershed-information/root-river

Nitrate-nitrogen reduction
Nitrate contamination of surface and groundwater is a long-standing issue in southeastern Minnesota. Most county water plans rank this as a top priority concern. "Moving the needle" on nitrates will be a challenge going forward; one that should be addressed in the Root 1W1P. Two recently completed resources – the revised NRS and the Southeast Minnesota Nitrate Strategies Collaborative Work Group Report of Recommendations – offer extensive technical resources and guidance in this ongoing campaign to reduce nitrate pollution of groundwater.

The Minnesota Nutrient Reduction Strategy (currently under public comment)
The Minnesota Nutrient Reduction Strategy (NRS) identifies nitrogen and phosphorus pollutant load reduction goals for each of the state's major HUC-8 watersheds. While local plans are not expected to achieve these goals alone, the plan should relate your measurable goals for nitrogen and phosphorus reductions back to the statewide NRS and the measurable goals for those nutrient reductions in the watershed. Guidance for use of NRS tools in watersheds plans is under development. Corrie Layfield with MPCA can provide additional support on resources available now. Tools contained in the updated NRS include:

- Watershed (HUC-8) Load Reduction Needs to Accomplish Minnesota's Nutrient Reduction Strategy Goals - Guidance for Watershed Strategies and Planning is available in NRS Appendix 2-4, is discussed in NRS Chapter 2, and is posted to MPCA's website

- Maps identifying priority watersheds for both in-state and downstream nutrient reduction needs are included in NRS Chapter 3 and the spreadsheets with those data are available in Appendix 3-1. MPCA and DNR are working to make these shape files available.
- The best management practice (BMP) effects estimator tool (BEET) planner is now active and can be used to estimate nutrient and sediment load reductions following BMP adoption. It was designed to support both WRAPS and 1W1P.

Southeast Minnesota Nitrate Strategies Collaborative Work Group Report of Recommendations (2024)

A 2023, U.S. Environmental Protection Agency (EPA) petition prompted Minnesota state agencies to develop a three-phase plan; this report is a product of Phase 3: Long-Term nitrate strategies. A 19-member local work group, representing 25+ organizations (including farmers, scientists, community reps), met from July 2024 through June 2025 to develop the following recommendations.

1. Increase Living Roots in the Ground

- Prioritize perennial and cover crops (e.g., hay, grazing systems) to reduce nitrate leaching.
- Replicate successful county-led programs (like Olmsted's) in other counties.
- Expand support for rotational grazing and working lands BMPs.

2. Support Alternative Crops and Land Uses

- Build infrastructure and markets for small grains, perennials, and pasture.
- Offer incentives and grants to local buyers/processors of alternative crops.
- Encourage local sourcing and pilot economic opportunity zones to stimulate regional investment.

3. Boost Nitrogen BMPs

- Expand access to conservation agronomists and create certification programs.
- Require 4R nutrient stewardship certification for agricultural retailers.
- Support increased reporting of nitrogen and manure applications to create accountability and transparency.
- Back Minnesota Department of Agriculture (MDA's) Nitrogen Fertilizer Management Plan, township testing, and enhanced mapping.

4. Education and Outreach

- Engage at all education levels—K–12 to university—with tailored curriculums and field days.
- Coordinate messages from MDA, MPCA, and Minnesota Department of Health (MDH) on nitrate issues and karst geology.
- Support community outreach via extension, public health, and conservation programming.
- Secure long-term funding (e.g., Clean Water Fund renewal, ENRTF).

Nitrate contamination in southeast Minnesota requires coordinated, multi-scale action. Local partners are central to making change possible through policy support, education, on-the-ground conservation,

and community engagement. The report emphasizes consensus-based, community-led approaches backed by science and practical knowledge.

Other resources to accompany the work done by the Southeast Minnesota Nitrate Strategies Collaborative Work Group:

- Lysimeter paper published by MDA: Examination of Soil Water Nitrate-N Concentrations from Common Land Covers and Cropping Systems in Southeast Minnesota Karst | WRL Digital Asset Management
- Karst resources including videos produced by Minnesota Department of Natural Resources (DNR)/MGS/MDA/MPCA/MDH/Olmsted - see partner list at bottom: Southeast Minnesota Groundwater Resources | Minnesota Department of Agriculture
- Lag time paper published by MGS/MDA/DNR: Informing nitrate concentration trends: estimating groundwater residence time in a karstic, multiaquifer system using anthropogenic tracers (Minnesota, USA) | Hydrogeology Journal

Root River WRAPS Update (2024)

The MPCA and its partners systematically evaluate waters in each major watershed in Minnesota every 10 years. This process begins with comprehensive lake and stream water quality and biological monitoring. Once completed, the MPCA and its partners assess the monitoring data to determine if the water bodies meet state water quality standards. The first round and second round of watershed monitoring and assessment is complete for the Root River watershed, providing a baseline and updated information for determining where waters need protection and restoration. The Watershed Restoration and Protection Strategy (WRAPS) document uses the monitoring and modeling data, along with information from TMDL studies in the watershed, and develops ideas for local strategies needed on the ground to protect and restore waters.

The 2024 update of the Root River WRAPS builds on the 2016 report and incorporates data from the second cycle of intensive watershed monitoring. The watershed, defined by vulnerable karst geology and dominated by agriculture, continues to face significant challenges related to nitrate contamination, sedimentation, and altered hydrology. This update includes new impairments, tools for prioritizing management efforts, and outlines specific restoration and protection strategies.

Total suspended solids (TSS), nitrate (NO3-N) and *E. coli* continue to be prominent pollutants and stressors in the Root River Watershed. They are priority concerns that cause impairment of aquatic life and recreational uses in the Root River Watershed. Also altered hydrology has been found to be a driver of water quality issues and requires special consideration for effective implementation.

A note on the MPCA WRAPS Products for Root River Watershed: During the first iteration of this planning process in 2015 the Root River WRAPS was still being drafted, and the findings and content may have not been represented in the original plan. Since that planning process in 2015 tthe MPCA and partners published the Root River WRAPS in 2016 as well as a WRAPS update in 2024.

Priority Recommendations - WRAPS 2024

Priority Concern	Recommendations	Target Areas/ Tools
Nitrate in Groundwater	Accelerate nitrate BMPs (cover crops, reduced fall fert.)- Implement 2026 GRAPS plan- expand spring/well monitoring	Karst regions- Sentinel Springs- Deep aquifers (Upper Lone Rock, Jordan)
Surface Water Impairments	Prioritize subwatersheds with TMDLs- Maintain and expand landowner outreach- Protect near-threshold waters	Mill Creek, Watson Creek- PTMApp/WRAPS priority HUC-12s
Altered Hydrology	Expand WASCOBs, buffers, grassed waterways- Use GIS tools for targeting	Mill Creek, Bridge Creek, Spring Valley
Fish Kill Risk	Develop runoff risk maps- Implement stormwater BMPs- Coordinate coldwater stream monitoring; support fish kill prevention outreach	Rush Creek- High trout density streams
Environmental Justice (EJ) and Public Health	Fund testing in EJ areas- Address nitrate and arsenic in private wells	Areas with EJ designation- Township testing data from MDA
Climate Adaptation	Integrate climate models into BMP planning- Promote Runoff Risk Advisory Tool usage	Region-wide- Partnership with MDA/DNR

Again, thank you for the opportunity to provide MPCA priority issues and concerns for the draft Plan. The MPCA looks forward to being an active participant in the 1W1P revision process as well as plan implementation going forward. If we may be of further assistance, please contact Aaron Gamm, MPCA Watershed Project Manager.

Sincerely,

Aaron Gamm

This document has been electronically signed.

Aaron Gamm
Project Manager
Watershed Division

cc: Scott Hanson, MDH
Jeff Weiss, DNR
Dave Copeland, BWSR
Reid Christianson, MDA
Riley Buley, Fillmore SWCD
Justin Watkins, MPCA

DEPARTMENT OF NATURAL RESOURCES

Division of Ecological and Water Resources (EWR)
2118 Campus Drive SE, Suite 100
Rochester, MN 55904

August 3, 2025

Dear Niki:

Subject: Root River Comprehensive Watershed Management Plan Amendment and Renewal

The Minnesota Department of Natural Resources (DNR) values the opportunity to participate in evaluating and renewing the Root River Comprehensive Watershed Management Plan. Our agency has been an active partner in developing the plan and has continued to be involved throughout its nine-year implementation. We offer the following suggestions to enhance the amended plan.

Better connecting actions with desired outcomes: Illustrating progress in addressing water quality impairments will become increasingly important as the *Clean Water Land and Legacy Amendment* expires in 2034. To maximize the likelihood of amendment renewal, watershed plans will need to show progress towards addressing issues identified in the plans. This places increased importance on linking implementation to impaired waters, which the Root River plan could improve upon. The five-year plan review showed BMP implementation in HUC-10 subwatersheds; however, it did not connect implementation data to impairments. This improvement could be accomplished using readily available information from BWSR's E-link and other sources. Additionally, the BMP Data Exploration Application developed by St. Mary's University could be improved by adding an impaired waters layer. Implementation in relation to impairments could then be visualized and evaluated.

Account for key challenges in evaluating effectiveness. Hundreds of BMPs have been implemented in the watershed as a result of the plan. However, it is challenging to assess the effectiveness of BMPs in addressing surface and groundwater impairments. This is particularly evident in the case of groundwater contamination, where a time lag of decades can occur between changes being implemented and measurable results. This is an inherent trait of the karst landscape. Changes in precipitation can also mask trends in water quality parameters, making it difficult to detect improvements. Specifically, the number of BMPs implemented in the South Fork Root River subwatershed has greatly exceeded plan goals. But the results may not be measurable yet due to the time lag associated with karst. At a minimum, the amended plan would show that impaired waters are being targeted by BMP implementation.

Include a focus on nonpoint sources of bacteria: The number of streams impaired by bacteria statewide remains a concern to the DNR. In the Root River watershed, the practices used to address the problem have not changed since the regional TMDL was implemented in 2002. Feedlot and septic system fixes remain the BMPs most often used. These BMPs address point sources of contamination; however, bacteria are also a non-point source problem, requiring additional BMPs such as rotational grazing and livestock exclusion from streams. The DNR advocates for increased emphasis on livestock exclusion and rotational grazing to address bacteria and nutrient loading and to reduce the number of aquatic recreation impairments.

Include a focus on "nearly" and "barely" impaired waters: The amended plan would be improved by focusing on waters that are at risk of impairment and those that are barely impaired. Barely impaired streams could potentially be delisted with adequate BMP implementation in these subwatersheds. The 2024 update to the Root River WRAPS report includes a table (Table 4) listing eight streams that are at risk of becoming impaired. These streams could be targeted for implementation to prevent them from being added to the impaired waters list.

Programs to increase water storage: With the statewide emphasis on increasing water storage, the DNR Flood Hazard Mitigation Grant Assistance Program could be used in conjunction with watershed funds to implement projects designed to reduce flood impacts on communities. This program recently received $9 million from the state legislature. The cities of Spring Valley and Mabel are exploring the use of these programs to address flooding. DNR and FEMA programs can be used within city limits, and watershed plan funds used to implement BMPs upstream of cities to reduce peak flows and flooding.

Targeting sediment loading from streams: The DNR has partnered with the St. Mary's University Geospatial Services program on the development and application of GIS-based tools for identifying areas of sediment loading from channels. These tools can be used to target BMPs for sediment reduction. The tools are currently being tested on several southeast Minnesota streams. Once the tools are finalized, the DNR can work with local partners to implement these tools in the Root River watershed.

Potential Stream Subcommittee: The idea of applying these GIS tools in southeastern Minnesota originated with the Stream Subcommittee of the Mississippi River Winona/LaCrescent One Watershed, One Plan partnership. We suggest the Root River partnership likewise consider establishing a stream subcommittee to help address stream-related issues in the plan.

The DNR Evaluation of Hydrologic Change illustrates how changes in precipitation have impacted watershed hydrology. For example, average annual precipitation in the Root River watershed has increased by five inches since 1991. This has contributed to increased spring flow and colder stream temperatures. However, the incidence of flooding has not increased. Findings of this report can be incorporated into the amended plan to lend support and justification to the plan's priorities. These results can be combined with the work of the Root River Field to Stream Partnership to help explain many aspects of runoff, nitrogen loss, and groundwater flow in the watershed.

The DNR looks forward to working together with watershed partners to continue improving water quality, habitat, and recreational opportunities in the Root River watershed. Thank you for the opportunity to participate in the amendment process.

Sincerely,

Jeffrey L Weiss

Jeff Weiss

Cc:	Grant Wilson, DNR	Barbara Weisman, DNR	Dan Lais, DNR	Megan Moore (DNR
	Justin Watkins, MPCA	David Copeland, BWSR	Scott Hanson, MDH	Reid Christianson, MDA

BOARD OF WATER AND SOIL RESOURCES

2118 Campus Drive SE, Suite 100
Rochester, MN 55904

August 1, 2025

Root River Watershed Partnership
C/O Nikki Wheeler, Fillmore SWCD
PO Box 45
Preston, Minnesota 55965

Dear Nikki,

Thank you for inviting us to provide priority issues and plan expectations for the amendment development of the Root River comprehensive watershed management plan under Minnesota Statutes section 103B.801.

The Board of Water and Soil Resources (BWSR) has the following overarching expectations for the plan:

Process Requirements

The amendment process must follow the requirements outlined in the *One Watershed, One Plan Operating Procedures*, version 3.0, adopted by the BWSR Board on August 24, 2023, available on the BWSR website: https://bwsr.state.mn.us/one-watershed-one-plan-policies. More specifically, the amendment process must:

- Invite participation from Tribes and Municipalities, including an opportunity to join the planning partnership if they desire to do so.
- Incorporate the findings of a mid-point plan assessment (see below)
- Involve a broad range of potentially interested and affected parties to ensure an integrated approach to watershed management.

Plan Content Requirements

The plan must meet the requirements outlined in *One Watershed, One Plan – Plan Content Requirements*, version 3.0, adopted by the BWSR Board on August 24, 2023, available on the BWSR website: https://bwsr.state.mn.us/one-watershed-one-plan-policies.

Since your plan was initially developed, the following updates to the *One Watershed, One Plan – Plan Content Requirements* will need to be addressed in your plan amendment:

- The list of "other topics" has changed. (2023)
- The reference to "extreme weather" has been removed and replaced with a consideration for the MN Climate Adaptation Framework. (2023)

- The Land and Water Resources Narrative now requires acknowledging Minnesota Tribal Nations within the planning boundary. (2023)
- The targeting requirement was clarified. (2023)
- "Drinking water sources" was added to the list of issues that must be addressed. (2019)
- The Land and Water Resources *Inventory* was changes to *Narrative* and is included in the plan (not as an appendix); the plan must include a discussion of watershed context. (2019)
- The requirements for the Targeted Implementation Schedule changed. (2019)
- Several changes in the program and administration sections to clarify intent (2019).

BWSR encourages you to use the One Watershed, One Plan Guidebook as a helpful reference as you develop your plan.

