Appendix

WinLaC Partnership —1W1P—

Appendix A. Planning MOA

WinLaC Partnership —1W1P—

ONE WATERSHED ONE PLAN
MISSISSIPPI RIVER-WINONA LA CRESCENT WATERSHED
MEMORANDUM OF AGREEMENT

This agreement (Agreement) is made and entered into by and between:

The Counties of Houston, Olmsted, Wabasha, and Winona (Counties), by and through their respective County Board of Commissioners, and
The Olmsted, Root River, Wabasha County, and Winona County Soil and Water Conservation Districts (SWCDs), by and through their respective Soil and Water Conservation District Board of Supervisors, and
The Stockton-Rollingstone-Minnesota City Watershed District (SRMCWD), by and through its respective Board of Managers, and
The City of Winona, by and through their Council members
Collectively referred to as "Parties".

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 provide technical assistance to landowners and 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 Watershed District (SRMCWD) of this Agreement is a political subdivision of the State of Minnesota, with statutory authority to carry out conservation of the natural resources of the state by land use controls, flood control, and other conservation projects for the protection of the public health and welfare and the provident use of the natural resources, pursuant to Minnesota Statutes Chapters 103B, 103D and as otherwise provided by law; and

WHEREAS, the City of this Agreement is a municipal corporation of the State of Minnesota, with statutory authority to control, regulate and/or prevent stormwater pollution along with soil and sedimentation within its boundary, and to establish standards and specifications for conservation practices and planning activities that minimize stormwater pollution, soil erosion and sedimentation, pursuant to Minnesota Rules Chapter 7001 and 7090; and with authority to carry out land use controls, pursuant to Minnesota Statutes Chapter 462 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 Mississippi River-Winona La Crescent Watershed *(See Attachment A for map of planning area)* 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 Minnesota Statutes Chapters 103B, 103C, and 103D, this Agreement does not change the rights or obligations of the public drainage system authorities; and

WHEREAS, the Parties have formed this Agreement for the specific goal of developing a plan pursuant to Minnesota Statutes § 103B.801, Comprehensive Watershed Management Planning, also known as *One Watershed, One Plan* for the Mississippi River-Winona La Crescent Watershed.

NOW, THEREFORE, the Parties hereto agree as follows:

1. **Purpose:** The Parties to this Agreement recognize the importance of partnerships to plan and implement protection and restoration efforts for the Mississippi River-Winona La Crescent Watershed *(See Attachment A with a map of the planning area)*. The purpose of this Agreement is to collectively develop and adopt, as local government units, a comprehensive watershed management plan pursuant to Minnesota Statutes § 103B.801 for implementation per the provisions of the Plan. Parties signing this agreement will be collectively referred to as the "Mississippi River Winona La Crescent 1W1P" and are partnering together as a joint powers collaboration in the form of a joint powers agreement under Minnesota Statutes § Section 471.59.

2. **Term and Termination:**
    a. This Agreement is effective upon signature of all Parties hereto in consideration of the Board of Water and Soil Resources (BWSR) grant agreement and in accordance with BWSR's Operating Procedures for One Watershed, One Plan; and will remain in effect until adoption of the Plan by all Parties, unless canceled or otherwise terminated according to the provisions of this Agreement or earlier terminated by law.

    b. Parties anticipate that this Agreement will remain in full force and effect through the term of the grant agreement with BWSR, unless otherwise terminated in accordance with law or other provisions of this Agreement. The Parties acknowledge their respective and applicable obligations, if any, under Minnesota Statutes § 471.59, Subd. 5 after the purpose of the Agreement has been completed. This Agreement shall be terminated upon the end of the term of the grant agreement with BWSR unless the grant agreement is extended by the Parties. It is anticipated that this Agreement will be in place until an implementation planning grant is obtained by the Parties and a new Agreement between the Parties is in place for the implementation planning phase for the Mississippi River-Winona La Crescent Watershed.

    c. The Parties may extend the termination date of this Agreement upon the mutual written agreement by all Parties.

3. **Adding Additional Parties:** A qualifying party within the Mississippi River-Winona La Crescent Watershed desiring to become a member of this Agreement shall adopt a resolution of its governing body prior to December 31, 2021 approving this Agreement. The qualifying party agrees to abide by the terms and conditions of this Agreement; as well as, the bylaws, policies and procedures adopted by the Policy Committee.

4. **Withdrawal of Parties:** 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 resolution adopted by its governing body. Notice must be made at least 30 days in advance of leaving this Agreement.

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 or to the facilities, programs, and staff for which the respective Party is responsible.

   b. **Indemnification:** Each party to this Agreement shall be liable for the acts of its 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 any other party hereto, or its officers, employees or agents. The provisions of the Municipal Tort Claims Act, Minnesota Statutes Chapter 466 and other applicable laws limiting liability of the Parties shall apply. 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”. It is the intent of the Parties that they shall be deemed a “single governmental unit” for the purpose of liability, as set forth in Minnesota Statutes § 471.59, subd. 1a(a). For purposes of Minnesota Statutes § 471.59, subd. 1a(a) 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(ies). Under no circumstances shall a Party be required to pay on behalf of itself and other Parties, any amounts in excess of the limits on liability established in Minnesota Statutes Chapter 466 applicable to any one Party. The limits of liability for some or all of the Parties may not be added together to determine the maximum amount of liability for any Party. Nothing in this Agreement shall be construed to waive any immunities or limitations to which a party is entitled under Minnesota Statutes Chapter 466 or otherwise.

   c. **Records Retention and Data Practices:** The Parties agree that records created pursuant to the terms of this Agreement will be retained in a manner that meets their respective entity’s adopted records retention schedules pursuant to Minnesota Statutes § 138.17. The Parties further agree that records prepared or maintained in furtherance of this Agreement shall be subject to the Minnesota Government Data Practices Act. At the time this Agreement expires, all records will be turned over to the Fiscal Agent for continued retention in accordance with 7. e and 8.f. below.

   d. **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.

   e. **Amendment:** The Parties may modify this Agreement upon approval by a majority vote of all of the

Parties to the Agreement. Any amendment to this Agreement shall be in writing, adopted by each Party in the same manner as the original Agreement.

f. **Authorized Signatories.** The parties each represent and warrant to the other that (1) the persons signing this Agreement are authorized signatories for the entities represented, and (2) no further approvals, actions or ratifications are needed for the full enforceability of this Agreement against it; each party indemnifies and holds the other harmless against any breach of the foregoing representation and warranty.

g. **Governing Law.** The laws of the State of Minnesota shall govern any interpretations or constructions of this Agreement without regard to its choice of law or conflict of laws principles.

h. **Non-Discrimination.** The provisions of any applicable law or ordinance relating to civil rights and discrimination shall be considered part of this Agreement as if fully set forth herein.

i. **Severability.** The invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of any other provision. Any invalid or unenforceable provision shall be deemed severed from this Agreement to the extent of its invalidity or unenforceability, and this Agreement shall be construed and enforced as if the Agreement did not contain that particular provision to the extent of its invalidity or unenforceability.

j. **Entire Agreement.** These terms and conditions constitute the entire agreement between the parties regarding the subject matter hereof. All discussions and negotiations are deemed merged in this Agreement.

k. **Headings and Captions.** Headings and captions contained in this Agreement are for convenience only and are not intended to alter any of the provisions of this Agreement and shall not be used for the interpretation of the validity of the Agreement or any provision hereof.

l. **Force Majeure**. The Parties shall each be excused from performance under this Agreement while and to the extent that either of them are unable to perform, for any cause beyond its reasonable control. Such causes shall include, but not be restricted to fire, storm, flood, earthquake, explosion, war, total or partial failure of transportation or delivery facilities, public health pandemic, raw materials or supplies, interruption of utilities or power, and any act of government or military authority. In the event any party is rendered unable wholly or in part by force majeure to carry out its obligations under this Agreement then the party affected by force majeure shall give written notice with explanation to the other parties immediately.

m. **Recitals.** The recitals hereto are made a part hereof.

6. **Administration:**

a . **Establishment of Committees for Development of the Plan.**

i. Policy Committee. The Parties each agree to appoint/designate one representative, who must be a current elected or appointed member of the governing body of each respective Party, to a Policy Committee for development of the watershed-based plan.

The Policy Committee will meet monthly, or as needed and as determined by the Policy Committee. The Policy Committee decides on the content of the Plan, serve as a liaison to their respective board/council, and act on behalf of their board/council. Each representative shall have one vote.