Incorporating your mid-point plan assessment and PRAP report results

- More emphasis on targeting
- Consolidating priority issues and update measurable goals
- Incorporating what you learned from your first 10 years of working together
- Refine priority areas
- Re-evaluating priorities based on new data
- Assess staff capacity necessary to carry out the implementation actions called out in the Plan

BWSR has the following specific priority issues:

- **Groundwater Protection** is a critical concern in the Root River watershed, particularly due to the karst landscape and the vulnerability of shallow aquifers. BWSR has identified the importance of addressing groundwater contamination—especially from nitrate—and encourages planners to utilize tools such as the GRAPS reports, the WHAF tool, and recent scientific studies like the nitrate residence time work led by Kevin Kuehner (MDA). Plan priorities should focus on areas with high nitrate sensitivity, support wellhead and drinking water source protection, and incorporate relevant recommendations from the SE Minnesota Nitrate Strategies Collaborative Work Group.
- **Surface Water Quality** is also a major emphasis, particularly in response to statewide nutrient reduction goals outlined in the Minnesota Nutrient Reduction Strategy (NRS). BWSR expects measurable goals and targeted actions that contribute to phosphorus and nitrogen reductions. In the Root River watershed, implementation should focus on pollutant source reduction through practices such as streambank stabilization, cover crops, and drainage management consistent with Minnesota Statutes §103E. Focusing on multipurpose projects that deliver water quality, hydrologic, and habitat benefits should also be prioritized.
- **Erosion and Sediment Reduction** is fundamental to both local water resource protection and statewide water quality improvement. BWSR has identified sediment as a key stressor in the WRAPS process, and encourages targeting of erosion hotspots, especially in agricultural and riparian landscapes. The Root River plan should support structural and vegetative practices that reduce erosion, improve soil stability, and minimize sediment transport to streams and rivers.

- **Habitat Protection and Restoration** is a shared priority between BWSR and the partnership. The agency has developed habitat-related guidance through the Reinvest in Minnesota (RIM) easement program and encourages clearly defined goals tied to habitat corridors, wetland complexes, and biodiversity. The plan should support the conservation and restoration of riparian buffers, prairies, pollinator habitat, and wildlife corridors, especially where these actions also contribute to water quality and climate resilience.
- **Landscape Resiliency and Climate Adaptation** is a cross-cutting priority area emphasized by BWSR, particularly in light of more frequent extreme precipitation events and landscape-level stressors. The agency has developed resources such as the BWSR Climate Resiliency Toolbox and the Climate Change Trends and Action Plan to guide this work. It is recommended to incorporate NOAA Atlas 14 data, assess flood vulnerability, and promote strategies such as water storage, soil health improvement, native vegetation restoration, and invasive species management to build resilience to future climate conditions.

While areas of focus are on the five priority areas listed above, other topics are considered secondary focus areas that either support or provide valuable information including WRAPS and GRAPS findings, wetland restoration, soil health, invasive species, and pollinator protection.

We commend the partners for their participation in the planning effort. 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 me at 507-327-2217, or david.copeland@state.mn.us.

Sincerely,

David Copeland

David Copeland
Board Conservationist

cc: Rachel Olm, Houston Engineering, Inc. (via email)

Jeffrey Weiss, DNR (via email)

Kevin Kuehner, MDA (via email)

Scott Hanson, MDH (via email)

Aaron Gamm, PCA (via email)

Julie Westerlund, BWSR 1W1P Program Coordinator (via email)

Ann Gunness, BWSR Board Conservationist (via email)

Jeremy Maul, BWSR Clean Water Specialist (via email)

Ed Lenz, BWSR Regional Manager (via email)

Riley Buley, Fillmore SWCD Manager (via email)

Appendix D. Geospatial Data

Appendix D. Subwatershed Geospatial Layers

Table 1. Geospatial Data associated with Measurable Goal Focus Maps

Goal	Opportunities Addressed	Geospatial Data
Nutrient Loading	• Groundwater Contamination • Groundwater / Surface Water Interaction • Nutrient Management • Pesticide Management	• PTMApp total nitrogen loading (edge-of-field) • PTMApp total phosphorus loading (edge-of-field) • Initial Nitrate Township Testing Results (MDA, 2022) • Drinking Water Supply Management Areas (MDH, 2025) • Fall Fertilizer Restriction (MDA, 2025)
Conduits to Groundwater	• Groundwater Contamination • Groundwater / Surface Water Interaction	• Pollution Sensitivity of Near-Surface Materials (DNR, 2018) • Karst Features Inventory (DNR, 2025)
Bacteria Loading	• Groundwater Contamination • Nutrient Management • Bacteria Management	• Impaired Waterbodies, Minnesota, 2024 (MPCA, 2024) for bacteria impairments • Feedlots in Minnesota (MPCA, 2025) with animal units over 50
Stream Management	• Nutrient Management • Altered Hydrology and Water Storage • Channel Erosion	• N/A: As needs arise and based on data availability
Water Storage	• Altered Hydrology and Water Storage • Soil Health • Habitat Management, Protection, and Restoration	• N/A: Local professional judgement and intent to store water in headwater reaches of the watershed
Soil Health and Upland Erosion	• Soil Health • Erosion and Sedimentation • Groundwater Contamination • Nutrient Management • Altered Hydrology and Water Storage • Pesticide Management	• PTMApp sediment loading (edge-of-field)

Goal	Opportunities Addressed	Geospatial Data
Habitat Management, Protection, and Restoration	• Habitat Management, Protection, and Restoration	• SNA Conservation Opportunity Areas and Marxan Conservation Prioritization Areas (DNR, 2016) • Resilient and Connected Network (TNC, 2025)

Appendix E. Priority Streams

Appendix E. Priority Streams

Table 1. Priority Streams, see Figure 4-1

Name	AUID	Reach Description	Priority	Planning Region
Crystal Creek	07040008-601	T102 R11W S35, south line to Willow Cr	Medium	Karst
Pine Creek	07040008-526	T104 R9W S4, north line to Rush Cr	Medium	Karst
Root River	07040008-520	Money Cr to S Fk Root R	High	Bluffland
Root River, Middle Branch	07040008-528	Trout Run Cr to S Br Root R	High	Karst
Rush Creek	07040008-523	Pine Cr to Root R	High	Karst
Thompson Creek	07040008-507	T103 R5W S12, south line to Root R	Medium	Bluffland
Trout Run Creek	07040008-G88	Unnamed cr to M Br Root R	High	Karst
Unnamed creek	07040008-685	T106 R9W S34, west line to Rush Cr	High	Karst
Wisel Creek	07040008-513	Headwaters to T102 R9W S36, east line	Medium	Karst

Appendix F. Impairments and TMDLs

Appendix F. Impaired Waters and TMDLs

The RRW TMDL can be found here:
https://www.pca.state.mn.us/sites/default/files/wq-iw9-28e.pdf

Note that some TMDLs are not in this document, as the planning area encompasses parts of the Upper Iowa River, Mississippi River La Crescent, and Mississippi River Reno HUC-8s. These waters are indicated with an asterisk.

Table 1. Impaired Waters and TMDL Summary, 2024 Impaired Waters List
AQR = aquatic recreation, LRV = limited resource value, AQL = aquatic life, DW = drinking water, AQC = aquatic consumption

Name	AUID	Reach Description	Affected Use	Impairment(s)	Approved TMDL	Needs TMDL
Bear Creek	07040008-542	Kedron Cr to M Br Root R	AQR	*E. coli*	*E. coli*	None
Bear Creek*	07060002-503	Unnamed cr to MN/IA border	LRV	*E. coli*	*E. coli*	None
Bear Creek (Lost Creek)	07040008-A18	Unnamed cr to T104 R12W S10, east line	AQL	FishesBio; InvertBio; TSS	None	FishesBio; InvertBio; TSS
Bear Creek (South Fork Bear Creek)	07040008-544	Headwaters to Kedron Cr	AQL	InvertBio	None	InvertBio
Bear Creek, North Fork	07040008-F45	Unnamed cr to Unnamed cr	AQL	InvertBio	None	InvertBio
Beaver Creek*	07060002-546	Mower-Fillmore Rd to Upper Iowa R	AQL,AQR	*E. coli*; InvertBio	*E. coli*	InvertBio

Name	AUID	Reach Description	Affected Use	Impairment(s)	Approved TMDL	Needs TMDL
Bee Creek (Waterloo Creek) *	07060002-515	T101 R6W S29, north line to MN/IA border	AQR	*E. coli*	*E. coli*	None
Bridge Creek	07040008-G92	Unnamed cr to Unnamed cr	AQL	InvertBio	None	InvertBio
Camp Creek	07040008-559	Headwaters to S Br Root R	AQL	FishesBio; InvertBio	None	FishesBio; InvertBio
Canfield Creek	07040008-557	T102 R12W S25, west line to S Br Root R	DW	Nitrate	Nitrate	None
Clear Creek*	07060001-524	T102 R4W S34, south line to Bluff Slough	AQL	InvertBio	None	InvertBio
Corey Creek	07040008-631	T105 R6W S18, east line to Money Cr	AQL	FishesBio	None	None
County Ditch 8	07040008-F44	Unnamed cr to Deer Cr	AQL	InvertBio	None	InvertBio
Crooked Creek*	07060001-519	T102 R4W S27, west line to Bluff Slough	AQL,AQR	*E. coli*; InvertBio	*E. coli*	None
Crooked Creek, South Fork*	07060001-574	T102 R5W S26, west line to Crooked Cr	AQL	FishesBio; InvertBio	None	None

Name	AUID	Reach Description	Affected Use	Impairment(s)	Approved TMDL	Needs TMDL
Crystal Creek	07040008-601	T102 R11W S35, south line to Willow Cr	DW	Nitrate	Nitrate	None
Deer Creek	07040008-546	Headwaters to M Br Root R	AQR	*E. coli*	*E. coli*	None
Deer Creek*	07060002-520	Unnamed cr to MN/IA border	AQL	FishesBio	None	FishesBio
Etna Creek	07040008-562	Unnamed cr to S Br Root R	DW	Nitrate	Nitrate	None
Etna Creek	07040008-597	T102 R13W S36, west line to Unnamed cr	AQL	InvertBio	None	InvertBio
Forestville Creek	07040008-563	Unnamed cr to S Br Root R	AQL,AQR, DW	FC; Nitrate; T	FC; Nitrate	T
Jordan Creek	07040008-713	Unnamed cr to Unnamed cr	AQL	InvertBio	None	InvertBio
Judicial Ditch 1	07040008-561	Unnamed cr to S Br Root R	AQL	InvertBio	None	InvertBio
Little Iowa River*	07060002-548	770th Ave to Upper Iowa R	AQR	*E. coli*	*E. coli*	None
Mill Creek	07040008-536	T105 R12W S14, north line to N Br Root R	AQL,AQR, DW	*E. coli*; FishesBio; InvertBio; Nitrate	*E. coli*	FishesBio; InvertBio; Nitrate

Name	AUID	Reach Description	Affected Use	Impairment(s)	Approved TMDL	Needs TMDL
Money Creek	07040008-521	T105 R7W S21, north line to Root R	AQL,AQR	FC; T	FC	T
Money Creek	07040008-F48	Unnamed cr to M Br Root R	AQL	InvertBio	None	InvertBio
Pine Creek	07040008-576	Headwaters to T105 R9W S32, south line	AQL	InvertBio	None	InvertBio
Pine Creek*	07060002-512	T101 R10W S24, north line to MN/IA border	LRV	*E. coli*	*E. coli*	None
Rice Creek	07040008-581	T104 R11W S23, west line to M Br Root R	AQL	FishesBio; InvertBio	None	FishesBio; InvertBio
Riceford Creek	07040008-518	T101 R7W S19, south line to T102 R7W S30, north line	AQL	InvertBio	None	InvertBio
Riceford Creek	07040008-H01	-91.814, 43.512 to T101 R8W S17, east line	AQL	InvertBio	None	InvertBio
Robinson Creek	07040008-503	Headwaters to N Br Root R	AQR	FC	FC	None
Root River	07040008-501	Thompson Cr to Mississippi R	AQC,AQL, AQR	FC; Hg-F; InvertBio; T	FC; Hg-F; InvertBio; T	None

Name	AUID	Reach Description	Affected Use	Impairment(s)	Approved TMDL	Needs TMDL
Root River	07040008-502	S Fk Root R to Thompson Cr	AQC,AQL	Hg-F; InvertBio; T	Hg-F; InvertBio; T	None
Root River	07040008-520	Money Cr to S Fk Root R	AQC,AQL	Hg-F; InvertBio; TSS	Hg-F; InvertBio; TSS	None
Root River	07040008-522	Rush Cr to Money Cr	AQC,AQL	Hg-F; InvertBio	Hg-F; InvertBio	None
Root River	07040008-527	M Br Root R to Rush Cr	AQC,AQL	Hg-F; InvertBio; T	Hg-F; InvertBio; T	None
Root River, Middle Branch	07040008-506	Upper Bear Cr to N Br Root R	AQC,AQR	*E. coli*; Hg-F	*E. coli*; Hg-F	None
Root River, Middle Branch	07040008-528	Trout Run Cr to S Br Root R	AQC,AQL	Hg-F; TSS	Hg-F; TSS	None
Root River, Middle Branch	07040008-530	Rice Cr to Trout Run Cr	AQC	Hg-F	Hg-F	None
Root River, Middle Branch	07040008-532	Lynch Cr to Rice Cr	AQC	Hg-F	Hg-F	None
Root River, Middle Branch	07040008-534	N Br Root R to Lynch Cr	AQC,AQL, AQR	*E. coli*; Hg-F; InvertBio	*E. coli*; Hg-F	InvertBio
Root River, Middle Branch	07040008-B95	Bear Cr to T103 R12W S9, north line	AQC	Hg-F	Hg-F	None
Root River, Middle Branch	07040008-B96	T103 R12W S4, south line to Upper Bear Cr	AQC	Hg-F	Hg-F	None

Name	AUID	Reach Description	Affected Use	Impairment(s)	Approved TMDL	Needs TMDL
Root River, Middle Branch (Deer Creek)	07040008-545	Spring Valley Cr to Bear Cr	AQC	Hg-F	Hg-F	None
Root River, North Branch	07040008-535	Mill Cr to M Br Root R	AQR	*E. coli*	*E. coli*	None
Root River, North Branch	07040008-716	Unnamed cr to Mill Cr	AQL	InvertBio; T	InvertBio; T	None
Root River, North Branch	07040008-717	Headwaters to Carey Cr	AQL	InvertBio; T	InvertBio; T	None
Root River, South Branch	07040008-550	Duschee Cr to M Br Root R	AQL,AQR	*E. coli*; TSS	*E. coli*; TSS	None
Root River, South Branch	07040008-554	Willow Cr to Camp Cr	AQL	T	T	None
Root River, South Branch	07040008-555	Canfield Cr to Willow Cr	AQL,AQR, DW	FC; Nitrate; T	FC; Nitrate; T	None
Root River, South Branch	07040008-556	T102 R12W S21, north line to Canfield Cr	AQL	T	T	None
Root River, South Branch	07040008-H18	Headwaters to T102 R14W S14, north line	AQL,AQR	FC; InvertBio	FC	InvertBio
Root River, South Branch	07040008-H19	T102 R14W S11, south line to T102 R12W S16, south line	AQR	FC	FC	None

Name	AUID	Reach Description	Affected Use	Impairment(s)	Approved TMDL	Needs TMDL
Root River, South Fork	07040008-508	Beaver Cr to Root R	AQC,AQL, AQR	*E. coli*; Hg-F; InvertBio; T	*E. coli*; Hg-F; InvertBio; T	None
Root River, South Fork	07040008-509	Riceford Cr to Beaver Cr	AQC,AQL	Hg-F; InvertBio	Hg-F; InvertBio	None
Root River, South Fork	07040008-510	Wisel Cr to T102 R8W S2, east line	AQC,AQL	Hg-F; InvertBio	Hg-F	InvertBio
Root River, South Fork	07040008-511	T102 R9W S26, west line to Wisel Cr	AQC,AQL, AQR	*E. coli*; Hg-F; T	Hg-F	*E. coli*; T
Root River, South Fork	07040008-572	T102 R8W S1, west line to Riceford Cr	AQC	Hg-F	Hg-F	None
Root River, South Fork	07040008-573	Headwaters to T102 R9W S27, east line	AQC,AQL	Hg-F; InvertBio; T	Hg-F; InvertBio; T	None
Rush Creek	07040008-523	Pine Cr to Root R	AQR	*E. coli*	*E. coli*	None
Rush Creek	07040008-524	Unnamed cr to Pine Cr	AQL	InvertBio	None	InvertBio
Silver Creek	07040008-640	T105 R6W S35, north line to T104 R6W S14, south line	AQL	InvertBio	None	InvertBio
Sorenson Creek	07040008-F52	Unnamed cr to Unnamed cr	AQL	InvertBio	None	InvertBio
Spring Valley Creek	07040008-548	T103 R13W S29, west line to Deer Cr	AQL,AQR, DW	*E. coli*; FishesBio;	*E. coli*	FishesBio; InvertBio; Nitrate; TSS

Name	AUID	Reach Description	Affected Use	Impairment(s)	Approved TMDL	Needs TMDL
				InvertBio; Nitrate; TSS		
Thompson Creek	07040008-507	T103 R5W S12, south line to Root R	AQR	*E. coli*	*E. coli*	None
Trout Run Creek	07040008-G87	T105 R10W S18, north line to Unnamed cr	AQL	InvertBio	None	InvertBio
Trout Run Creek	07040008-G88	Unnamed cr to M Br Root R	AQR	*E. coli*	*E. coli*	None
Unnamed creek	07040008-659	T104 R8W S32, east line to Unnamed cr	AQL	InvertBio	None	InvertBio
Unnamed creek	07040008-706	Unnamed cr to N Br Root R	AQL	InvertBio	None	InvertBio
Unnamed creek	07040008-F46	Unnamed cr to Unnamed cr	AQL	InvertBio	None	InvertBio
Unnamed creek*	07060002-535	Unnamed cr to MN/IA border	AQL	InvertBio	None	InvertBio
Unnamed creek*	07060002-537	Unnamed cr to Beaver Cr	AQL	InvertBio	None	InvertBio
Unnamed creek*	07060002-540	Unnamed cr to Little Iowa R	AQL	InvertBio	None	InvertBio
Unnamed creek*	07060002-544	Unnamed cr to Upper Iowa R	AQL	InvertBio	None	InvertBio

Name	AUID	Reach Description	Affected Use	Impairment(s)	Approved TMDL	Needs TMDL
Unnamed creek (Bloody Run Creek)	07040008-F08	T102 R11W S24, west line to Willow Cr	AQL,DW	FishesBio; InvertBio; Nitrate	Nitrate	FishesBio; InvertBio
Unnamed creek (Mill Creek Tributary)	07040008-A47	T105 R12W S14, west line to Unnamed cr	DW	Nitrate	None	Nitrate
Unnamed creek (Spring Valley Creek Tributary)	07040008-D53	T103 R13W S32, south line to Spring Valley Cr	DW	Nitrate	None	Nitrate
Unnamed creek (Wadden Valley Creek)	07040008-605	Unnamed cr to M Br Root R	AQL	FishesBio; InvertBio	None	FishesBio; InvertBio
Unnamed creek (Watson Creek Tributary)	07040008-E61	T103 R11W S30, south line to Watson Cr	DW	Nitrate	Nitrate	None
Unnamed creek (Watson Creek Tributary)	07040008-E62	T103 R11W S30, north line to Watson Cr	DW	Nitrate	Nitrate	None
Unnamed creek (Watson Creek Tributary)	07040008-E63	T103 R11W S30, north line to Watson Cr	DW	Nitrate	Nitrate	None
Unnamed creek (Watson Creek Tributary)	07040008-E75	Unnamed cr to Unnamed cr	DW	Nitrate	Nitrate	None

Name	AUID	Reach Description	Affected Use	Impairment(s)	Approved TMDL	Needs TMDL
Upper Bear Creek	07040008-540	T104 R11W S18, west line to M Br Root R	AQL	FishesBio; InvertBio	None	FishesBio; InvertBio
Upper Iowa River*	07060002-509	Little Iowa R to Beaver Cr (MN)	AQR	*E. coli*	*E. coli*	None
Upper Iowa River*	07060002-550	-92.5901, 43.5985 to Little Iowa R	AQL,AQR	*E. coli*; InvertBio	*E. coli*	InvertBio
Watson Creek	07040008-552	T103 R11W S30, west line to S Br Root R	AQL,AQR, DW	*E. coli*; FishesBio; InvertBio; Nitrate; TSS	*E. coli*; FishesBio; InvertBio; Nitrate; TSS	None
Willow Creek	07040008-558	T101 R11W S12, west line to S Br Root R	AQL,AQR, DW	*E. coli*; InvertBio; Nitrate	*E. coli*; InvertBio; Nitrate	None
Winnebago Creek*	07060001-693	T101 R4W S27, west line to south line	AQL,AQR	*E. coli*; InvertBio; TSS	*E. coli*; TSS	InvertBio

*Stream is outside the RRW HUC-8

Appendix G. Carbon Benefits

Appendix G. Carbon Benefits

An additional benefit of implementation efforts in the RRW CWMP is carbon sequestration, the process of capturing and storing carbon from the atmosphere. Agricultural best management practices (BMPs) do not only improve water quality, but also capture carbon from the atmosphere or reduce emissions from conventional agricultural management practices. Estimating carbon sequestration and emissions reductions provide another quantifiable benefit for this plan.

Carbon sequestration/reductions were estimated for the following actions:

- Soil Health and Non-structural Practices
- Rotational Grazing and Pasture Management

These calculations were completed using the USDA's COMET-Planner tool, which provides estimated carbon sequestration for NRCS practices on farm or pastureland at the county level. Outputs are reported as metric tons of CO_2e, or the carbon dioxide equivalent of all greenhouse gases sequestered (or reduced) by implementing each practice. Values from COMET-Planner are estimates and actual benefits will vary based on field and climatic conditions. While during implementation a variety of conservation practices may be considered for soil health practices, a 50 / 50 split between cover crops and reduced tillage was assumed to estimate carbon benefits.

Table 1. Estimated carbon sequestration / reduction from agricultural CWMP actions

Action	Output	Metric tons (CO_2e/year)	Equivalent to emissions from*
Soil Health and Non-structural Practices**	22,300 ac	10,175	2,370 cars driven for one year
Rotational Grazing and Pasture Management***	400 ac	57	13 cars driven for one year

*Calculated using the EPA Greenhouse Gas Equivalencies Calculator

**The COMET-Planner practices used to estimate carbon sequestration from this action were 'legume seasonal cover crops with a 10% N fertilizer reduction on non-irrigated, intensive till land' and 'intensive till to reduced till on non-irrigated cropland'

**The COMET-Planner practice used to estimate carbon sequestration from this action was 'grazing management to improve rangeland on non-irrigated pasture condition'

Appendix H. PTMApp Implementation Scenario

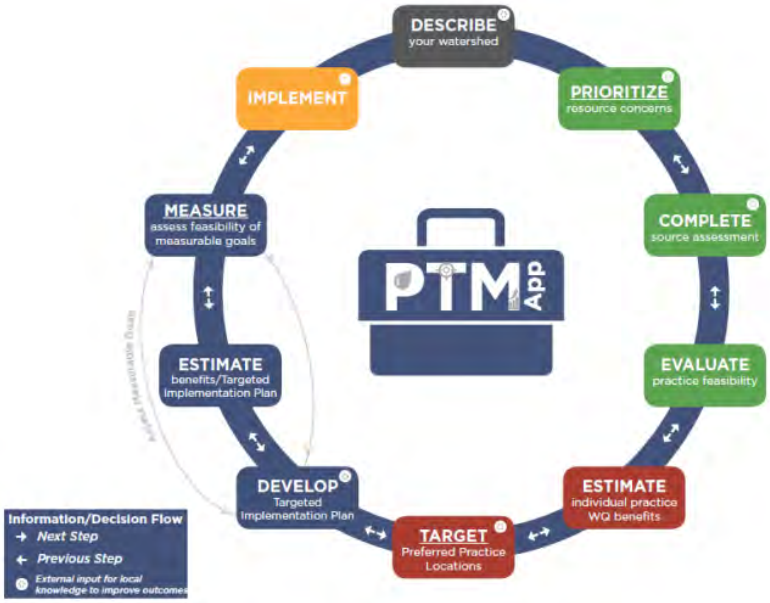
Appendix H. PTMApp Implementation Scenario

Actions in Section 5. Implementation of this plan are based on a PTMApp Implementation Scenario developed by the Planning Work Group during the RRW CMWP planning process. For the purpose of planning, this implementation scenario is summarized more broadly in Section 5 to enable flexibility during implementation. This Appendix details the decisions made and shows the best management practices (BMP) targeting maps that resulted from the implementation scenario.

Introduction

The Prioritize, Target, and Measure Application (PTMApp) is a program that can be used by practitioners as a technical bridge from general descriptions of implementation strategies in a local water plan to the identification of implementable on-the-ground BMPs and conservation practices.

PTMApp can be used by Soil and Water Conservation Districts (SWCD), watershed districts, county and local watershed planners, and agency staff and decision-makers to prioritize resources and the issues impacting them, target specific fields to place practices, and measure water quality improvement by estimating the expected nutrient and sediment load reductions delivered to priority resources.



The tool enables practitioners to build prioritized and targeted implementation scenarios, measure the cost-effectiveness of the scenario for improving water quality, and report the results to pursue funds for project implementation.

Table 1: PTMApp decisions discussed during the Planning Work Group meeting.

Decision	Implications	Initial Decision
Criteria used to further screen practices	Criteria are used to further screen practices considered technically feasible for implementation but are not practicable to implement.	See Table 2.
Types of practices to include	Determines types of NRCS practices that are included in the implementation scenario.	See Table 3.
Loads	Quality control processes compares real-world, measured loads of sediment, TP, and TN to PTMApp modeled values. PTMApp parameters can be changed to ensure modeled values align with reality.	Landscape runoff yields from cultivated agricultural lands were adjusted from default values to 1.80 lbs/ac/yr for TP and 44.0 lbs/ac/yr for TN. This aligns with values from the Agriculture Field Runoff Report (Kuehner, 2022) provided through the Root River Field to Stream Partnership
Costs	Costs can represent the "cost" share or total cost. For example, EQIP is the federal government cost share.	Double EQIP Costs (see Table 4) to capture the full cost of the practice + 20% for technical assistance. Include a $4,000 per practice cost for grade stabilization (based off local knowledge and expertise from other watersheds). Soil Health: $150/acre, based off local feedback on a realistic 3-year cost-share.

Spatial Scale	The decision reflects the spatial scale for application of the load reduction goals. For example, will the ability of the proposed BMPs to achieve the sediment, TP, and TN load reduction goal be assessed at the field edge or some other spatial scale. This decision also affects which BMPs are selected as best. The "best" practice locations tend to be near the location where the load reduction is desired. Using the edge of field will tend to spread practices more evenly across the landscape. Use of a planning region outlet will tend to concentrate the practices upstream of that location.	The "best" practices selected based on the highest TN load reduction at the edge of the field (spreads out practices within the planning region).
Parameters and method used to rank the "best" conservation practices.	The "best" conservation practices will differ depending on which parameters are used, and whether they are weighted.	Best conservation practices will be evaluated by nitrogen cost efficiency.
Process for identifying the number of practices which will be included in the Implementation Scenario.	Decision ultimately affects the "cost(s)" of the Implementation Scenario and ability to achieve the load reduction goals.	Estimated funding available in each planning region.

Using the screening criteria, practices with low potential for water quality benefits are removed from the analysis. Reduction efficiency criteria were set to immediately rule out structural or management practices that would be minimally effective. Two criteria were evaluated- BMPs must reduce loads by at least 10% and treat 50% of a 2-year rain event, and BMPs must reduce a significant amount of load (at least 0.25 tons of sediment/year and 0.25-0.5 lbs nutrients/year). Efficiencies for BMPs with N/A in Table 2 are uniform for all BMPs of a given type and are not screened by that criterion as a result.

Table 2: Recommended PTMApp Screening Criteria for practices involving the removal of BMPs with little runodd volume delivery or constituent removal efficiency.

Conservation Practice Name	PTMApp NRCS Practice Code	Delivery and Reduction Efficiency Criteria (Value must be greater than) Percent of 2-yr, 24-hr event treated	Delivery and Reduction Efficiency Criteria (Value must be greater than) Sediment Reduction (%)	Delivery and Reduction Efficiency Criteria (Value must be greater than) TP Reduction (%)	Delivery and Reduction Efficiency Criteria (Value must be greater than) TN Reduction (%)
Farm Pond/Wetland	378	50	10	10	10
Drainage Water Management	554	50	10	10	10
Water and Sediment Control Basin	638	50	10	10	10
Regional Wetland/Pond	656_1	50	10	10	10
Large Wetland Restoration	656_2	50	10	10	10
Riparian Buffer	390	50	10	10	10
Filtration Strip	393	50	10	10	10
Saturated Buffer	604	50	10	10	10
Denitrifying Bioreactor	605	50	10	10	10
Infiltration Trench/Small Infiltration Basin	350	50	10	10	10
Multi-stage Ditch (open channel)	582	50	10	10	10
Critical Area Planting	342	N/A	N/A	N/A	N/A

Grade Stabilization	410	N/A	N/A	N/A	N/A
Grassed Waterway	412	N/A	N/A	N/A	N/A
Lake and Wetland Shoreline Restoration	580	N/A	N/A	N/A	N/A
Perennial Crops	327	N/A	N/A	N/A	N/A
No till	329	N/A	N/A	N/A	N/A
Cover Crops	340	N/A	N/A	N/A	N/A
Reduced till	345	N/A	N/A	N/A	N/A
Forage / Biomass Planting	512	N/A	N/A	N/A	N/A
Prescribed Grazing	528	N/A	N/A	N/A	N/A
Nutrient Management Plan of Groundwater	590_1	N/A	N/A	N/A	N/A
Nutrient Management Plan for Phosphorus	590_2	N/A	N/A	N/A	N/A
Nutrient Management Plan for Nitrogen	590_3	N/A	N/A	N/A	N/A

Table 3: Recommended PTMApp Screening Criteria for practices involving the removal of BMPs with low removal magnitudes at the edge of field.