Each governing body may choose one alternate to serve on the Policy Committee, as needed in the absence of the appointed/designated member. The alternate must be an elected or appointed member of the governing body of each respective Party.

ii. Advisory Committee. An Advisory Committee will be established by the Policy Committee to provide technical support on the development of the Plan, Plan content, and Plan implementation, including identification of priorities. Specific duties will be established by the Policy Committee. The Advisory Committee will consist of the local Planning Workgroup, stakeholders, the state's main water agencies, technical representatives appointed by individual Parties and/or plan review agencies (Board of Water and Soil Resources, Minnesota Department of Agriculture, Minnesota Department of Health, Minnesota Department of Natural Resources, Minnesota Pollution Control Agency, and Environmental Quality Board). The Advisory Committee will meet quarterly, or as needed. Members of the Advisory Committee may not be a current member of the governing body of any of the Parties.

iii. Planning Workgroup. A Planning Workgroup will be established consisting of local staff, local water planners, local watershed staff, local SWCD staff and city staff for the purposes of logistical and day-today decision-making in the planning process. The Planning Workgroup will meet monthly, or as needed and may attend, in lieu of or in addition to their monthly meeting, Policy and Advisory Committee meetings.

b. **Bylaws.** The Policy Committee will establish bylaws by March 31, 2021 to describe the functions and operations of the Policy Committee.

c. **Submittal of the Plan.** The Policy Committee will recommend the draft plan to the Parties of this Agreement. The Policy Committee will be responsible for initiating a formal review process for the watershed-based plan conforming to Minnesota Statutes Chapters 103B and 103D including public hearings. Upon completion of local review and comment, and approval of the plan for submittal to BWSR by each party, the Policy Committee will submit the watershed-based plan jointly to the Board of Water and Soil Resources for review and approval.

d. **Adoption of the Plan.** The Parties agree to adopt and begin implementation of the Plan within 120

days of receiving notice of state approval, and provide notice of Plan adoption pursuant to Minnesota Statutes Chapters 103B and 103D.

7. **Fiscal Agent:** Root River Soil and Water Conservation District will act as the fiscal agent for the purposes of this Agreement and agrees to:

   a. Accept all fiscal responsibilities associated with the implementation of the BWSR grant agreement for developing a watershed-based plan and sign the grant agreement on behalf of the Parties listed within, and being responsible for BWSR reporting requirements associated with the grant agreement.

   b. Perform financial transactions as part of grant agreement and contract implementation.

   c. Annually provide a full and complete audit report.

   d. Provide the Policy Committee and its members with the records necessary to describe the financial condition of the BWSR grant agreement.

   e. Retain fiscal records consistent with the agent's records retention schedule (See 5.c.).

8. **Grant Administration:** Winona County (Water Planner) will act as the Day-to-Day Contact for the purposes of this Agreement and agrees to provide the following services:

   a. Accept all day-to-day responsibilities associated with the implementation of the BWSR grant agreement for developing a watershed-based plan, including being the primary BWSR contact for the *One Watershed, One Plan* Grant Agreement.

   b. Provide the Policy Committee with the records necessary to describe the planning condition of the BWSR grant agreement.

   c. Coordination of Policy and public meetings as required by Minnesota Statutes Chapters 103B and103D as part of the formal review process for the watershed-based plan, including establishing date, location, time, technology needs, presenters, and any necessary accommodations, such as refreshments.

   d. Manage contracted service for data compilation, GIS mapping, data analysis, meeting facilitation, and plan writing.

   e. Ensure that minutes of all Policy Committee meetings are recorded and made available in a timely manner to the Policy Committee and maintain a file of all approved minutes including corrections and changes.

   f. Retain records consistent with Day-to-Day Contact's records retention schedule until termination of the Agreement (at that time, records will be turned over to the Fiscal Agent.) (See 5.c.).

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

Houston County
Donna Trehus, or her assigns
County Auditor/Treasurer
304 South Marshall Street
Caledonia, MN 55921
Telephone: (507)725-5185

Root River SWCD
David Walter, or his assigns
District Administrator
805 North Hwy 44/76, Suite 1
Caledonia, MN 55921
Telephone: (507)724-5261

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

Olmsted SWCD
Skip Langer, or his assigns
District Administrator
2122 Campus Drive SE
Rochester, MN 55904
Telephone: (507)328-7070

Wabasha County
County Administrator, or his/her assigns
County Administrator
625 Jefferson Avenue
Wabasha, MN 55981
Telephone: (651)565-3051

Wabasha County SWCD
Terri Peters, or her assigns
District Administrator
611 Broadway Ave, Suite 10
Wabasha, MN 55981
Telephone: (651)565-4673

Winona County
Ken Fritz, or his assigns
County Administrator
202 West Third Street
Winona, MN 55987
Telephone: (507)457-6355

Winona County SWCD
Daryl Buck, or his assigns
District Administrator
400 Wilson St N, PO Box 39
Lewiston, MN 55952
Telephone: (507)523-2171, Ext. 112

Stockton-Rollingstone-Minnesota City Watershed District
Machelle Frisbie, or her assigns
Watershed District Chair
110 Washington St
Rollingstone, MN 55969
Telephone: (507)410-1114

City of Winona
Steve Sarvi, or his assigns
City Manager
207 Lafayette
City Hall
Winona, MN 55987
Telephone: (507)457-8234

IN TESTIMONY WHEREOF the Parties have duly executed this agreement by their duly authorized officers.

PARTY: **HOUSTON COUNTY**

APPROVED:

BY: Robert H Burns 2/9/21
County Board Chair Date

ATTEST: Donna Trehus
County Administrator/Deputy Clerk of the County Board

APPROVED AS TO FORM

BY: 2-9-21
County Attorney Date

PARTY: **ROOT RIVER SOIL AND WATER CONSERVATION DISTRICT**

APPROVED:

BY: Cecil Gray 1/7eb21
Root River SWCD Board Chair Date

ATTEST: 2/11/2021
Root River SWCD Manager

IN TESTIMONY WHEREOF the Parties have duly executed this agreement by their duly authorized officers.

PARTY: **OLMSTED COUNTY**

APPROVED:

BY: DocuSigned by: Stephanie Podulke 3F98A212909F415... 2/17/2021 | 11:59 AM CST

County Board Chair Date

ATTEST: DocuSigned by: F2D519A66DB1430... 2/17/2021 | 1:00 PM CST

County Administrator/Deputy Clerk of the County Board

APPROVED AS TO FORM

BY: _____

County Attorney Date

PARTY: **OLMSTED SOIL AND WATER CONSERVATION DISTRICT**

APPROVED:

BY: DocuSigned by: Cheryl J Winters 2DC3653FAA004C2... 1/28/2021 | 3:03 PM CST

Olmsted SWCD Board Chair Date

ATTEST: DocuSigned by: Skipton Langer 6DFAD3EA3159434... 2/1/2021 | 5:05 PM CST

Olmsted SWCD Manager

IN TESTIMONY WHEREOF the Parties have duly executed this agreement by their duly authorized officers.

PARTY: **WABASHA COUNTY**

APPROVED:

Cheryl Key

BY: _____

County Board Chair Date

ATTEST: _____

County Administrator/Deputy Clerk of the County Board

APPROVED AS TO FORM

BY: _____ 2-2-2021

County Attorney Date

PARTY: **WABASHA COUNTY SOIL AND WATER CONSERVATION DISTRICT**

APPROVED:

BY: Tom Holly 1/28/24

Wabasha County SWCD Board Chair Date

ATTEST: _____ 1/28/2021

Wabasha County SWCD Manager

IN TESTIMONY WHEREOF the Parties have duly executed this agreement by their duly authorized officers.

PARTY: **WINONA COUNTY**

APPROVED:

BY: Marcia L. Ward January 27, 2021 | 8:04 AM PST

County Board Chair Date

ATTEST: Ken Fritz

County Administrator/Deputy Clerk of the County Board

APPROVED AS TO FORM

BY: Karin L. Sonneman January 20, 2021 | 1:29 PM PST

County Attorney Date

PARTY: **WINONA COUNTY SOIL AND WATER CONSERVATION DISTRICT**

APPROVED:

BY: Andy Kronebusch 2-11-21

Winona County SWCD Board Chair Date

ATTEST:

Winona County SWCD Manager

IN TESTIMONY WHEREOF the Parties have duly executed this agreement by their duly authorized officers.

PARTY: **STOCKTON-ROLLINGSTONE-MINNESOTA CITY WATERSHED DISTRICT**

APPROVED:

BY: Rachelle Tyrrell 2/8/2021
SRMCWD Board Chair Date

ATTEST: William Hayton 2/8/2021
SRMCWD Secretary

IN TESTIMONY WHEREOF the Parties have duly executed this agreement by their duly authorized officers.