Conservation Practice Name	PTMApp NRCS Practice Code	Reduction Magnitude Selection Criteria (Value must be greater than) Sediment Reduction @ Catchment Outlet (tons/year)	Reduction Magnitude Selection Criteria (Value must be greater than) TP Reduction @ Catchment Outlet (lbs/year)	Reduction Magnitude Selection Criteria (Value must be greater than) Reduction @ Catchment Outlet (lbs/year)
Farm Pond/Wetland	378	0.25	0.25	0.5
Drainage Water Management	554	0.25	0.25	0.5
Water and Sediment Control Basin	638	0.25	0.25	0.5

Regional Wetland/Pond	656_1	0.25	0.25	0.5
Large Wetland Restoration	656_2	0.25	0.25	0.5
Riparian Buffer	390	0.25	0.25	0.5
Filtration Strip	393	0.25	0.25	0.5
Saturated Buffer	604	0.25	0.25	0.5
Denitrifying Bioreactor	605	0.25	0.25	0.5
Infiltration Trench/Small Infiltration Basin	350	0.25	0.25	0.5
Multi-stage Ditch (open channel)	582	0.25	0.25	0.5
Critical Area Planting	342	0.25	0.25	0.5
Grade Stabilization	410	0.25	0.25	0.5
Grassed Waterway	412	0.25	0.25	0.5
Lake and Wetland Shoreline Restoration	580	0.25	0.25	0.5
Perennial Crops	327	0.25	0.25	1
No till	329	0.25	0.25	1
Cover Crops	340	0.25	0.25	1
Reduced till	345	0.25	0.25	1
Forage / Biomass Planting	512	0.25	0.25	1
Prescribed Grazing	528	0.25	0.25	1
Nutrient Management Plan of Groundwater	590_1	0.25	0.25	1
Nutrient Management Plan for Phosphorus	590_2	0.25	0.25	
Nutrient Management Plan for Nitrogen	590_3	0.25		1

After practices were screened, the remainder were ranked by their sediment cost efficiency at the catchment outlet from highest to lowest. Each NRCS conservation practice was allotted a certain amount of funding based on scenario estimates by the Planning Work Group, as shown in Table 3. Targeted practices were selected from the highest position on the ranked list until each practice funding limit was reached.

Table 4: NRCS Conservation Practices and associated priority for funding (high, medium, or low)

Conservation Practice Name	NRCS Practice Code	Priority
Farm Pond/Wetland	378	H
Drainage Water Management	554	M
Water and Sediment Control Basin	638	H
Large Wetland Restoration	656_1†	M
Regional Wetland/Pond	656_2†	M
Riparian Buffer	390	M
Filtration Strip	393	M
Saturated Buffer	604	M
Denitrifying Bioreactor	605	L
Infiltration Trench/Small Infiltration Basin	350	L
Multi-stage Ditch (open channel)	582	L

Critical Area Planting	342	M
Grade Stabilization	410	H
Grassed Waterway	412	H
Lake and Wetland Shoreline Restoration	580	None (outside PTMApp)
Forage / Biomass Planting	512	None (part of soil health)

Table 5: Unit costs based on 2020 EQIP payment rates

PTMApp Conservation Practice Name	NRCS Practice Name	PTMApp Treatment Group Code	Treatment Group	NRCS Codes	Previous Values		Updated Values				
					Cost per unit	Units	Cost per unit	Units	Typical Units Installed	Typical Cost	Suggested PTMApp Minimum Cost
bmp_pond	Farm Pond/Wetland	1	Storage	378	$ 2.70	cubic yard	$ 812.05	acre	1	$ 812.05	$ 203.01
bmp_drain	Drainage Water Management	1	Storage	554	$ 2.70	cubic yard	$ 5.54	acre	50	$ 277.00	$ 277.00
bmp_wascob	Water and Sediment Control Basin	1	Storage	638	$ 2.70	cubic yard	$ 4,500.00	each	1	$ 4,500.00	$ 4,500.00
bmp_reg_wet	Regional Wetland/Pond	1	Storage	656_1	$ 2.70	cubic yard	$ 20,439.57	acre	0.25	$ 5,109.89	$ 1,277.47
bmp_nut_wet	Large Wetland Restoration	1	Storage	656_2	$ 2.70	cubic yard	$ 20,439.57	acre	0.25	$ 5,109.89	$ 1,277.47
bmp_riparian*	Riparian Buffer	2	Filtration	390	NA	NA	$ 1,065.87	acre	3.00	$ 3,197.61	$ 799.40
bmp_filtst	Filtration Strip	2	Filtration	393	$ 474.07	acre	$ 496.08	acre	1	$ 496.08	$ 124.02
bmp_satbuff	Saturated Buffer	3	Biofiltration	604	$ 44.92	cubic yard	$ 1,367.78	acre†	0.92	$ 1,258.36	$ 1,258.36
bmp_denit	Denitrifying Bioreactor	3	Biofiltration	605	$ 44.92	cubic yard	$ 38.02	cu. yd‡	200	$ 7,604.00	$ 1,896.25
bmp_inftrech	Infiltration Trench/Small Infiltration Basin	4	Infiltration	350	$ 27,199.29	acre	$ 36.45	sq. yd'	111	$ 4,045.95	$ 1,011.49
bmp_ditch2s	Multi-stage Ditch (open channel)	4	Infiltration	582	$ 27,199.29	acre	$ 4,036.56	acre†	1.25	$ 5,045.70	$ 1,261.43
bmp_crit_plant	Critical Area Planting	5	Protection	342	$ 2,133.35	acre	$ 293.77	acre	1	$ 293.77	$ 73.44
bmp_protect	Grade Stabilization	5	Protection	410	$ 2,133.35	acre	$ 53.10	sq. yd	80	$ 4,248.00	$ 1,062.00
bmp_gwater	Grassed Waterway	5	Protection	412	$ 2,133.35	acre	$ 1,062.86	acre†	2.5	$ 2,657.16	$ 664.29
bmp_shore	Lake and Wetland Shoreline Restoration	5	Protection	580	$ 2,133.35	acre	$ 37.98	sq. yd	111	$ 4,215.78	$ 1,053.95
bmp_peren	Perennial Crops	6	Source Reduction	327	$ 30.87	acre	$ 480.80	acre	1	$ 480.80	$ 120.20
bmp_no_till	No Tillage	6	Source Reduction	329	NA	NA	$ 11.03	acre	100	$ 1,103.00	$ 275.75
bmp_covcrop	Cover Crops	6	Source Reduction	340	$ 30.87	acre	$ 33.52	acre	40	$ 1,340.80	$ 335.20
bmp_red_till	Reduced Tillage	6	Source Reduction	345	NA	NA	$ 11.03	acre	100	$ 1,103.00	$ 275.75
bmp_forage*	Forage / Biomass Planting	6	Source Reduction	512	NA	NA	$ 44.84	acre	40	$ 1,793.60	$ 448.40
bmp_grazing*	Prescribed Grazing	6	Source Reduction	528	NA	NA	$ 6.34	acre	40	$ 253.60	$ 63.40
bmp_no3	Nutrient Management of Groundwater	6	Source Reduction	590_1	$ 30.87	acre	$ 6.84	acre	40	$ 273.60	$ 68.40
bmp_p_mgmt	Nutrient Management for Phosphorus	6	Source Reduction	590_2	NA	NA	$ 6.84	acre	40	$ 273.60	$ 68.40
bmp_n_mgmt	Nutrient Management for Nitrogen	6	Source Reduction	590_3	NA	NA	$ 6.84	acre	40	$ 273.60	$ 68.40

* Costs are based on 2020 EQIP payment rates
† EQIP payment rate based on linear feet. An assumed practice width was applied to bmp_satbuff, bmp_ditch2s, and bmp_gwater (50ft, 60ft, and 100ft, respectively).
‡ Volume was calculated based on an assumed 1/8" runoff across the drainage area of the BMP
' EQIP payment rate based on cubic yards. A practice depth of 1.5 yd was assumed.

Implementation Scenario within Planning Regions

Glacial Till Planning Region

BMP Treatment Group	Number of Practices	Total Cost ($)	Sediment Reduction Values at Catchment Outlet (tons/yr.)	TP Reduction Values at Catchment Outlet (lbs./yr.)	TN Reduction Values at Catchment Outlet (lbs./yr.)	Additional Water Storage (ac-ft)	BMP Surface Area (acres)
378 - Farm pond/wetland	203	$289,351	1,066	1,436	38,804	462	1,525
554 - Drainage water management	203	$116,222	8,670	9,924	214,970	1,390	11,374
638 - WASCOB	32	$288,000	1,701	1,662	29,853	109	1,233
656_2 - Large wetland restoration	2	$82,549	6	4	136	9	5
390 - Riparian Buffer	43	$108,781	173	474	10,730	0	748
393 - Filtration Strip	151	$72,431	326	505	12,142	0	605
605 - Denitrifying Bioreactor	3	$12,354	9	9	354	0	10
582 - Multi-stage Ditch	3	$13,349	25	8	575	1	29
342 - Critical Area Planting	320	$109,060	322	334	8,161	0	186
410 - Grade Stabilization	18	$72,000	27	14	331	0	8
412 - Grassed Waterway	133	$289,776	307	240	5,853	0	135
340 - Cover Crops	471	$968,692	8,540	7,793	187,359	0	6,458
Scenario Total (rounded)	**1,582**	**$2,422,600**	**21,100**	**22,400**	**509,300**	**2,000**	**22,315**

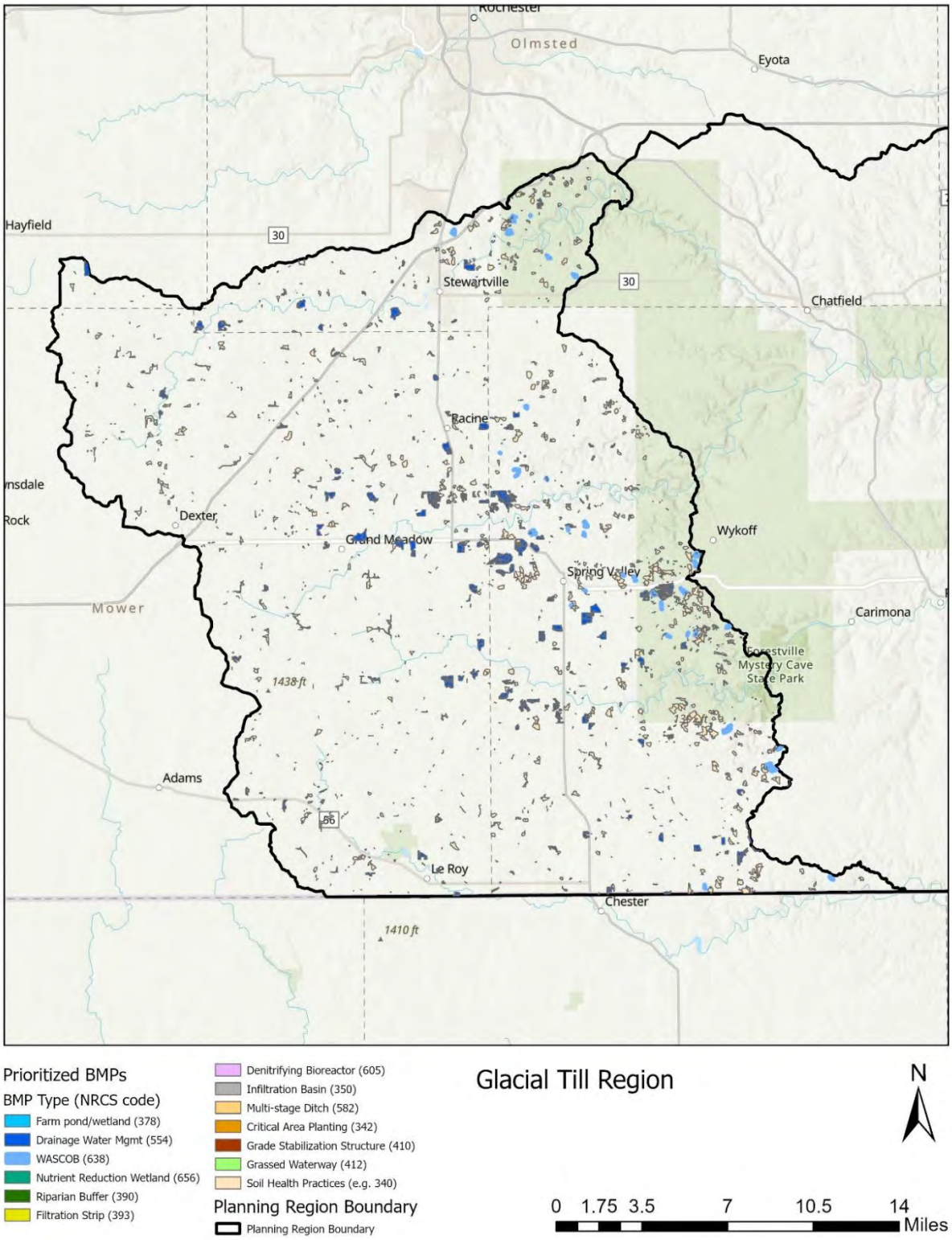


Figure 1. Glacial Till Planning Region priority BMP scenario

Karst Planning Region

BMP Treatment Group	Number of Practices	Total Cost ($)	Sediment Reduction Values at Catchment Outlet (tons/yr.)	TP Reduction Values at Catchment Outlet (lbs./yr.)	TN Reduction Values at Catchment Outlet (lbs./yr.)	Additional Water Storage (ac-ft)	BMP Surface Area (acres)
378 - Farm pond/wetland	571	$520,163	3,895	4,226	115,307	1,569	3,725
554 - Drainage water management	276	$156,326	23,612	21,707	466,933	3,951	28,028
638 - WASCOB	58	$522,000	3,780	3,134	57,272	211	2,300
656_2 - Large wetland restoration	2	$140,642	3	21	693	4	44
390 - Riparian Buffer	56	$153,779	348	580	13,223	0	941
393 - Filtration Strip	226	$155,974	387	393	9,332	0	519
605 - Denitrifying Bioreactor	3	$21,340	19	15	613	0	17
350 – Infiltration Trench/Small Infiltration Basin	1	$23,540	3	7	163	0	12
582 - Multi-stage Ditch	4	$24,956	67	11	804	1	42
342 - Critical Area Planting	351	$149,726	703	459	11,205	0	255
410 - Grade Stabilization	55	$220,000	100	41	994	0	24
412 - Grassed Waterway	242	$521,163	758	441	10,773	0	245
340 - Cover Crops	834	$1,737,069	25,944	13,976	336,004	0	11,580
Scenario Total (rounded)	**2,679**	**$4,346,700**	**59,700**	**45,000**	**1,023,300**	**5,700**	**47,733**

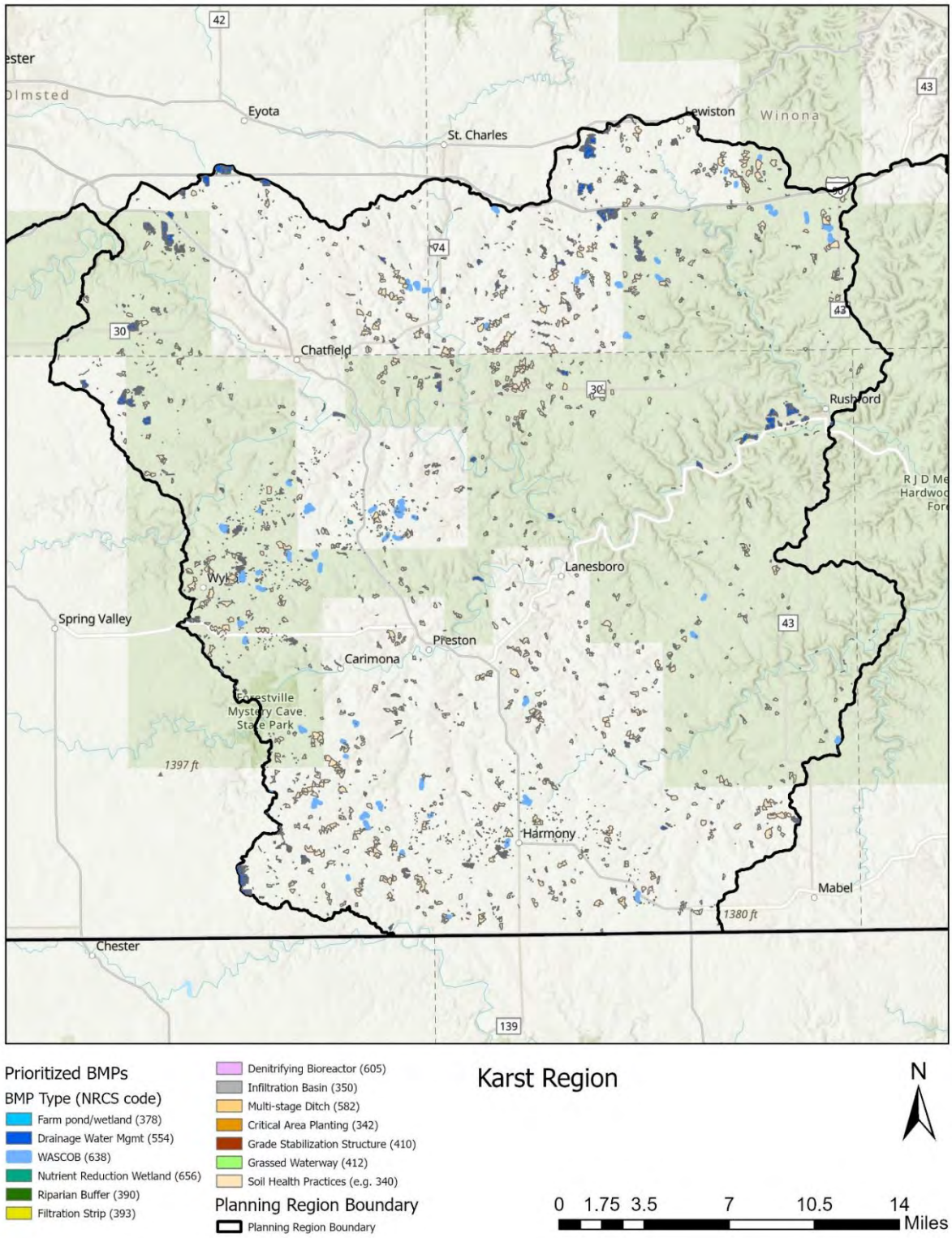


Figure 2. Karst Planning Region priority BMP scenario

Bluffland Karst Planning Region

BMP Treatment Group	Number of Practices	Total Cost ($)	Sediment Reduction Values at Catchment Outlet (tons/yr.)	TP Reduction Values at Catchment Outlet (lbs./yr.)	TN Reduction Values at Catchment Outlet (lbs./yr.)	Additional Water Storage (ac-ft)	BMP Surface Area (acres)
378 - Farm pond/wetland	49	$116,971	286	378	10,181	85	389
554 - Drainage water management	71	$40,584	6,198	5,240	113,675	1,046	7,750
638 - WASCOB	13	$117,000	1,038	707	12,942	54	519
656_2 - Large wetland restoration	1	$343,651	44	17	795	5	121
390 - Riparian Buffer	19	$40,790	180	370	8,188	0	594
393 - Filtration Strip	71	$40,421	211	186	4,589	0	238
605 - Denitrifying Bioreactor	1	$3,825	5	3	110	0	3
582 - Multi-stage Ditch	1	$7,092	22	4	271	0	13
342 - Critical Area Planting	102	$40,585	187	124	3,037	0	69
410 - Grade Stabilization	21	$84,000	39	18	426	0	11
412 - Grassed Waterway	62	$118,447	164	100	2,449	0	56
340 - Cover Crops	321	$634,021	11,088	5,101	122,641	0	4,227
Scenario Total (rounded)	**732**	**$1,587,400**	**19,500**	**12,300**	**279,300**	**1,200**	**13,989**

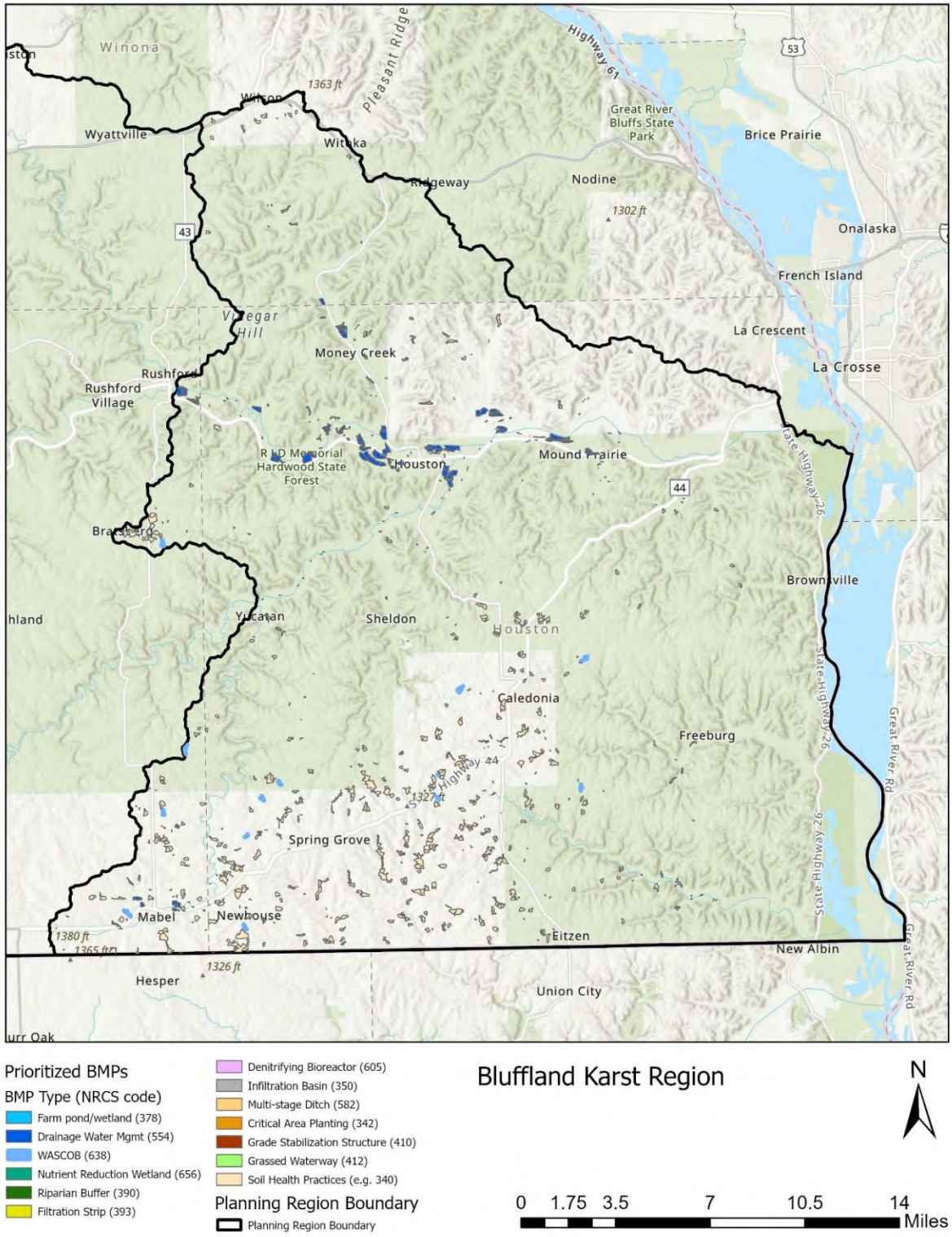


Figure 3. Bluffland Karst Planning Region priority BMP scenario

Appendix I. Regulatory Comparison

Appendix I. Local Ordinances and Controls

Program	Mower SWCD	Mower County	Olmsted SWCD	Olmsted County	Fillmore SWCD	Fillmore County	Winona SWCD	Winona County	Houston SWCD	Houston County
AIS program	X	X	X	X	X	X	X	X	X	X
Buffer Law	compliance checks	X	compliance checks	X	compliance checks	X	compliance checks	X	compliance checks	X
Decorah Edge Ordinance				X						
Feedlots		Delegated		Delegated		Delegated		MPCA		Delegated
Floodplain Management		NFIP* community		NFIP* community		NFIP* community		NFIP* community		NFIP* community
Hazard Mitigation		2025 Hazard Mitigation Plan		2024 Hazard Mitigation Plan		2025 Hazard Mitigation Plan		2025 Hazard Mitigation Plan		2024 Hazard Mitigation Plan
Shoreline Ordinances		X		X		X		X		X
Public Drainage Authority		X		X		X		X		X
Noxious Weed Control		X		X		X		X		X
Sinkhole Ordinance						X				

Program	Mower SWCD	Mower County	Olmsted SWCD	Olmsted County	Fillmore SWCD	Fillmore County	Winona SWCD	Winona County	Houston SWCD	Houston County
SSTS Ordinance		X		X		X		X		X
Solid Waste Ordinance		X		X		X		X		X
Wetland Conservation Act	LGU		LGU			LGU		LGU		LGU

*National Floodplain Insurance Program

Appendix J. Local Funding Authorities

Local Funding Authorities

Purpose: *This table provides an overview of Minnesota statutes and laws that provide authorities to local governments to fund water management projects, to be used by local governments while exploring funding options for locally funded water projects. Does not include fees, fines, or wetland banking, grants, etc. This is not a legal document and should not be considered comprehensive, complete, or authoritative.*

note: "metro" refers to Anoka, Carver, Dakota, Hennepin, Ramsey, and Washington counties or watershed organizations in the 7-county metro area.

Citation	Applies to	Summary *(please see details in the full text of each provision)*
§40A.152	Counties (metro)	Money from the county conservation account (see chapter 287) must be spent by the county to reimburse the county and taxing jurisdictions within the county for revenue lost under the conservation tax credit under §273.119 or the valuation of agricultural preserves under §473H.10. Money remaining in the account after reimbursement may be spent on: 1) agricultural land preservation and conservation planning and implementation of official controls under this chapter or chapter 473H; 2) soil conservation activities and enforcement of soil loss ordinances; 3) incentives for landowners who create exclusive agricultural use zones; 4) payments to municipalities within the county for the purposes of clauses 1-3.
§103B.241	Watershed districts & watershed management organizations (metro)	May levy a tax to pay for plan preparation costs & projects in the adopted plan necessary to implement the Metropolitan Water Management Program.
§103B.245	Watershed districts & watershed management organizations (metro)	May establish a watershed management tax district within the watershed to pay the costs of: planning required under §§103B.231 and 103B.235, the capital costs of water management facilities described in the capital improvement program of the plans, and normal & routine maintenance of the facilities.
§103B.251	Watershed districts & watershed management organizations (metro), counties	May certify for payment by the county all or any part of the cost of a capital improvement contained in the capital improvement program of plans developed in accordance with §103B.231. Counties may issue general obligation bonds to pay all or part of the cost of project. The county may pay the principal and interest on the bonds by levying a tax on all property located in the watershed or subwatershed in which the bonds are issued. Loans from counties to watershed districts for the purposes of implementing this section are not subject to the loan limit set forth in §103D.335.

Citation	Applies to	Summary *(please see details in the full text of each provision)*
§103B.331 Subdivisions 3 & 4	Counties	(3) May charge users for services provided by the county necessary to implement the local water management plan.
		(4) May establish one or more special taxing districts within the county and issue bonds to finance capital improvements under the Comprehensive Local Water Management Act. After adoption of the resolution, a county may annually levy a tax on all taxable property in the district.
§103B.335	Counties, municipalities, or townships	May levy a tax to implement the Comprehensive Local Water Management Act or a comprehensive watershed management plan (§103B.3363). A county may levy amounts needed to pay the reasonable costs to SWCDs and WDs of administering and implementing priority programs identified in an approved & adopted plan or comprehensive watershed management plan.
§103B.555 Subdivisions 1 & 3	Counties	(1) May establish a Lake Improvement District and impose service charges on the users of lake improvement district services within the district. May levy an ad valorem tax solely on property within the lake improvement district for projects of special benefit to the district; may impose or issue any combination of service charges, special assessments, obligations, and taxes.
		(3) A tax under Subd. 1 may be in addition to amounts levied on all taxable property in the county for the same/similar purposes.
§103C.331 Subdivision 16	County boards on behalf of soil and water conservation districts	May levy an annual tax on all taxable real property in the district for the amount that the board determines is necessary to meet the requirements of the district.
§103D.335	Watershed districts	A watershed district has the power to incur debts, liabilities, and obligations and to provide for assessments and to issue certificates, warrants, and bonds.
§103D.601	Watershed districts	May set up special taxing districts via petition to conduct larger, Capital Improvement Projects (CIP). The costs to the affected parties cannot exceed $750,000.
§103D.615	Watershed districts	May declare an emergency and order that work be done without a contract. The cost of work undertaken without a contract may be assessed against benefitted properties or raised by an ad valorem tax levy if the cost is not more than 25% of the most recent administrative ad valorem levy and the work is found to be of common benefit to the watershed district.