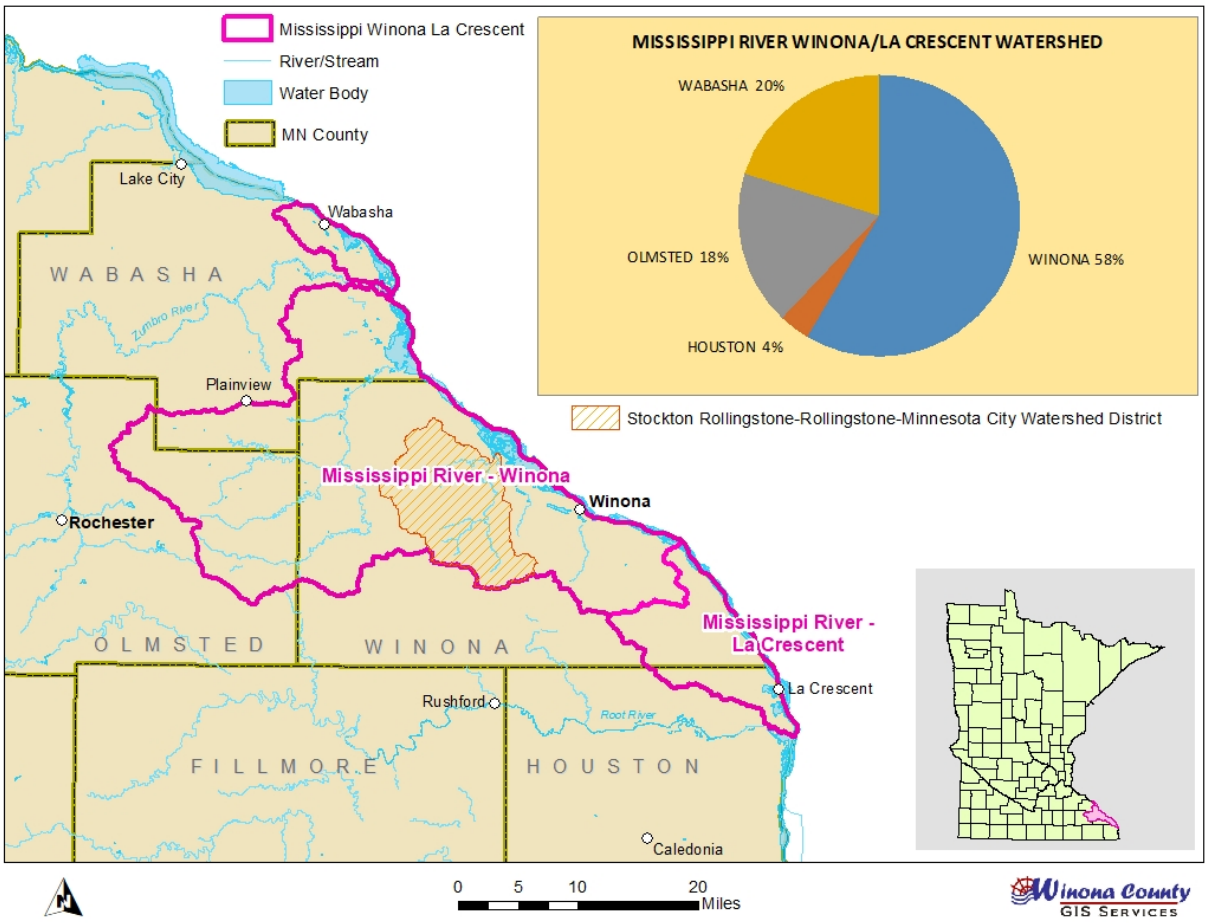
PARTY: **CITY OF WINONA**

APPROVED:

BY: _____ 2/1/2021
Mayor Date

ATTEST: _____
City Clerk

Attachment A



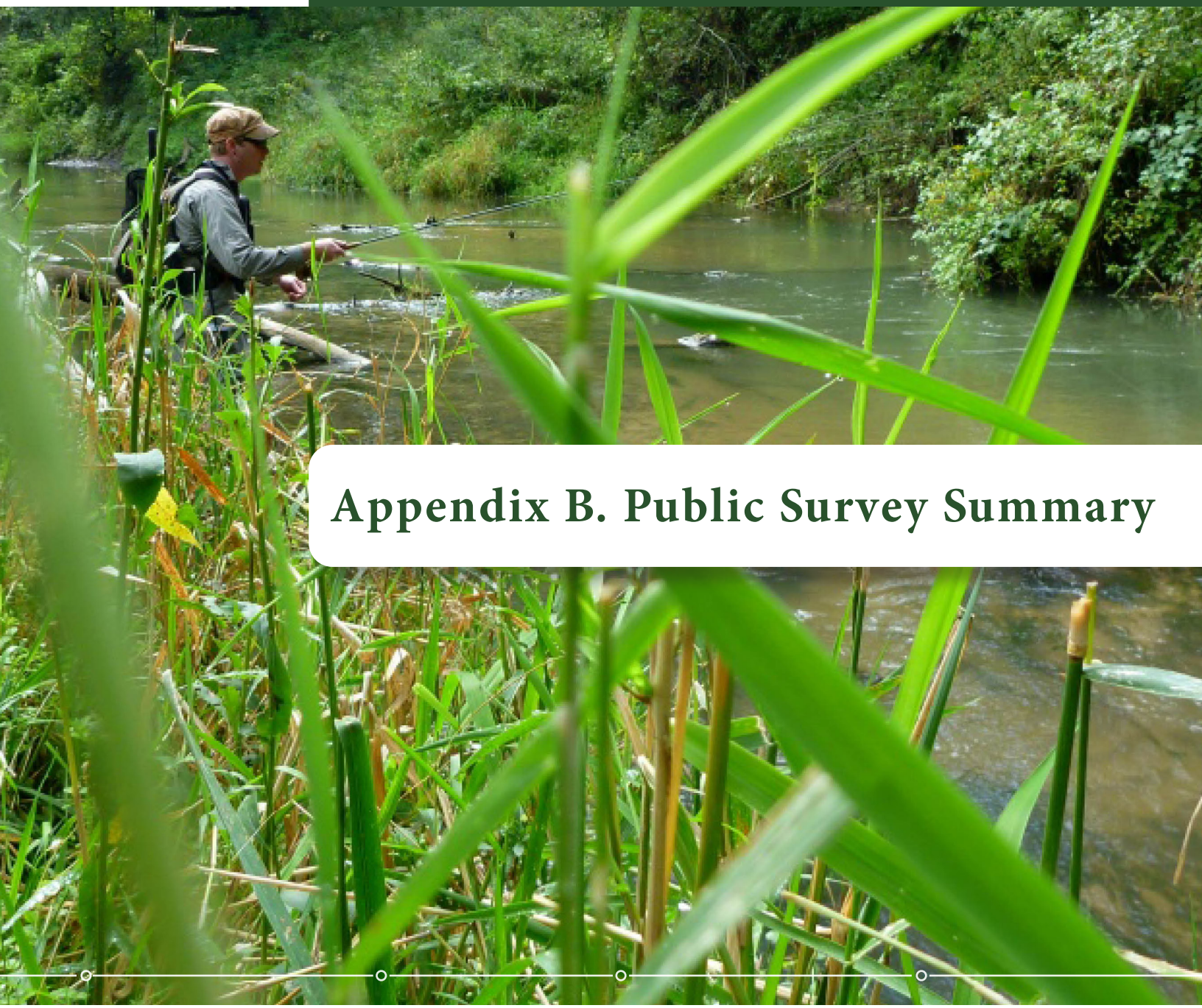
COUNTY OF WINONA

Approved as to form this _26th day of

_January 2021.

Karin L. Sonneman

Winona County Attorney



Appendix B. Public Survey Summary

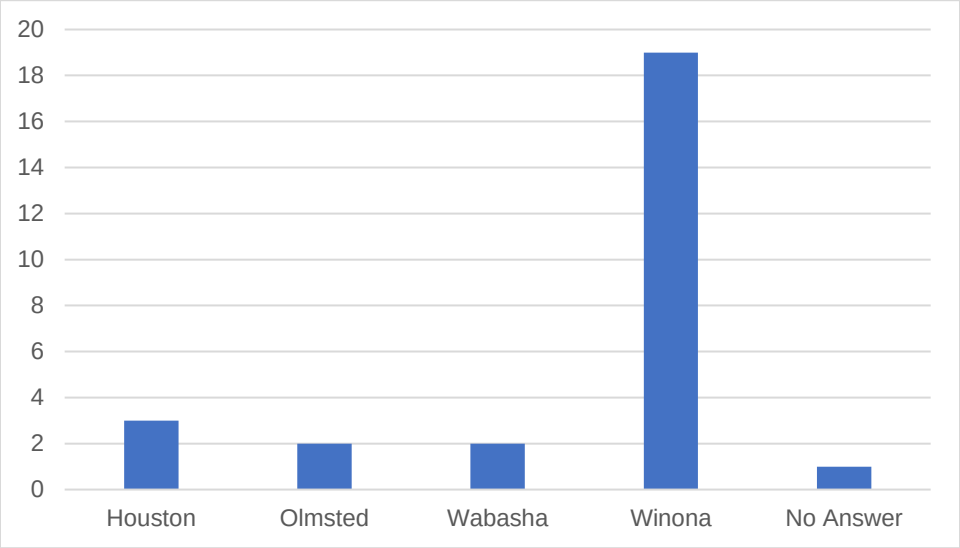
WinLaC Partnership 1W1P

Public Survey Responses

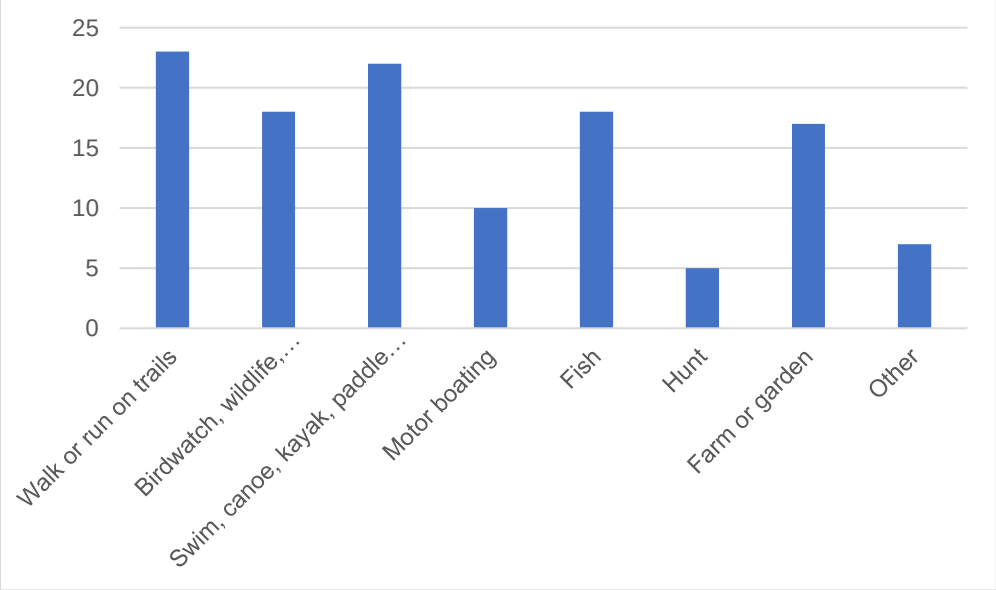
The Mississippi River Winona / La Crescent (WinLaC) Watershed One Watershed, One Plan Planning Work Group issued a public survey to understand the issues most important to the watershed's residents. The survey was available at the public kickoff meeting in Winona, MN on September 20, 2021. It was also made available online on the plan's website.

A total of 28 responses were received. A summary of the responses is provided below.

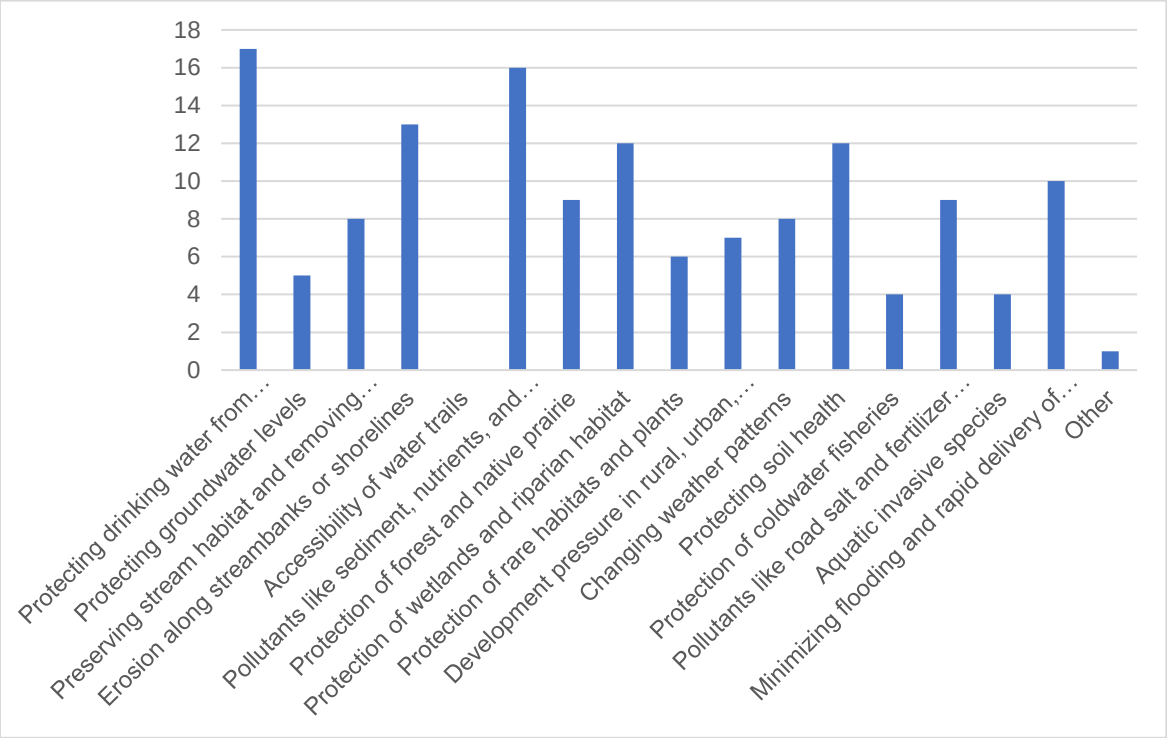
What is your WinLaC Watershed County of residence?



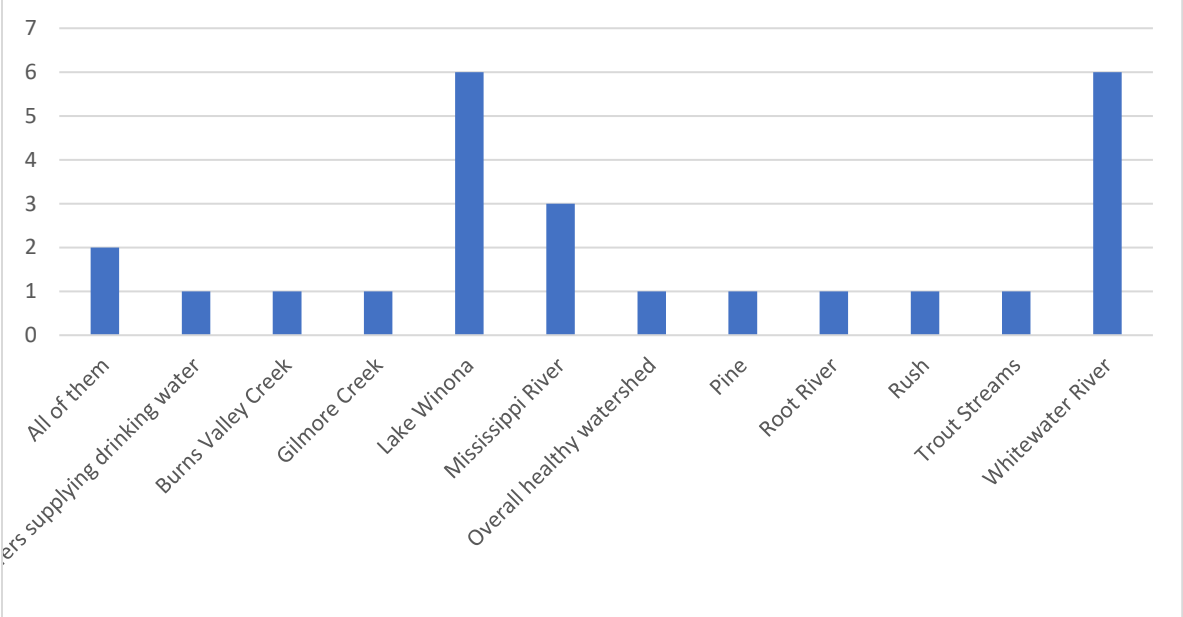
Which of the following activities do you do in the area around the WinLaC Watershed? (Check all that apply.)?



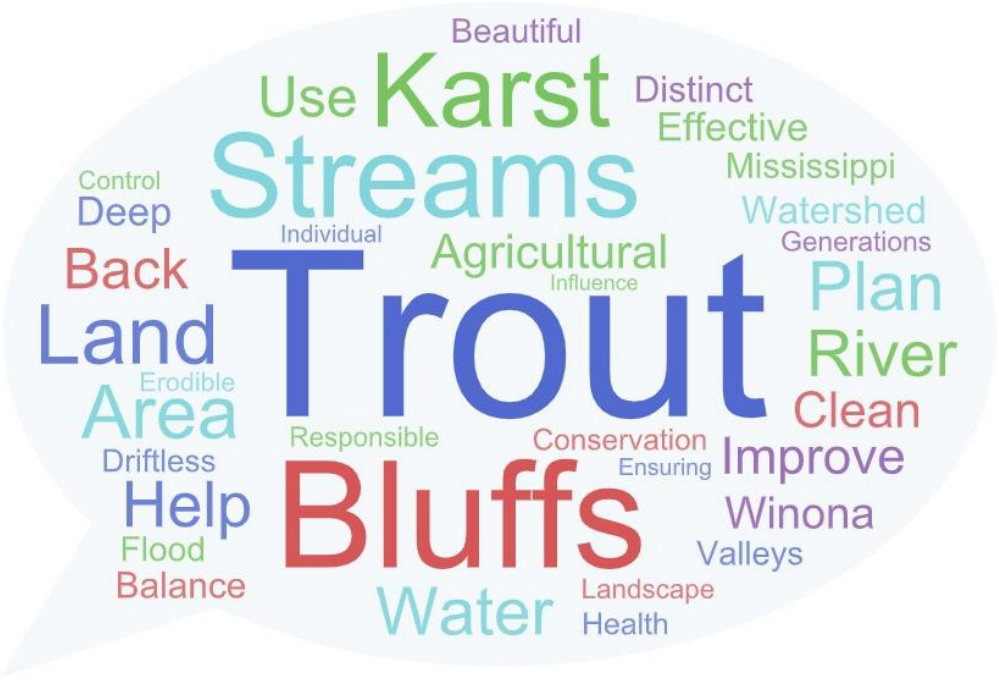
What do you see as the largest issues facing natural resources in the area? (Please choose 5)



Are there specific waterbodies or natural areas you are concerned about?



Using 4-5 words, when you think of the WinLaC Watershed, what comes to mind?



Are there any topics, resources, problems, or opportunities we did not cover in this survey you'd like to comment on?