Citation	Applies to	Summary *(please see details in the full text of each provision)*
§103D.729	Watershed districts	May establish a water management district or districts in the territory within the watershed to collect revenues and pay the costs of projects initiated under §§103B.231, 103D.601, 103D.605, 103D.611, or 103D.730. (Guidelines for creating water management districts)
§103D.901	Watershed districts	County auditors assess the amount specified in an assessment statement filed by managers. The county may issue bonds (§103E.635). An assessment may not be levied against a benefited property in excess of the amount of benefits received.
§103D.905 Subdivisions 2,3, 7-9	Watershed districts	Established funds for watershed districts (not a complete list – see full statute language): **Organizational expense fund** - consisting of an ad valorem tax levy, shall be used for organizational expenses and preparation of the watershed management plan for projects. **General fund** - consisting of an ad valorem tax levy, shall be used for general administrative expenses and for the construction or implementation and maintenance of projects of common benefit to the watershed district. May levy a tax not to exceed 0.00798 percent of estimated market value to pay the cost attributable to projects initiated by petition. **Repair and maintenance funds** - established under §103D.631, Subd. 2. **Survey and data acquisition fund** - consists of the proceeds of a property tax that can be levied only once every 5 years and may not exceed 0.02418 percent of estimated market value. **Project tax levy** - a WD may levy a tax: 1. To pay the costs of projects undertaken by the WD which are to be funded, in whole or in part, with the proceeds of grants or construction or implementation loans under the Clean Water Partnership Law; 2. To pay the principal of, or premium or administrative surcharge (if any), and interest on, the bonds and notes issued by the WD pursuant to §103F.725; 3. To repay the construction or implementation loans under the Clean Water Partnership Law.
§103E.011 Subdivision 5	Drainage authorities	A drainage authority can accept and use external sources of funds together with assessments from benefited landowners in the watershed of the drainage system for the purposes of flood control, wetland restoration, or water quality improvements.
§103E.015 Subdivision 1a	Drainage authorities	When planning a "drainage project" or petitioned repair, the drainage authority must investigate the potential use of external sources of funding, including early coordination for funding and technical assistance with other applicable local government units.
§103E.601 §103E.635 §103E.641	Drainage authorities	Funding of all costs for constructed "**drainage projects"** are apportioned to benefited properties within the drainage system pro rata on the basis of the benefits determined (§103E.601). After the contract for the construction of a drainage project is awarded, the board of an affected county may issue bonds of the county

Citation	Applies to	Summary *(please see details in the full text of each provision)*
		in an amount necessary to pay the cost of establishing and constructing the drainage project. (§103E.635). Drainage authorities may issue drainage funding bonds (§103E.641).
§103E.728 §103E.731 §103E.735	Drainage authorities	Costs for drainage system **repairs** are apportioned pro rata on all benefited properties of record. The drainage authority may charge an additional assessment on property that is in violation of §103E.021 (ditch buffers) or a county soil loss ordinance (§103E.728). If there is not enough money in the drainage system account to make a repair, the board shall assess the costs of the repairs on all property and entities that have been assessed benefits for the drainage system (§103E.731). To create a repair fund for a drainage system to be used only for repairs, the drainage authority may apportion and assess an amount against all property and entities benefited by the drainage system, including property not originally assessed and subsequently found to be benefited according to law. (§103E.735).
Chapter 287	Counties	Counties participating in the agricultural land preservation program impose a fee of $5 per transaction on the recording or registration of a mortgage or deed that is subject to tax under §§287.05 and 287.21.
Chapter 365A	Towns	Townships may create subordinate service districts with special taxing authority. Requires a petition signed by at least 50 percent of the property owners in the part of the town proposed for the subordinate service district.
§373.475	Counties	A county board must deposit the money received from the sale of land under Laws 1998, chapter 389, article 16, section 31, subd. 3, into an environmental trust fund. The county board may spend interest earned on the principal only for purposes related to the improvement of natural resources.
Chapter 429	Municipalities	May levy special assessments against properties benefitting from special services (including curbs, gutters and storm sewer, sanitary sewers, holding ponds, and treatment plants).
§444.075	Municipalities	May collect stormwater utility fees to build, repair, operate & maintain stormwater management systems.
§462.358 Subdivision 2b(c)	Municipalities	May accept a cash fee for lots created in a subdivision or redevelopment that will be served by municipal sanitary sewer and water service or community septic and private wells. May charge dedication fees for the acquisition and development or improvement of wetlands and open space based on an approved parks and open space plan.
M. L. 1998, Chapter 389 Article 3, Section 29	Red River Watershed Management Board	Watershed Districts that are members of the Red River Watershed Management Board may levy an ad valorem tax not to exceed 0.04836 percent of the taxable market value of all property within their district. This levy is in excess of levies authorized by §103D.905.

Appendix K. Formal Review Comments

Root River CWMP Plan Renewal Amendment

Formal Review Comments

#	Commenter	Section	PDF Page	Comment	Change Needed	Response
1	Fillmore SWCD	acronyms	Page 4	E.coli -> needs a space after the period	Y	Added space
2	Fillmore SWCD	acronyms	Page 4	EQIP -> Environmental Quality Incentives Program. Add 's' onto Incentive.	Y	Made plural
3	Fillmore SWCD	acronyms	Page 5:	PDM -> Pre-Disaster Mitigation, hyphen needed.	Y	Added hyphen
4	Fillmore SWCD	glossary	Page 8	Hyphen needed between HUC and 8 (HUC-8).	Y	Added hyphen
5	Fillmore SWCD	glossary	Page 8	Misspelling of Wisconsinan Glaciation. Missing n.	Y	Corrected spelling
6	Fillmore SWCD	ES	Page 10 and 118	One Watershed One Plan should have a comma -> One Watershed, One Plan.	Y	Added comma
7	Fillmore SWCD	ES	Page 11:	In the second paragraph, it should read "The North and South Branches..."	Y	Made plural
8	Fillmore SWCD	ES, 3, 5	Pages 12, 34, 69	In the green text box "Section 3" there should be a comma after the word restore	Y	Added comma
9	Fillmore SWCD	2	Page 21	1800's should be 1800s	Y	Removed apostrophe
10	Fillmore SWCD	2	Page 24	In the first sentence, watershed can be removed from "RRW watershed".	Y	Deleted watershed
11	Fillmore SWCD	2	Page 25	In the section "Flooding and Altered Watercourses" the word "watershed" can be removed from the first sentence (RRW watershed) to avoid repetition	Y	Deleted watershed
12	Fillmore SWCD	2	Page 26	In the first sentence ("Therefore, this...") there is an additional space before the period	Y	Removed space
13	Fillmore SWCD	2	Page 26	In the citation right about the figure, there is an 'a' in the author spot, I don't know if it's supposed to be in the year spot or removed.	N	Letter indicates there are multiple citations with the same organization and year
14	Fillmore SWCD	2	Page 26	Last line, the space in "sink holes" can be removed.	Y	Removed space
15	Fillmore SWCD	2	Page 27	In the second paragraph ("Karst geology..."), second sentence, it should read "layers of shale act as barriers...".	Y	Corrected grammar
16	Fillmore SWCD	2	Page 27	In the third paragraph, third sentence, it should be "Long residence times of some groundwater are an important...". Or "The long residence times of some groundwater is an important...".	Y	Corrected grammar
17	Fillmore SWCD	2		In the last paragraph, the first citation the period is placed incorrectly (Kuehner et al., 2025).	Y	Moved period
18	Fillmore SWCD	2	Page 28	The paragraph below the recommendations figure should read "sinkholes" instead of "sink holes".	Y	Removed period
19	Fillmore SWCD	2	Page 28	In the last sentence starting "In the RRW, ..." portion should be changed to portions.	Y	Made plural
20	Fillmore SWCD	2	Page 29	In the last sentence there should be a comma after deep valleys.	Y	Added comma
21	Fillmore SWCD	2	Page 32	When listing post-secondary education, use apostrophes when listing the degrees (associate's, bachelor's, graduate).	Y	Added apostrophes

#	Commenter	Section	PDF Page	Comment	Change Needed	Response
22	Fillmore SWCD	2	Page 32	In the citation "(US Census, 2022)" it should read "(U.S. Census, 2022)". A period is also needed after the citation.	Y	Added period
23	Fillmore SWCD	3		In the last sentence of the page, it should read "…also assists landowners…".	Y	Made plural
24	Fillmore SWCD	3	Page 36	In the third sentence, it should be "Field to Stream Partnership" with no 's' on the end of stream.	Y	Deleted the "s"
25	Fillmore SWCD	3	Page 36	In the last sentence of the first paragraph contributing should be changed to contribute.	Y	Changed tense
26	Fillmore SWCD	3	Page 39	In the Land Use and Habitat section of the table, "Habitat Management, Protection and Restoration" should have a comma after protection.	Y	Added comma
27	Fillmore SWCD	3	Page 40	In the last paragraph the second use of MPCA is incorrectly spelt MCPA.	Y	Fixed typo
28	Fillmore SWCD	4	Page 53	In the goal rationale textbox, in the first sentence there is an extra 'to' in "…makes bacteria loading to surface waters a threat to both to aquatic…".	Y	Fixed typo
29	Fillmore SWCD	4	Page 56	In the section Goal Rationale, the first sentence misspells RRW.	Y	Corrected acronym
30	Fillmore SWCD	4	Page 57	In the green textbox on the bottom of the page 'All' does not need to be capitalized after the semicolon.	Y	Fixed capitalization
31	Fillmore SWCD	4	Page 64	In the green textbox there is an additional space before the 15%.	Y	Removed space
32	Fillmore SWCD	4	Page 67	Example Implementation Actions of Bacteria Loading, bullets points should be centered to fit the rest of the cells.	Y	Corrected spacing
33	Fillmore SWCD	5	Page 73	The first use of the WPLMN acronym is misspelt: "WPMLN".	Y	Fixed spelling
34	Fillmore SWCD	5	Pages 74, 75, 76, 83, 87, and 91	Figure caption/title should go below figure.	Y	Moved captions below figures where able, except milestone charts due to formatting / space issues.
35	Fillmore SWCD	5	Page 77	Second to last paragraph, a comma is needed after Practices. As well as in the last paragraph.	Y	Added commas
36	Fillmore SWCD	5	Pages 78-81, 85-86, 89-90, and 93-94	SWCD or SWCDs throughout, currently inconsistent (SWCDs, SWCD, SWCDS).	Y	Made all plural
37	Fillmore SWCD	5	Pages 79	In WW-15, Responsibility cell, SWCDs are listed twice.	Y	Deleted SWCD
38	Fillmore SWCD	5	Pages 79, 80, 81, 86, 90, and 94	At the bottom of the table "10 Year Watershed-Wide Total" should include a hyphen in '10-year'. Also in "10 Year Planning Region Total	Y	Added hyphen
39	Fillmore SWCD	5	Page 82	Table title should be directly above table body.	Y	Moved caption above table
40	Fillmore SWCD	5	Page 84, 88, and 92	Missing figure caption/title.	Y	Added dates to milestone charts
41	Fillmore SWCD	5	Page 88	In the chart, acres is misspelt for the Watershed-Wide Goal of Soil Health.	Y	Fixed typo
42	Fillmore SWCD	5	Page 91	Misspelling of Thompson Creek in the Quick Stats box.	Y	Correct spelling

#	Commenter	Section	PDF Page	Comment	Change Needed	Response
43	Fillmore SWCD	6	Page 102	In the last sentence of the first paragraph, it should read monitored since 2000, instead of monitored for since 2000.	Y	Rephrased as suggested
44	Fillmore SWCD	6	Page 105	In Table 6-2, in the second column, Fillmore is misspelt	Y	Corrected spelling
45	Fillmore SWCD	6	Page 106	In the Feedlots textbox, there is an extra space before the second sentence.	Y	Removed space
46	Fillmore SWCD	6	Page 107	In the Wetland Conservation Act textbox, in the second to last sentence, there should be a comma after Dodge in the list	Y	Added comma
47	Fillmore SWCD	7	Page 117	In the second paragraph (under Local Work Plan), right before the second sentence ("Review and edits to…") there is an additional space.	Y	Removed extra space
48	Fillmore SWCD	7	Page 117	In the same paragraph mentioned above, in the last sentence Committee is misspelt	Y	Fixed spelling
49	Fillmore SWCD	Appendices	Page 79	HUC8s should be changed to HUC-8s.	Y	Added hyphen
50	Fillmore SWCD	Appendices	Page 88	88: HUC8 -> HUC-8.	Y	Added hyphen
51	Fillmore SWCD	Appendices	Page 97	In table 3, center Priority.	Y	Centered heading
52	Fillmore SWCD	Appendices	Page 102	In the Karst Planning Region table, for the 393 – Filtration Strip Total Cost, there is a missing zero (maybe?), as the number is $155,97	Y	Updated cost
53	Fillmore SWCD	Acknowledgements		For the Advisory Committee, If different organizations did not participate in the planning process, should we add them on the page, perhaps something we should ask?	Y	Refining organizations on acknowledgements
54	Fillmore SWCD	5		On page 5*14 it has Fillmore SWCD as lead entity on wastewater treatment plan upgrades, can you change that to cities?	Y	Removed Fillmore, added cities
55	Fillmore SWCD	5		Page 5-16 on the photo, there is a cut off to the text. Wykoff Balsam Fir Scientific and…..	Y	Expanded caption
54	BWSR	ES	Page 1-4	the 10 priority opportunities are first referenced, reduced from 22 priority issues in the first Plan. This is an example of the amended Plan being more focused and therefore easier for practitioners to use.	N	Thank you for your comment
55	BWSR	General	Page 1-6	the three Planning Areas are first defined, with each having their own distinct 10 year goals based on the landscape and natural resources.	N	Thank you for your comment
56	BWSR	General		The current Plan has a total of 205 Implementation Actions. The draft amended Plan has a total of 39 Implementation Actions. This is a clear example of how well the partnership focused in on what will be the most important work to do over the next 10 years.	N	Thank you for your comment
57	BWSR	1	Page 1-7	can you define the "Actions" referenced on this page, and provide a reference where these can be found elsewhere in the Plan? Perhaps reference on Page 1-7, Tables 5-2 through 5-5 that are on pages 5-10 through 5-14	Y	Added action definition and reference to Section 5

#	Commenter	Section	PDF Page	Comment	Change Needed	Response
58	BWSR	2	Page 2-12	can the Climate and Precipitation Section be a little stronger? One suggestion is to perhaps add some narrative about both increased precipitation AND increased intensity of precipitation events which necessitates that some resiliency be built into practices. Perhaps reference NOAA Atlas 14 hydrology for design criteria. You could also refer the reader to your Resiliency Section on page 3-10 and 3-11.	Y	Added reference to Section 3, narrative on increased precipitation and Atlas 14
59	BWSR	3	Page 3-5	the four Resource Categories are first defined: Groundwater/ Drinking Water; Surface Water; Hydrology/Water Storage; and Land Use/Habitat. I commend the Partnership for identifying these and then focusing on them	N	Thank you for your comment
60	BWSR	Chapter 4 – Measurable Goals.		I really like the Focus Area Maps. Since they are based on HUC 12 boundaries it should be fairly straightforward for staff to locate a potential project on the Map and identify which priority area it is in	N	Thank you for your comment
61	BWSR	4	Page 4-19	Under the "Have numerous additional benefits" item, I suggest adding "water quality" and "create habitat corridors	Y	Added these benefits
62	BWSR	4	Page 4-19	Suggest editing this sentence… "Habitat establishment and protection ensures watershed resources continue to provide and improve recreational and ecosystem benefits long into the future".	Y	Added sentence
63	BWSR	4	Page 4-19	suggest editing this sentence… Land protection through permanement and limited easemenet programs….."	Y	Rephrased as suggested
64	BWSR	4	Page 4-20,	in the sentence that is under the main heading, add "and enhancements" after "habitat management".	Y	Added suggested text
65	BWSR	4	Figure 4-9	I would suggest that some of the 1-mile radius circular areas be connected to the larger riparian corridor areas to make the map easier to use by practitioners. I would also suggest adding the transportation corridors shown on the BWSR "Living Landscape Priority Areas" map, and adding some narrative to the description on page 4-20, that the focus areas "supports BWSR Living Landscape Initiative and Priority Areas".	Y	Added text: "Projects will be prioritized based on information in the map as well as professional judgement. The Living Landscape Priority Areas [include URL] may also be referenced in project implementation efforts."
66	BWSR	4	Page 4-22	I suggest increasing the 600-acre goal of easements and acquisitions. This seems a bit low. I also suggest considering having a 10-year goal for acres of pollinator plantings, plantings to support Rusty Patch Bumblebee habitat, and plantings to support Monarch butterflies.	Y	Per Planning Work Group, 600 acres well represents what they can track. 600 acres is also grounded in what is realistic with funding. Language added to summarize that additional permanent protection may be pursued by partners or other (e.g. federal) entities. Pollinator and habitat planting is included with in the 3,750 acres goal for habitat planting / management.