Where are the high value / rare biology/natural areas? How can we highlight or incentivize protection / enhancement of these

Protecting farm land and communities

Bacteria loading to streams is a major problem that is being inadequately addressed

I have an environmental science degree and would be interested to volunteer / work towards water quality in any capacity (other than conserving and re-using h2o on my own and donating to honor the earth and MN350). Overpopulation - involve youth in education - How to resist big BS ridiculous development - how to stress the value of natural resources and the importance of honoring the earth to sustain the people - where does city water come from.

Making sure we can protect water while keeping the agriculture economy strong

No, I felt like there was a good range of important topics covered

Shrinking of wetlands

Soil health, buffers

Healthy Lake Winona

What are the monitoring mechanisms? Who are the decision makers? What are the costs?

Appendix C. Waterside Chats Summary

WinLaC Partnership —1W1P—

WinLaC Waterside Chats Summary

Background

A series of listening sessions and outreach events were held throughout the WinLaC watershed to better understand residents' water quality priorities and acceptable solutions. The facilitated Waterside Chats were held in each of the sub-watersheds as follows:

- March 7, 2022: Garvin Brook Waterside Chat in Stockton, MN; attendance - 17
- March 8, 2022: La Crescent Waterside Chat in City of La Crescent (also held with remote option): attendance – 14 in-person and 8 remote.
- March 14, 2022: Winona area Waterside Chat in Winona, MN; attendance - 24
- March 24, 2022: Whitewater Waterside Chat in St Charles, MN; attendance – 15
- April 7, 2022: Wabasha area Waterside Chat in Wabasha, MN: attendance - 18

At each Waterside Chat a brief overview of the planning process was provided, as well as identified issues for the planning area. Three "heat maps" were used to depict Prioritized areas of the watershed for Groundwater, Surface Water and a combined map showing Habitat and Land Use priority areas. At each of three Resource Stations, attendees were asked the following questions:

- *Where in the watershed do we need to focus our resources?*
- *What specific practices should be funded through the Plan?*
- *What practices would you be willing to use on your land if cost share was available?*

Small group discussions identified locations throughout the watershed were important water quality issues are present, and what actions should be taken to fix those issues? Waterside Chat responses are provided in the tables in following pages.

In addition to the Waterside Chats, public engagement was also provided during a We Are Water MN exhibit held in the City of Winona March 3 through April 25, 2022. People visiting the exhibit had the opportunity to learn about the watershed and share what they find most important about it; surveys at the exhibit asked what practices people wanted to see in the watershed. These comments were included with Waterside Chat comments in the combined Advisory Committee/Planning Work Group meeting on April 26, 2022.

WinLaC Partnership —1W1P—

Groundwater Actions Summary

Identified Issues

Groundwater Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
Surface water - groundwater connections providing easy access for pollutants to reach groundwater; Surface water pollution equates to poor groundwater quality; Karst features such as Springs and high concentration of sinkholes are examples.	X		X	X	
Flooding provides a direct connection to potential groundwater contamination; there may be data gaps with this.	X			X	
High Nitrates			X		X
Chloride in Groundwater is trending higher					X
Quantity of clean Drinking Water			X		
Lag time: Realize that it will take time to see results			X		
Failing / non-compliant Septic systems and unsewered communities			X		
Variable rate technology (for ag) is very costly - new technologies are not used because of cost				X	
Manure management plans are not compatible with no-till plans. For example, U of M recommendations are outdated and do not fit with no-till (ex. Nutrient management recommendations says "incorporate")				X	
When government gets involved, engineering costs and paperwork increases for various practices	X				
Well Head Protection threats: Septic systems, fertilizer & nitrates, animal waste runoff			X		

Specific Locations with Issues

Groundwater Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
East & south of St. Charles: sinkholes. Also just south of watershed (south of Lewiston in Root Watershed) is a sinkhole area that may influence surface water as it rises and maybe moves north	X		X		
Areas with sandy soils are more susceptible. Specific problem areas include: Farms on sand bands (or veins) - should be incentivized to use	X		X		

cover crops or alternative nitrates management practices; Weaver Bottoms and developed areas near river; Utica area					
Whitewater Watershed headwaters: Groundwater springs form these headwaters - making this area a priority	X				
Watopa and Minnieska: Not included in township tested - Making them look better.			X		
Cities of Goodview and Winona have deeper wells with radium			X		
Whitewater Wildlife Management Area (WMA) has abandoned wells			X		
Lewiston wellhead			X		
Elgin DWSMA level is at 2 - High nitrates; Problem is from outside Elgin city limits			X		
Utica has significant municipal drinking water issues				X	
NE of Utica - Are there outdated sewer ponds?				X	
City of Wabasha is vulnerable - dealing with unsealed wells, impact from Railroad and septic system issues					X
Teepeota Point has very high levels of manganese in groundwater					X
Greenfield Township has issues with septic systems					X
There's an old cistern at 318 2nd St in Wabasha					X
Old well is not capped in Wabasha sand and gravel area					X

Identified BMPs / Practices

Groundwater Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
Sinkhole protection: Funds / cost share need to be available to seal sinkholes, as needed, and practices to protect sink holes from receiving runoff, including setbacks	X	X	X		
Provide cost share for cover crops; Need long-term incentive program for cover crops (not just for 1-3 years); To make cover crops plantings easier - purchase seed wholesale and provide free for farmers to use.	X		X	X	
Abandon and seal old wells; replace with new wells; better cost share rates are needed for well sealing (currently still cost prohibitive for some). Some homes that get annexed to city still have their original well uncapped.	X		X	X	

To address Nitrate issue - Need to focus on reducing inputs; Do farm economic workshops; cut costs with inputs using precision farming practices; adjust N standards to address impact to aquatic life (standard will be lower level than current standard)		X			X
Need grants/funding for filter systems, RO systems, Iron & calcium removal systems, and other well upgrades / improvements			X	X	
To address persistent flooding: need retention dams, waterways & tree plantings.				X	
Establish conservation easements on land that is shallow to bedrock and on land surrounding sink holes				X	
We have to test well water and get people to treat it, if there are issues. (Not going to make a difference with Groundwater)				X	
Manure storage cost share needed; what currently is available is cost prohibitive.				X	
Need personal nutrient management plans for each farmer based on land and soil type.				X	
Cost share for variable rate technology for chemical applications				X	
Lower fertilizer use				X	
Wells need safety plans in place to include annual nitrate, bacteria testing and water treatment, if necessary.				X	
Map old unsealed wells in Whitewater River Watershed state lands.			X		
Need a small grant program / funding to assist with SSTS replacement or upgrade			X		
Increase perennial cover in upland areas to assist with uptake of excess nutrients; Encourage perennial crops (diversity)			X		
Funds needed for private well protection (vegetative cover)			X		

Identified Regulation / Local Controls

Groundwater Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
Septic systems: There is no opportunity to get non-compliant septic systems voluntarily inspected. Septic systems need to be inspected. If problems found, funds are needed to assist with upgrades. Some areas of WinLaC Planning area do not have SSTS point of sale inspections.					X

Old cabins and houses have old wells and pipes & there is no county requirement for periodic testing					X
Manure should not be spread on frozen fields					X

Big Picture / Policy Issues Discussed

Groundwater Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
Need a more intentional structured plan for widespread testing of private wells (beyond voluntary testing)			X		
Clean drinking water should be a right. We need to change our approach. The cost / burden should not rest with the people who drink the water. We should require the "Spreader of pollution elements" to guarantee no negative impact.					X
Change nitrate standards to a level that is based on science (3 ppm)					X
Ag lands - Use whole farm planning; Develop relationships with producers; Work with agronomists. If this doesn't work, then impose limits and penalties.					X
Actions should be prioritized based on multiple benefits.			X		
Farmers need time to fully transition to cover crops, some may not be able to justify cost of new equipment (no-till drill); there may be time constraints to plant after harvesting.	X				
Public needs to understand that there are data gaps and there can be a time lag for surface water to reach groundwater; need to be patient in seeing results of changed land use.	X				

Education / Needed Studies

Groundwater Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
Testing for forever chemicals		X			
More education needed on sink holes and dye tracing; educate on how surface water and groundwater interact; how do aquifers work	X				
Teaching people that you can still get good outputs with less inputs					X
Pilot study an intensive implementation of soil health practices in a small focused watershed					X

Nutrient management & fertilizer management for people in cities (so non-farm people better understand)			X		

Suggestions

Groundwater Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
One participant wanted to see a geology map and topo map to try to better understand groundwater contamination issues; want to see a map of aquifers and groundwater flow directions; karst features needed on map	X		X		
People confused by this map the most. They don't understand the colors and what's behind them; they also want to know more about cities' sources of drinking water.	X				
Indicate on map where people are on city water and where people drink water from private wells	X				

Surface Water Actions Summary

Identified Issues

Surface Water Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
Stream bank saturation and mass wasting; Streambanks sensitive to frequent flash floods		X	X	X	
Preventing manure runoff is a challenge. Note: Manure application is already regulated by time of year and allowed on steep slopes. Generally (due to cost), farmers do not have an incentive to over-apply.	X	X	X		
Persistent Flooding: Need Retention Dams; Waterways; Terraces; Tree and Grass plantings; We either deal with flood prevention or flood cleanup	X			X	
Upland storage ponds are old & not as effective as they once were; Winona County has 1800 upland ponds (50-60 years old), but are full of sediment and do not work efficiently	X			X	
Weather pattern changes: We are fighting more intense and more frequent storms; Streams are at a higher base flow.				X	
Where there is rapid infiltration, nutrients are a risk to both surface water and groundwater				X	
Groundwater = Surface water = Groundwater				X	

Altered hydrology issues are very complex	X				
Box elders (near streams) don't retain soil and contribute to flooding when they fall down	X				
Loss of terrestrial habitat					X
Aquatic invasives in trout fisheries		X			
Cover Crop risks: Farmers cannot risk of planting cover crops with low crop prices, weather risks & other challenges faced each year: Need to provide better, long-term incentives for them.				X	
Grazing in riparian areas can be beneficial, especially when managed for vegetation, random manure coverage & stream corridor is maintained.				X	
Regarding manure runoff - significant cost share is needed to support large manure storage structures, funding is not available and working with NRCS is expensive	X				
Tillage management; Fall tillage, Mold Board plowing & chisel plowing are still being used					X
Septic system - failing or non-compliant		X			
Nutrients, E. coli and other pollutants in Surface water		X			
Stormwater management (costly to implement); Stormwater - management/storage/treatment (MS4 vs. non MS4); runoff from impervious surfaces impacts nearby streams / lakes		X			X
Natural filters & buffers (plants & wetlands) help compromised lakes			X		
Commercial navigation (barges) are subsidized to haul crops					X

Specific Locations with Issues

Surface Water Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
Mississippi River backwaters: Erosion in watershed is filling in backwaters; sedimentation is filling in Lake Pepin and Lake Zumbro; streambanks are becoming incised due to surface runoff and tiling. Mississippi backwaters also impacted by invasive species.			X		X
Just outside City of Winona (areas that have been annexed to the City), stormwater flows are too high	X				
Pleasant Valley subwatershed: Water storage is an issue	X				

Pick Wick Creek - sedimentation fills in lake, causing more problems upstream	X				
Garvin Brook near Stockton has box elders growing in easement area; A question about what can be done for box elder removal in easement areas; don't need box elder (woody vegetation) in these areas; should be grassy vegetation.	X				
Stockton has had flooding issues. Pleasant Valley also had issues in past, but put in numerous dams - this should be done in Stockton area.	X				
Whitewater headwaters area: source for three main branches and has wetlands in need of protection -should be priority for protection	X				
There's increased development outside city boundaries, especially along the Mississippi River; these areas have shallow wells and higher density of septic systems					X
Sand Prairie has failing septic systems and large population of septic systems that are in close proximity					X
There's a lot of material stacked up along the (Mississippi River) riverfront (e.g. along railway in Winona); This material is too close to the Mississippi.					X
Lake Winona: Reduce nutrient inputs from creeks and stormwater; monitor inputs and lake conditions; add rain gardens & modify sewers			X		
South Branch Whitewater (from Eyota past St Charles): water quality is an issue				X	
In City of Wabasha - limit concrete driveways for residential homes (e.g. Teepeota Point); also limit huge garages that limit neighbor's views					X
Pollinator gardens needed (12th & Bailey in City of Wabasha)					X
Half Moon Coulee - cows in stream			X		
Oak Ridge area: There's no enforcement of manure application					X
Garvin and Whitewater - flooding	X			X	
Pine Creek: Flooding is issue, it is also impaired. As a designated trout stream is needs better water quality.		X			
Pine Creek golf course project - need to provide before and after photos to show progress		X			
Elba: severe streambank erosion					
Cedar Valley Creek; landowner willing to put more ponds in	X				
City of La Crescent is downstream from rest of watershed and receives pollutants from upstream		X			

Identified Ag / Rural BMPs / Practices

Surface Water Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
Provide financial incentives for taking marginal lands and putting in perennial vegetation / conservation easements that would benefit habitat corridors; "Farm the best, save the rest"; increase / create field-forest edge buffers; leave wet areas as wetlands			X	X	X
To reduce runoff: Restore wetlands, re-hab existing grade stabilization structure and dams, retention pond (to include temporary storage), do pond cleanouts and construct new ponds	X		X	X	
Incentivize cover crops: especially for HEL lands. Cover crops need more consistent cost share and improved eligibility for farmers; offer a cover crop seed distribution program in lieu of financial incentives.	X		X	X	
Fund streambank protection and stabilization projects	X			X	
Increase organic matter in soil through soil health practices that improve water holding capacity				X	X
Need grassed waterways; they work 365 days a year	X		X		
Riparian areas need box elder removal	X				
Whole farm conservation planning needed / encouraged					X
Maintain stream buffers				X	
Encourage / incentivize new crops into rotations (small grains can be added to take up nutrients)				X	
Encourage & incentivize managed grazing / Pastures along streams				X	
Provide financial assistance to clean-up feedlots that are contributing to dirty runoff				X	
Encourage / incentivize contour farming	X				
Fund practices that prevent runoff from getting into sink holes	X				
Fund / support no-till practices	X				
Work with landowners near public lands to expand natural areas					X
Implement SSTS upgrade (watershed-wide) for homeowners - (similar to what SEMCAC offers for home improvements)		X			

Identified Urban BMPs / Practices

Surface Water Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
Regarding chloride: Smart Salting practices; reduce chloride use; reduce run-off from streets & impervious surfaces		X		X	
Encourage replacement of concrete and asphalt with pervious pavement (Example - Davenport, MI is replacing alley paving with permeable concrete); Parking lots should have more pervious surfaces and/or rain gardens			X		
Install green infrastructure: raingardens, bio-swales, perennial vegetation instead of lawn, impervious surface reduction. Infrastructure improvements can be large-scale or for individual properties.			X		
Capture & filter city stormwater runoff before going into nearby surface waters			X		
Implement "adopt a drain" program		X			
Implement lawns to legumes program		X			
Need a urban / community tree replacement program (similar to Lawn to Legumes); Need to allow / encourage native plantings in developed areas					X

Identified Regulation / Local Controls

Surface Water Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
More diligent follow-up for monitoring nutrient applications in the "red zones" of map. Better manure management is needed; question application of manure to frozen ground, especially with freezing, melting & heavy rain events	X		X		X
Tillage management; Need to require residue cover or cover crops					X
HEL compliance enforcement needed - HEL compliance is not always followed					X
Complaints are not followed up on - No one wants to "be the cop" and be the bearer of bad news to non-compliant land owner					X
Better control for manure applications near sinkholes and streams, and within municipal well protected areas			X		
Need legislation that requires land owner participation in conservation; voluntary participation is like "pushing on a string"; Somehow "make every one participate in a					X

certain area" - create a new implementation model.					
Consider minimizing use of Off-Highway Vehicles (OHV)					X
Require permeable surfaces in urban areas / large paved areas			X		
Need extensive barriers to being able to farm / build at bluff edges. Instead buffer bluff top and shoulder edges in forests using a long term or perpetual easements					X

Big Picture / Policy Issues Discussed

Surface Water Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
Practices (upland treatment) are needed where it makes the most sense. Focus should be on upland practices, not focused on the downstream (bottom of watershed); Start work at the top and the work our way down. No massive water retention structures installed unless all practices above that location have been verified to be 1) Be at minimum to no-till management level; 2) Have 40-50% residue cover; 3) Have a minimum 100 foot forest edge buffer; 4) Have a Whole Farm Management Plan that is adhered to: i.e. excellent soil health, water infiltration and plant cover.	X		X		X
Farm Bill controls Ag - It subsidizes wrong crops; subsidizes crop insurance; subsidies should be tied to implementing practices that are solutions; commercial navigating of crops is subsidized and shouldn't be. Revisit the 1985 Farm Bill - get back to roots.				X	X
Cover crops needed in all areas of map highlighted in "red" zones of map; monitor and test regularly in "yellow and green" areas of map. Regarding cover crop eligibility: Don't exclude those who have already tried or are currently doing cover crops from financial incentives.			X	X	
Need a strong focus on high-needs areas (for a subwatershed, assign a person / team to work with all producers in that area); Focus implementation in a subwatershed with monitoring to show results - instead of a shotgun approach to implementation					X
Create enduring support to farmers. The problem is that there is high turnover with local staff, and they cannot adequately develop relationships to "sell conservation". Local staff need to adopt mindset that they are selling					X

conservation; have incentives for selling more than quota.					
Land conversions (decreased forests, decreased prairies; expanded development & fragmented lands). Woods and open fields are being stripped for farming; can number of acres of conversion to farmland be limited in certain areas?					X
Soil health has multiple benefits; it needs to be prioritized.				X	
Changes in weather patterns warrant a new look at construction of ponds and other water retention structures - need to account for a different hydrology.				X	
Maintain / Grow cattle & dairy in order to maintain hay and pasture on the landscape			X		
Road salt management (determine how to use appropriately - e.g. salt brine solution use)					X
Need to change paradigm towards sustainable ag - from chemical-based farming to promoting regenerative farming practices					X
Large-scale farming increases challenges. This includes companies that support farming (e.g. chemical companies)					X
"Marry" ideas of infrastructure and water quality			X		
Animal unit cap exists in Winona County, but not in Wabasha and Houston Counties; how animal cap is derived is questioned.			X		
Too many organizations are involved in programs and funding - Simplify: Concentrate. Give property owner contract authority, i.e. simplify project initiation; Need a coordinated delivery of programs.					X
The solution is providing "farm credits" for conservation.					X
Implemented practices have to make economic sense; implemented practices have to pay	X				
Will farmers feel restricted by individual easements and how would potential regulations apply, and how can we build flexibility into the Plan?	X				
Landowners may not be interested in financial incentives (are willing to do the dirt-moving themselves), but would appreciate access to engineering resource staff expertise.					
More native perennial buffers in ag zones			X		
Provide opportunities for small grain markets				X	
Need to quantify cover crop "yield" so that farmers can account for financial gain.				X	