#	Commenter	Section	PDF Page	Comment	Change Needed	Response
67	BWSR	4	Page 4-22	Under the Example Implementation Actions for Habitat Management, Protection, and Restoration, I suggest adding "Enhancement" to the second bullet. Also in that group of bullets, Fish Kill Education and AIS Workshops don't seem to match the goal rationale.	Y	Deleted fish kill and AIS (some actions tie more loosely to goals). Added enhancement to action name
68	BWSR	5	Page 5-5	The paragraph that describes Table 5-1 could be improved by using more plain language.	Y	Text revised as able, but admittedly, many acronyms are introduced here.
69	BWSR	5	Table 5-2	I have two comments. Consider combining well sealing and high capacity well sealing into one action, as it is the same practice, just a different cost to seal the well. Also, the current budget is proposing to fund both types of wells at the same payment rate, $1000 each. The cost of sealing a well has risen significantly over the past couple of years, so I would encourage the partnership to consider a higher rate than $1000, and an even higher rate for high capacity well sealings.	Y	The two actions are intentionally separate, but increased cost of high capacity wells ($20K) and referred to partner sources of funding to implement. Cost revised to 5-7K for standard well sealing, meaning 4-6K partner funding need
70	BWSR	5	Table 5-2	Windbreaks are measured and reported in linear feet, not acres. Please adjust for all of the Tables, both overall and each Planning Area. Consider using 1500 feet of windbreak equalling an acre as a good conversion factor.	Y	As 1 acre = 43k sq ft, using 1 acre / 200 linear ft. Changing from 400 acres -> 80,000 linear ft
71	BWSR	5	Table 5-2	Does the partnership believe that 400 Woodland Stewardship Plans over the 10-year life of the Plan is a reasonable estimate/goal? This seems quite high to me.	N	400 chosen as realistic by SE Landscape Committee, as checked by local staff
72	BWSR	5	Table 5-3,	Action ID PPE-1. This is quite vague and has a large price tag of $830,000. Could this be explained a bit more? It also needs an Output other than "Ongoing".	Y	Change to ongoing programming. Action is simply a 'bucket' for all general outreach work to use budget not allocated to specific actions
73	BWSR	5	Table 5-4,	DCM-1, have the state agencies discussed the potential to expand surface water monitoring, and is it felt that the Estimated Cost for this activity is somewhat accurate?	Y	Expand narrative to better describe DCM 1. This describes current monitoring efforts, but want flexibility to expand or shift to monitoring for other parameters.
74	BWSR	5	Table 5-4,	DCM-3, Have the Counties in the watershed agreed to conduct these inventories similar to what Mower is doing? If so, is $10,000 a realistic cost estimate?	N	Action discussed and decided to keep in the plan as drafted r
75	BWSR	5	Table 5-4,	DCM-4, has MPCA agreed to do this? If not, BWSR recommends removing this action.	Y	Action emoved
76	BWSR	5	Table 5-4,	DCM 5,6, and 7, does the Partnership want to take on all three inventories in the first biennium, or do they want to prioritize and spread them out over two to three biennium?	Y	Added second biennium checkmark. Earlier is better to inform implementation
77	BWSR	5	Table 5-5	The Pond Maintenance Capital Improvement Project. I feel as if urban stormwater ponds are getting jumbled up with old farm ponds/grade stabilization structures in this possible activity. This needs some clarity.	Y	Revised to state "urban stormwater and erosion control ponds"

#	Commenter	Section	PDF Page	Comment	Change Needed	Response
78	BWSR	5		A general comment on the Implementation Tables: I believe there should be a more concerted effort to look at activities that are not currently reflect in the Implementation Table as making direct progress towards measurable goals. As an example, Table 5-6 om page 5-17, Action ID of GT-8, Rotational Grazing and Pasture Management. I believe this activity does make direct progress towards the Soil Health and Upland Erosion measurable goals, and the Table should reflect that.	N	For plan assessment purposes, goal progress indicators are used for tracking. Actions have a direct goal progress indicator is they are to be used to assess goal progress. GT has 6,500 acres of soil health practices planned to be implemented (action 2), separately from pasture and grazing practices, although we acknowledge these practices do improve soil health. We could merge the actions together for 6,750 acres of soil health practices inclusive of grazing, but the issue is that leads to additional confusion because soil health acres and corresponding load reductions are determined from PTMApp.
79	BWSR	5	Pages 5-15, 5-19 and 5-23	"Work in the low priority subwatersheds will occur as opportunities arise/on a case by case basis." Can some sentences be added to this to strengthen the fact that WBIF funding must be used to implement activities predominantly In High and Medium priority subwatersheds?	Y	Added requested text
80	BWSR	6	Page 6-2,	The first sentence in "Financial Assistance", I suggest "Cost Share" be changed to Financial Assistance" to be consistent. I also suggest you add "Cover crops" to the list of non structural practices in parenths.	Y	Replace cost-share with financial assistance and added cover crops as example
81	BWSR	6	Page 6-4, T	The outreach Plan should include more direct outreach to achieve plan goals. The plan draft only includes more passive methods. The current plan does not address priority areas whereas the draft amended Plan includes priority areas. These priority areas will require more effort to gain landowner interest and secure projects that help reach measurable goals and outcomes.	Y	Add: Outreach will be primarily targeting to high and medium areas to promote practices there
82	BWSR	6	Page 6-7,	It is referenced that "public drainage systems are prevalent thoughout much of the Plan area". This is an incorrect statement.	Y	Sentence deleted, added 'drainage improvements can occur through the CIP program'.
83	BWSR	7	Page 7-1	Some sort of staffing analysis should be conducted or referenced to be conducted in the Plan. Staff have often mentioned a lack of adequate staff capacity as a barrier to implementation. Also, a workload analysis conducted for the Area 7 TSA by HEI in October, 2023, identified significant staff capecity shortages based on the goals of the watersheds making up TSA 7.	Y	Add to Projects, Practices, and Land Management action table along with Technical Assistance, and add to Section 7 under 'Additional Funding'
84	BWSR	7	Page 7-2	I suggest changing the third bullet under the Policy Committee to "Approve minor Plan Amendments as a Committee, and regular Plan Amendments through actions/resolutions by their respective Boards".	Y	Changed as suggested
85	BWSR	7	Page 7-2,	I suggest adding a bullet under the Fiscal Agent section, "Enter into sub agreements with LGU partners to disburse grant funds".	Y	Added requestion item

#	Commenter	Section	PDF Page	Comment	Change Needed	Response
86	BWSR	7	Pg 7-5	The Partnership itself cannot apply for competitive state grants. One of the partners may, on behalf of others in the Partnership, apply for funds that could be utilized watershed wide. This would be accomplished through sub agreements.	Y	Rephrased to partners apply
87	BWSR	7	Page 7-8	The Table that lists Partner Organizations and funding opportunities. I suggest under BWSR adding "Living Landscape Initiative" to the list of BWSR Grants, and put an F/T in the Primary Assistance column; X in the Projects, Practices, Data Collection & Monitoring, and Education/Outreach columns. I also suggest just listing Clean Water Fund and then in parentheses listing Competitive and WBIF.	Y	Added Living Landscape and CWF
88	BWSR	7	Page 7-9,	There should be some narrative about the development or adoption of a tracking system for Plan implementation progress. This has been discussed by staff as being a missing piece. Having it referenced in the Plan will ensure it occurs.	Y	Added: Implementation partners will *develop / agree on a system to* track plan progress throughout plan implementation.
89	BWSR	7	Page 7-10,	Mid – Point Evaluations typically occur somewhere in the four to six year timeframe of a 10-year Plan. There is no BWSR requirement that the evaluation must take place in year five.	Y	Removed mention of year 5
90	BWSR	7	Page 7-11	suggest adding to the last sentence on Plan Amendments ……"and will follow established BWSR procedures, including a determination if the proposed changes to the Plan constitute a minor Plan amendment or a regular Plan amendment".	Y	Added requested text
91	DNR	3	Page 3-1	The plan amendment summarizes estimated reductions in sediment, nitrogen, and phosphorus loading at the midpoint of the original plan (page 3-1). We suggest updating these estimates to reflect the entire 10 years of implementation. This would provide a clearer picture of progress.	N	Assessing progress post-mid point evaluation beyond the scope of this renewal
92	DNR	General		We suggest updating the BMP Data Exploration Application created for the 5-year plan review by St. Mary's University. This application can show where BMPs have been implemented and could include a map of impaired waters. In this way, progress towards BMP targeting of impaired waters could be illustrated and tracked. This would be a valuable tool for informing plan evaluation.	N	Assessing progress post-mid point evaluation beyond the scope of this renewal

#	Commenter	Section	PDF Page	Comment	Change Needed	Response
93	DNR	5		The plan allocates funding for repairing up to 200 septic systems. Though leaking septic systems are important to address, there is a lack of information about the contribution of these systems to bacteria impairments. We suggest conducting a microbial source tracking study in several bacteria-impaired subwatersheds to identify the sources. The results could help determine which BMPs would be most effective at reducing bacteria loading and target funding to the actions most likely to address aquatic recreation impairments.	Y	Add microbial source tracking as a data action, state agency led (MPCA), later in the plan implementation timeline. Planning partners would like to see this action implemented, but need partner or other sources of funding to accomplish.
94	DNR	5		If livestock exclusion is implemented in the watershed, DNR would like to participate in evaluating practice effectiveness at reducing bacteria concentrations and improving conditions for aquatic life.	N	Noted for implementation
95	DNR	3		The inclusion of data centers and their potential impact on local water resources is an important addition to the amended plan. This issue is growing, and local water suppliers need to be aware of the issues that can occur due to data center water use.	N	Data center water demand included as an emerging issue
96	DNR	General		The plan includes several goals for increasing water storage to reduce flooding. The DNR Flood Hazard Mitigation Grant Assistance Program could be used in conjunction with watershed implementation funds to implement projects to reduce flood impacts within communities. The cities of Spring Valley and Mabel are excellent candidates for this program as they continue to be impacted by flooding. DNR and FEMA programs could be applied within city limits, and watershed implementation funds could be used to implement BMPs upstream of cities to reduce peak flows and flooding. The DNR can provide guidance on accessing these programs.	N	Comment noted with thanks. FHMG is listed as a potential grant source in Table 7-4
97	DNR	General		The State Wildlife Action Plan was updated in 2025. The plan focuses on species conservation, habitat protection and enhancement, and public engagement. It can be used as a guide for species and habitat protection and restoration in the Root River watershed. We encourage its application in watershed plan implementation.	N	Implementation partners will refer to Wildlife Action Plan during implementation

#	Commenter	Section	PDF Page	Comment	Change Needed	Response
98	MDH	4	Figure 4-1	The plan amendment consistently discusses groundwater and drinking water as the highest priority category within the plan. Under the Measurable Goal section/4-2 Priority Resources, there is no mention of any groundwater/ drinking water priority resources. If possible, it would reaffirm the plan's commitment to implementation efforts within vulnerable groundwaters areas if groundwater resources could be included within this section. Priority resources could be vulnerable groundwater areas, which could include highly vulnerable DWSMA's, MDA Township testing priority areas or MDA Fall Fertilizer Restriction Areas.	N	Amended map to be 'Priority Streams' so as to not exclude groundwater
99	MDH	4	Figure 4-3	Under Conduits to Groundwater Focus Area on page 4-7 include vulnerable DWSMA's, Fall Fertilizer Restrictions areas and Township testing program results into the prioritization rankings.	N	DWSMAs, township testing, and fertilizer restrictions used for Nutrient focus area map (Figure 4-2). Map in Groundwater goal is too busy to add more data.
100	MDH	4	Figure 4-8	Review to ensure that vulnerable groundwater priority areas are included within the comprehensive priority areas for the Soil Health and Upland Erosion Focus Areas.	Y	Will add vulnerable DWSMAs as informational layer to the comprehensive map
101	MDH	2		There are 119 non-community public water supplies within the watershed. Nine (9) of these are non-transient water supplies; examples would include schools or businesses. There are also one hundred (100) transient public water supplies; examples would include campgrounds, restaurants, and orchards. This watershed has many non-community water supplies based upon the recreation and tourism opportunities that exist. Mentioning and prioritizing the protection of these non-community public water supplies within the Plan Amendment would be another way to focus the prioritization of groundwater/drinking water resources.	Y	Provided text added to drinking water discussion in LWRN
102	MDH	4	Page 4-6	On page 4-6 the "Desired Future Condition" is listed as: Groundwater has a concentration of nitrate under 3 mg/l (near natural background conditions) so as to not impact human health. I just wanted to make a note that recently the natural background level for nitrate has been revisited, as a result 1 mg/l or less of nitrate is now considered the natural background condition.	Y	Revised DFC from 3 mg/L to 1 mg/L as recommended
103	MPCA			Add the 2025 Minnesota Nutrient Reduction Strategy to both the list of acronyms and the bibliography. Several sections discuss or rely upon the NRS, but the document is not formally referenced.	Y	Added NRS to works cited
104	MPCA	2	Pages 2-7 and 2-8).	The discussion of nitrate trends and drinking water concerns would be strengthened by citing the 2025 Minnesota Nutrient Reduction Strategy rather than the current MPCA 2025 reference, which appears to point to the Stormwater Manual.	Y	N Cited RS