State revenue tax structure needs to be re-visited; after converting to pollinator habitat, one attendee had an increase in state taxes; indicated that this is also true to conversions to forests/prairie.					X
Where in the watershed are drain tiles located, and is new tiling being installed?	X				

Education / Needed Studies

Surface Water Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
There's a cost savings realized when nutrients are not lost when fertilize fields/lawns - that needs to be effectively communicated. Promote farm economic workshops for farmers.		X	X		
Educate on the WinLaC Plan at County Fairs (where people are)			X		
More education for all			X		
To address nutrient loading, need to provide targeted education on nutrient source (information to Fleet Farm & Menards customers). Example, In Hawaii, you cannot buy certain sunscreens that are harmful to coral reefs)		X			

Habitat and Land Use Actions Summary

Identified Issues

Habitat and Land Use Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
Excessive flooding destroys trout habitat				X	
Sediment issues & stormwater runoff impact stream health	X				
Development alters stream sediment & stream temperature, especially on slopes			X		
Not enough upland storage available for current rain events			X		

Specific Locations with Issues

Habitat and Land Use Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
Wetlands and Islands around Wabasha are prime eagle and bird habitat; This land needs protection from development			X		

Lake Winona: Reduce fertilizer, plant more natives, Educate on native plants, needs protection from nutrient inputs, via city sewer and storm drains			X		
Hwy 61 corridor - has high animal mortality			X		
Near Lewiston - retention ponds needs to be cleaned out / fixed	X				
Garvin Brook and Rollingstone Creek: eroding streambanks	X				
Pine Creek: Heal deep straight-cut banks			X		
City of St Charles: farmland runs into city				X	
Sand Prairie area: failing septic systems					X
City of Wabasha Pollinator plantings needed - it's an easy project to do. City received grant to plant trees; there are opportunities to expand tree programs (Urban Community Tree Replacement Program); there are similar programs such as Lawns to Legumes for smaller cities					X
City of Winona - salt / fertilizer piles and other material along the Mississippi River					X
Near City of Winona: large scale storage ponds needed above communities			X		
Viola area: Mold board plowing is being done to warm up ground for earlier planting					X
Headwaters of Whitewater Watershed: wetlands and springs that need protection; upland storage needed to relieve flooding.	X			X	
Eyota has expanding development and stormwater issues	X				
Wooded riparian zones are over-run with box elders and bare soil.	X				
Rollingstone Creek needs access / easements			X		
Mississippi River backwaters are filling in; It is frustrating to find someone that is able to do something about it.					X

Identified Ag / Rural BMPs / Practices

Habitat and Land Use Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
Incentivize more managed grazing / pasture near stream headwaters (less cash crops in these areas). Water runs downhill, so whatever we can do to keep in on the land with cropping practices, the better it is downstream.	X		X		

Based on info in WRAPS & TMDLs; there are problems on agricultural lands and bluff edges; need to reduce runoff from ag lands and ravine areas; CREP and RIM needed in bluff areas; promote / incentivize forest edge buffers	X		X		X
Promote / fund conservation easements for private lands, and for wider buffers along perennial streams			X	X	
Continued funding for cover crops; Do bulk orders of cover crop seed (pre-order for many); Cover crops – inter-planting with cash crops; winter cover - strive for "Forever Green"			X	X	
To address persistent flooding, Fund / cost share retention ponds; terraces and waterways in uplands. Need tree plantings; grass in native plantings; ponds (retention dams) & prairie strips.				X	
Cost Share manure management and more storage for manure.				X	
CRP with grass mixes; cover crops and water infiltration practices needed	X				
Implement removal of address duck weed and water milfoil issues			X		
Cost share trout stream restoration			X		
Drone application of cover crops (owned by SWCD)				X	
Incentivize reforestation, new ponds, clean old ponds, soil health			X		
Cost share CRP-type prairie plantings, reduction of aquatic invasives, appropriate tree and shrub plantings, prevent erosion, restore wetlands, enforce set-back rules along water courses			X		
Promote / incentivize wetland restoration to slow surface flows, and traps sedimentation.			X		

Identified Urban BMPs / Practices

Habitat and Land Use Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
Appropriate chloride management; implement Smart Salting programs; need a balance between safety and environment; use new advancements in ice treatments (salt brine solution)					X
Implement vegetated buffers and stormwater ponds, and native vegetation in developing areas					X
Need stormwater cleaning systems or vaults					X

Promote rain garden installs and prairie plantings in communities			X		
Convert non-pervious surfaces to pervious			X		
Regarding invasive species - need roadway management equipment cleaned to prevent invasive spread				X	
Promote a sustainability award for community residents		X			

Identified Regulation / Local Controls

Habitat and Land Use Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
Promote high density housing in cities to prevent urban sprawl			X		
Identify what has worked in other townships / cities in relation to regulations and consider adoption			X		
Create robust tree diversity & protection plan in municipal code (like Northfield, MN); the municipal code can also include a list of preferred natives.			X		
Winter spreading of manure is an issue; is voluntary participation enough?					X
Minimize 4-wheeling that disturbs natural areas.					X
Preventing soil movement should be the focus; Sometimes the only way to deal with it is to leave land in native vegetation (no-till was not enough)					X
Identify areas of high biodiversity and protect them			X		
Consider larger setbacks from sinkholes			X		
There should be a mandate for a certain percentage of residue or cover crops in fields					X
Prohibit tiling					X
Ecosystem restoration (function)			X		

Big Picture / Policy Issues Discussed

Habitat and Land Use Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
Consider Good or bad - habitat vs erosion and infrastructure; Balance Ag production and Ag BMPs; Consider value of permanent practices (ponds, terraces, structures) to more temporary			X	X	

practices (cover crops). Consider long-term benefits and adverse effects from today's activities					
Overall, we have moved away from comprehensive whole farm conservation planning; Make room for innovation; Identifying lessons learned.			X		X
Complaints about NRCS - local staff don't have flexibility; Suggested to document issues that are being experienced, so that changes can be made in NRCS conservation delivery; Funding needed for newer improved sweeping EQIP	X				X
Correlate on-the-ground BMPs to studies (to prove they are effective)			X		
Incentivize 200 ft wide stream buffers on non-ag land				X	
Use recreational fishing / hunting permit fees for conservation use			X		
Get away from corn silage - need cover crops				X	
Dairy livestock need to be a viable option				X	
More staff are needed to "sell conservation" to farmers (developing relationship); currently there is a high turnover of local staff. Voluntary conservation is evidently not enough to make a difference. There is a challenge in implementing volunteer conservation - need to be more robust. More flexibility needed at local level.					X
More State grants needed to purchase easements on important natural areas			X		
WinLaC could help with Healthy Lake Winona initiatives			X		
Make CRP policies more conducive to ecosystem enhancements (ex. haying)			X		
Recreation is a "big deal: in SE Minnesota, state agencies, like DNR should "round out" their management units (for example, the Snake Creek unit)					X
Carbon markets are emerging, but big companies are taking most of the profit					X
Farm program used to require a certain percentage of land to be fallow, but that went away - this should be reinstated.					X
Keep in mind that soil health improvements will take a long time to realize / see.					X
Chemical companies are dictating how people farm; Land prices dictate a lot of our land management decisions.					X
People are focused on (near-term) profit not the (long-term) end goal					X

There are fewer small family farms on landscape.					X
Need affirmative action for land use					X
State of MN has a complicated tax structure; property tax increases when converting ag land to prairie					X
Encourage regenerative farming - this solves most issues (The UN has a priority goal regarding sustainable ag - non-chemical farming)					X
Need conservation farm credits					X
Need concerted effort to reduce nitrates					X
The Farm Bill is a national issue					X
Need to take a look at requirements related to various practices; there are unintended consequences. For example - waterway maintenance requirements - cannot spray for thistle, burdocks, then new grasses die out because of too much shading; spot spraying is too time -intensive; there are issues with biomass mat at edge of waterway. Review maintenance guidance regarding riparian areas - vegetative mix review needed; Wooded Riparian zones are over-run with box elders and have bare soil	X				
Do not fund massive water retention structures, until all practices have been implemented above that location (upland work first where costs are lower)			X		
It's not necessary to enroll everyone in programs and cost share; Some just need to find their "comfort level' or confidence in implementing conservation.					X
Effective BMPs can help save costs; Corps of Engineers will dredge less	X				

Education / Needed Studies

Habitat and Land Use Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
Great River Ridge Trail needs educational signage	X				
Provide prairie restoration resources	X				
Need better understanding of hydrology and peak flows as go downstream				X	
Provide for Conservation Innovation Grants to demonstrate (pilot projects) cost effective and efficient projects; Need to be able to calculate the cost of farming practices versus benefits	X				X

Education needed for Bankers: currently bankers require "guarantees" from farmers which translates into use of chemicals to meet those guarantee requirements.					X
Education and implementing outreach for industrial uses					X
Education needed for agronomists					X
Targeted education for people who live in town on dealing with invasives (oriental bittersweet and buckthorn)		X			
Promote / education this region as a biodiversity hot spot			X		