#	Commenter	Section	PDF Page	Comment	Change Needed	Response
105	MPCA	2	Page 2-8	Consider expanding the discussion of groundwater nitrate trends to better distinguish between observed long-term groundwater trends and current nitrate loading from agricultural land. While some groundwater monitoring locations exhibit stable or declining concentrations, nitrate concentrations remain elevated in many aquifers, and near-source monitoring beneath cultivated acres continues to demonstrate high nitrate leaching concentrations. Incorporating the recent Kuehner et al. lysimeter publication into both the discussion and bibliography would provide important context and reinforce this distinction. Because much of the lysimeter work was conducted within the Root River watershed, this publication represents a significant new scientific resource developed since the first Root River 1W1P. Reference: Examination of Soil Water Nitrate-N Concentrations from Common Land Covers and Cropping Systems in Southeast Minnesota Karst https://wrl.mnpals.net/islandora/object/WRLrepository%3A3988	Y	Added discussion of Kuehner study to LWRN
106	MPCA		.	The plan appropriately identifies cover crops as an important nitrate reduction strategy and recognizes their ability to substantially reduce nitrogen losses from the corn-soybean rotation. However, one of the primary conclusions of both the Southeast Minnesota Nitrate Strategies Collaborative Work Group and the 2025 Minnesota Nutrient Reduction Strategy—that achieving profound reductions in groundwater nitrate concentrations will ultimately require broader adoption of alternative cropping systems (such as oats, forage crops, and perennial systems)—is not as clearly reflected. While recognizing that market development extends beyond the scope of local cost-share programs, the plan should acknowledge the important role that alternative crops will play in achieving long-term groundwater nitrate reduction goals. The concluding paragraphs on page 2-8 (Land and Water Resources, discussing karst and nitrate leaching) speak to the difficulty of reducing nitrogen leaching loss; this could be a good place to lodge some additional language about alternative cropping systems being foundational to the long-term solution, per the NRS and work group definitive conclusions and recommendations.	Y	Added to LWRN and Section 5 soil health action description

#	Commenter	Section	PDF Page	Comment	Change Needed	Response
107	MPCA	7		MPCA appreciates that the first goal listed (on page 4-3) references the NRS nutrient reduction goals. Is the intent to track progress over time via the pollutant load monitoring site at Mound Prairie? Or will it be estimated with tool(s)? If tool(s) are to provide reduction estimates will the tool(s) simulate reductions in leaching loss or only reductions in the very small fraction of nitrogen loading that happens via surface runoff? Because this was a significant point of discussion during the first Root River 1W1P, it would be good for this to be clearly stated on page 4-3, even if is explained in a latter chapter.	N	Partners will determine tracking methods during plan implementation. A tool will be used that is based on PTMApp data, so therefore will not consider leaching loss.
108	MPCA	7		Consider referencing the BEET Planner and BEET Tracker tools as complementary implementation resources (both currently available to the 1W1P group). PTMApp remains appropriate for estimating reductions from structural BMPs and maintaining consistency with watershed planning, while BEET provides additional capability for practices such as rotational grazing, livestock access control, contour strip cropping, drainage water management, wetlands, and tracking watershed-wide implementation progress toward Nutrient Reduction Strategy goals.	N	Plan partners not using BEET, as goals were informed with PTMApp. Listed practices can be assessed through BEAST.
109	MPCA	7		Consider referencing the Long-Term Biological Monitoring program within the monitoring section. Several LTBM stations exist within the watershed and represent valuable long-term datasets that support watershed assessment and trend evaluation.	Y	Added text on long-term biological monitoring in Section 6
110	MPCA		Page 2-4	Consider separating aquatic life assessment results into fish and macroinvertebrate biological assessments. The current language could inadvertently suggest more widespread biological impairment than actually exists, whereas fish communities remain healthy in the large majority of assessed Root River streams.	Y	Added text on fish vs macroinvertebrate impairments

#	Commenter	Section	PDF Page	Comment	Change Needed	Response
111	MPCA	3	Page 3-9 and Table 5-3	The discussion of fish kills and associated outreach is a valuable addition to the plan. Consider strengthening this section by referencing existing interagency outreach materials and technical guidance developed specifically for southeastern Minnesota. These resources could also support implementation of Goal PPE-7 and future outreach workshops. MPCA can assist with incorporating and using these materials during implementation. Resources: MPCA outreach toolkit: Minimizing Fish Kills in Minnesota https://www.pca.state.mn.us/business-with-us/minimizing-fish-kills-in-minnesota Interagency guidance document: Preventing Fish Kills in Minnesota's Driftless Region https://www.mda.state.mn.us/preventing-fish-kills-minnesotas-driftless-region The University of Minnesota also developed fish kill probability models specific to southeastern Minnesota (Grant Vagle, PI). MPCA can coordinate access to these reports and deliverables if the planning partnership wishes to reference or incorporate them during implementation.	Y	Added provided fish kill information to text on emerging issue
112	MPCA	3		Consider referencing the Minnesota Runoff Risk Advisory Tool as an additional implementation and outreach resource to help reduce runoff-related nutrient losses and fish kill risk. Reference: https://www.mda.state.mn.us/runoff-risk-advisory-tool	Y	Added provided fish kill information to text on emerging issue
113	MPCA	4	Page 4-2	MPCA appreciates seeing the priority protection streams identified through the Root River WRAPS incorporated into the watershed plan. This demonstrates strong consistency between watershed assessment and implementation planning.	N	Thank you for your comment

#	Commenter	Section	PDF Page	Comment	Change Needed	Response
114	MPCA	4	Page 4-4	The text describing trout stream nitrate impairments should be clarified. Suggested language: ...drinking water use classification does not in the case of trout streams indicate their use as direct drinking water sources. In 2007 the Basin Alliance for the Lower Mississippi in Minnesota (BALMM) petitioned the MPCA to assess trout streams against the drinking water standard of 10 mg/l nitrate as a means of indirectly indicating impairment of the groundwater aquifers associated with the trout streams. The MPCA agreed to do so in a policy decision published in September of 2008. As such, the 2010 impaired waters list included the first trout stream nitrate impairment listings. Table 4-1 includes those original listings and other nitrate impairments added subsequently as more data became available. Clarifying this history will improve technical accuracy and reduce potential confusion.	Y	Added simplified text to goal description
115	MPCA	4	Page 4-6	Revise the desired future conditions discussion to indicate that natural background nitrate concentrations approach approximately 0 mg/L, consistent with recent interagency guidance on groundwater nitrate. This will improve consistency among state agency communications and public outreach materials. Reference: Information Circular 48: Updated Nitrate Guidance for Minnesota https://conservancy.umn.edu/items/530d6688-6d5c-442c-b0c4-fcf52956afba	Y	See response to Comment #102
116	MPCA	6		Because the plan contains a strong emphasis on education and outreach, consider referencing the recently developed Southeast Minnesota Groundwater Resources educational materials. Developed collaboratively by MDA, DNR, MGS, MPCA, MDH and local partners, these resources provide an excellent foundation for consistent messaging regarding nitrate, karst geology, groundwater vulnerability, and groundwater protection. Reference: https://www.mda.state.mn.us/protecting/waterprotection/southeastgroundwater	Y	Added to Education and Outreach program in Section 6

#	Commenter	Section	PDF Page	Comment	Change Needed	Response
117	MPCA	5	Table 5-4,	Table 5-4, Data Collection and Monitoring, identifies the MPCA as the lead for "Monitor water quality changes post-SSTS upgrades." Currently, the MPCA's monitoring efforts are limited to watershed-scale E. coli monitoring and do not include the research-level water quality monitoring needed to evaluate the performance of individual SSTS upgrades. Consider revising the lead responsibility or the monitoring task to better reflect the MPCA's current role and capabilities	Y	Action deleted
118	SE Landscape Committee	General		The Local Forestry Team can assist with: 1. Forest Stewardship Plans 2. Habitat Management Plans/Project Plans 3. Targeted outreach around habitat management and land protecion 4. Accounting for 1, 2 and 3	N	Noted for implementation
119	SE Landscape Committee	6		The Bluffland RIM program is new to the SE. This initiative was led by the Minnesota Forest Resource Council's Southeast Landscape Commitee. It has taken time to get here. This program was developed through the collaborative efforts of natural resource professionals with landowner input to design a program that fit their conservation goals and the landscape of Southeast Minnesota. The program was launched in 2024 through the work of a Local Forestry Team (LFT) and is available in the Root and Winona La Crescent One Watershed One Plan regions. This program along with private forest management is being coordinated and delivered to landowners in partnership with state, federal, local, non-governmental organizations and consulting foresters.	Y	Program overview discussed in section 7 collaboration text
120	SE Landscape Committee		Page 1	Technical Advisory Commitee Please add Southeast Regional Landscape Commitee of MN Forest Resources Council Change "Landscape Connections" to Root River Local Forestry Team	Y	Changed Landscape Connections, added Committee and Council
121	SE Landscape Committee	Acronyms		Add "SELC" Southeast Landscape Commitee	Y	Added acronym
122	SE Landscape Committee	General		What is DNR's desired watershed conditions – program, staff metrics? If able, include a graph showing land use changes over the last 50 years alongside water quality changes. Include in Sec 2-6 or general overview.	N	MPCA watershed assessment discussed in LWRN, no land use / water quality change assessment completed

#	Commenter	Section	PDF Page	Comment	Change Needed	Response
123	SE Landscape Committee	2	Page 2-1	Pg 20 1st paragraph "driftless area" – referenced as Driftless Region earlier with capitalized D and R. Should the D and A be capitalized? Consider adding to page with definitions.	Y	Capitalized name
124	SE Landscape Committee	2	Page 2-6	Pg 25 last paragraph consider the following around land conversion: "Land conversion from natural lands (e.g. wooded, prairie or wetland) to agriculture and urban areas affects the hydrology of the watershed that can result in...(list or bullet out).	Y	Added land conversion impacts as bullet points
125	SE Landscape Committee	2	Page 2-11	"Easements" – Question – are these public access easements like angling easements or privately held easements by BWSR or other, e.g. MLT? Consider totaling acres and add the represented # of acres from the list along with what percentage of the entire watershed which that represents, e.g. 21,000 acres represent 2.7% of the total watershed land base.	Y	Added easement data source and summed area for watershed coverage
126	SE Landscape Committee	3	Page 3-11	Re "Resiliency" Permanently protection prevents land conversion to other land use, reduces fragmented landscapes that support aquatic and terrestrial habitat, increase infiltration (e.g. perennial cover of woodlands, grasses, forbs, etc.), reduce runoff and sequester carbon.	Y	Added text on permanent protection to resiliency
127	SE Landscape Committee	3	Page 3-8	Pg 41 Comment: Neonicotinoids are systemic, impacting birds, aquatic life and other wildlife. https://abcbirds.org/news/neonic-report-2023/ and https://www.xerces.org/pesticides/understanding-neonicotinoids	Y	Added text
128	SE Landscape Committee	3	Page 3-10	Pg 43. Trout streams – include land protec on and connec vity. Protect adjacent and upland se ngs to increase infiltra on (maintain baseflows in warming condi ons), reduce runoff and improve habitat, e.g. RIM Blufflands designed to permanently protect land adjacent to surface water, upslope and retire marginal agland on the "bluff shoulder" to reduce run off, increase infiltra on and connect habitat corridors. *This applies to "Resiliency" as well. Supported by work from John Hoxmeier, MN DNR; Jeff Green MN DNR and Tony Runkel MN Geological Survey)	Y	Added additional work that will protect trout streams
129	SE Landscape Committee	4	Page 4-2	If not done then do where able to, to align goals and targeted areas that overlap with SE Landscape Commitee Plan/Root River Landscape Stewardship Plan to include terrestrial habitat components.	N	Landscape Plan and Committee engaged throughout plan development

#	Commenter	Section	PDF Page	Comment	Change Needed	Response
130	SE Landscape Committee	4	Page 4-19	See comment above re Sec 3-10, pg 43 and Sec 42. Align this work with the Root Landscape Stewardship Plan, recognizing that habitat protection and water quality are not mutually exclusive. Work with the LFT to prioritize The LFT can assist with aligning plans and reporting outcomes.	Y	Added LSP as a planning lens
131	SE Landscape Committee	5	5-11 page 79	5-11 pg 79 • WW-15 SWCDs is in twice, remove 1. • WW-16 Bold DNR & LFTs (LFT includes plan writers). Remove Counties and MDA. Watershed wide**Carry this comment forward for the next planning sections • PPE – 11 add and bold LFT • PPE – 1-11 Total budget is $1,120,000. Several of these categories can be done in conjunction with other events. Consider reducing budgeted amount to utilize elsewhere.	Y	SWCDs removed, Bolded entities, removed counties and MDA, added LFT to 11 Will not adjust PPE 11 action cost of $100k, cost approved by committee
132	SE Landscape Committee	5	page 5-13	DCM-9 Add LFT	Y	Added LFT
133	SE Landscape Committee	5	pdf page 86	GT-19 pg 86 – Question – Windbreaks – why include without acres or dollars entered?	N	Planning region action distributions informed by goal focus area maps. Windbreak implementation was guided by Figure 4-8, which has no high priority areas in the Glacial Till Region. Entering as 0 assumed to be preferable to deleting the row from the table, as then it may appear as the action as forgotten.
134	SE Landscape Committee	7		Plan Administration pg 116 • DNR – LFT - add "X" in Education and Outreach • DNR – Forest Legacy/Forests for the Future • Landscape Stewardship Plans • MFRC/SE Landscape Commitee*note that it is the SE Regional Landscape Commitee – Landscape Stewardship Planning, identifying/prioritizing small watershed work, habitat protection. Add "X" in education	Y	Added X to LFT, Adding requested grants

#	Commenter	Section	PDF Page	Comment	Change Needed	Response
135	MDA	5		Given the high priority of nitrogen and phosphorus loading along with addressing the priority A opportunities for groundwater contamination, groundwater/surface water interaction, and nutrient management, there seems to be a need for watershed dollars to address these opportunities to meet the plans goals. The plan dedicates a total of $97,500 over the next ten years within the watershed to address "livestock and waste management" ($75,000) and "manure and nutrient management plans" ($22,500). This amounts to less than 1% of the total local plan budget that is dedicated to a major source of nitrogen and phosphorus within the whole watershed. I suggest that additional funding be dedicated to funding projects that may have a direct impact on nutrient loading.	Y	Technical assistance added to refer to nutrient mgmt. Current action alludes to big NRCS plans. MPCA nutrient mgmt. plans also count. Count as a plan being one year long (meaning renewals also count). Output revised to 25 plans per year (or 250 in 10 years). Cost = $90K per year of technical assistance cost.
136	MDA	5		For example, when looking at registered feedlots within Fillmore County, they amount to 143 animal units per square mile throughout the county (MPCA, 2017b;USDA NASS, 2013). Fillmore County comprises a major portion of the "Karst Region" noted in the plan. Areas within the "glacial till" and "bluffland karst regions" show similar densities of livestock throughout the watershed. It seems that livestock and waste management along with manure and nutrient management planning should be funded at a higher rate given the large source of potential nitrogen and phosphorus derived by the livestock industry throughout the entire watershed.	Y	See Comment #134