Suggestions

Habitat and Land Use Station	Stockton	La Crescent	Winona	St. Charles	Wabasha
Do outreach to farmers at the meetings they are already attending (the local bank just did one for farmers)	X				

Appendix D. List of Reports and 60-Day Notification Responses

WinLaC Partnership —1W1P—

List of Watershed Plans and Studies covering the WinLaC 1W1P Planning Area

County Water Management Plans:
Houston County Comprehensive Water Plan for the Upper Mississippi – La Crescent Watershed amendment, 2007 – 2022; https://www.co.houston.mn.us/?mdocs-file=3631

Olmsted County Water Management Plan, 2013 – 2023; County Water Management Plan (olmstedcounty.gov)

Wabasha County Comprehensive Local Water Plan, 2015 – 2025 (with 2020 Update); wabasha_2015_water_plan.pdf (whitewaterwatershed.org)

Winona County Comprehensive Local Water Management Plan Amendment, 2011-2023; (This plan has incorporated the Stockton-Rollingstone-Minnesota City Watershed District plan.) Winona County Comprehensive Water Plan Update

Watershed Plans/Reports for the Mississippi River Winona La Crescent Watershed:
Mississippi River-Winona Watershed Water Quality Data Compilation and Trend Analysis Report (2012) provides statistical analysis of all water data and identified trends. FullMissWinReport (whitewaterwatershed.org)

Mississippi River (Winona) Watershed Monitoring and Assessment Report (2013) compiles the data analyses from MPCA's Intensive Watershed Monitoring. 2020 marks the first year of Intensive monitoring for Cycle II of MPCA's watershed approach. https://www.pca.state.mn.us/sites/default/files/wq-ws3-07040003b.pdf

Mississippi River-Winona SWAT Modeling Project and LIDAR Analysis (2014) uses a SWAT model in the Whitewater and Garvin sub-watersheds to determine sediment, nitrate and phosphorus reductions from agricultural best management practices. Mississippi River – Winona Watershed SWAT Modeling Project and LiDAR Analysis (state.mn.us)

Mississippi River-Winona Watershed Stressor Identification Report (2015) identifies stressors that are impacting biologic health within streams. Mississippi River-Winona Watershed Biotic Stressor Identification Report (state.mn.us)

Mississippi River-Winona Watershed Pollutant Reduction Project (Total Maximum Daily Load Study) for Nutrients, Sediment and Bacteria (2016) identifies pollutants causing impairments and what reductions are needed to meet water quality standards. Mississippi River – Winona Watershed Pollutant Reduction Project (Total Maximum Daily Load Study) for Nutrients, Sediment and Bacteria - Final (state.mn.us)

Mississippi River-Winona Watershed – Watershed Restoration & Protection Strategy (2016) is being used to prioritize efforts for the surface water portion of the watershed plan. Notice of Availability of the draft Mississippi River-Winona Watershed Restoration & Protection Strategy (state.mn.us)

Upper Iowa River, Miss R-Reno, Miss-R-La Crescent Watershed Monitoring and Assessment Report (2018) compiles data from MPCA's Intensive Watershed monitoring. To better align the watershed approach cycle for the State's major watersheds, Cycle II Intensive Monitoring began in 2020. Upper Iowa River, Mississippi Reno, Mississippi La Crescent Water Monitoring and Assessment Report (state.mn.us)

Mississippi River-La Crescent Stressor Identification Report (2018) identifies stressors that are impacting biologic health within streams. Mississippi River - LaCrescent Stressor Identification Report (state.mn.us)

Mississippi River-La Crescent Area Watershed Restoration and Protection Strategy Report (2020) details critical areas and best strategies for protecting and restoring watershed streams. Final Mississippi River - La Crescent Area Watershed Restoration and Protection Strategy (WRAPS) Report (state.mn.us)

Mississippi River-La Crescent Area Watershed Total Maximum Daily Load (2020) quantifies total suspended solids and bacteria for streams in watershed. Final Mississippi River - La Crescent Area Watershed Total Maximum Daily Load Report (state.mn.us)

University of Minnesota completed A Social Science-Based Assessment of Conservation Practices in the La Crescent and Reno Watersheds (2019). The report uses social science to identify landowner conservation behaviors and identifies most effective means to conduct civic engagement for behavior change. 200858.pdf (mn.gov)

Minnesota Pollution Control Agency's Cycle II of the Watershed Approach began in 2020 for both the Mississippi River Winona and La Crescent watersheds.

Other Plans/Reports:
Minnesota Forest Resources Council's Southeast Landscape Plan (2014) assesses current forest resources, needs and key issues related to forest management in SE Minnesota, fostering landscape-based forest resource planning and coordination. 2nd Generation Southeast Landscape Plan (mn.gov)

Mississippi River-Winona Watershed Landscape Stewardship Plan (2014) funded by the DNR with assistance from The Nature Conservancy identifies areas of high biodiversity and high quality native vegetation for protection/enhancement. Mississippi River - Winona Landscape Stewardship Plan (mn.gov)

A Master Plan for the Whitewater Wildlife Management Area (WMA) is in the process of being updated and is in draft form.

Lake Winona Water Quality Improvement Plan: A Targeted, Prioritized, and Measurable Implementation Plan to Effectively Restore Lake Winona (2020). Lake-Winona-Water-Quality-Improvement-Plan---July-2020

Technical Information Data Sources:
A Roving Creel Survey of Selected Southeast Minnesota Trout Streams (2013) conducted by Minnesota DNR-Fisheries is used to manage trout fishery resources. Additionally, Stream Management Plans are completed for 30 designated trout streams to include: Whitewater Watershed, Garvin Brook Watershed, Pine Creek, Rose Valley Creek, Dakota Creek, Miller Valley Creek, Pickwick Creek, Cedar Valley Creek, Pleasant Valley Creek, East and West Burns Valley Creek, Gilmore Creek, Straight Creek, Bear Creek, Deering Valley Creek, Latsch Creek, East Indian Creek, Snake Creek and Gorman Creek.

DNR Whitewater River Watershed Assessment: The WARSSS Results and Analysis (2018) identifies, measures and predicts sediment sources within the Whitewater Watershed, the planning area's largest sub-watershed.

Next Wise Steps for Engaging People in SE Minnesota Watershed Restoration and Protection (2019) identifies ways to successfully achieve watershed goals through collaborations. REPORT_SE MN Outreach Next Wise Steps_12.2019_FINAL.pages (winona.mn.us)

Through various projects, the Agricultural Conservation Planning Framework (ACPF) was completed for all three branches of the Whitewater Watershed, Garvin Brook Watershed, Gilmore Creek, and for three of the four HUC 12 subwatersheds of the La Crescent Watershed of the planning area. The ACPF involves hydroconditioning and identifies locations that are most suitable for various best management practices. Additionally, the P8 model was recently completed for Lake Winona to address high phosphorus loading.

BOARD OF WATER AND SOIL RESOURCES

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Rochester, MN 55904

April 26, 2021

Mississippi River-Winona/La Crescent (WinLaC) One Watershed, One Plan Partnership
C/O Sheila Harmes, Winona County
202 West Third Street
Winona, MN 55987

Dear WinLaC One Watershed, One Plan Partnership,

Thank you for the opportunity to provide priority issues and plan expectations for the development of the WinLaC Comprehensive Watershed Management Plan (plan) under Minnesota Statutes section 103B.801.

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

Process

The planning process must follow the requirements outlined in the One Watershed, One Plan Operating Procedures (Version 2.0), adopted by the BWSR Board on March 28, 2018. More specifically, the planning process must:

- Involve a broad range of stakeholders to ensure an integrated approach to watershed management.
- Reassess the agreement established for planning purposes when finalizing the implementation schedule and programs in the plan, in consultation with the Minnesota Counties Intergovernmental Trust and/or legal counsel of the participating organizations, to ensure implementation can occur efficiently and with minimized risk. This step is critical if the plan proposes to share services and/or submit joint grant applications.

Plan Content

The plan must meet the requirements outlined in One Watershed, One Plan – Plan Content Requirements (Version 2.1), adopted by the BWSR Board on August 29, 2019. More specifically, the plan must have:

- A thorough analysis of issues, using available science and data, in the selection of priority resource concerns.
- Sufficient measurable goals to indicate an intended pace of progress for addressing the priority issues.
- A targeted and comprehensive implementation schedule, sufficient for meeting the identified goals.
- A thorough description of the programs and activities required to administer, coordinate, and implement the actions in the schedule, including work planning (i.e. shared services, collaborative grant-making, decision making as a watershed group and not separate entities) and evaluation.

BWSR has the following specific priority issues:

- **Utilization of existing plans, studies, models, and tools** – The plan must be based on the best available data, models, and other science to meet plan content requirements. The partnership is encouraged to make use of these existing resources and incorporate them into the final plan document by reference, where possible. Below are a few examples of such resources that are available to the partnership. The other State plan review agencies (Department of Agriculture, Department of Health, Department of Natural Resources, and Pollution Control Agency) have done extensive work in this area which is not listed below but warrants inclusion.
  - **Nonpoint Priority Funding Plan (NPFP)** – The NPFP outlines a criteria-based process to prioritize Clean Water Fund investments. Planning partners intending to pursue Clean Water Fund dollars are strongly encouraged to consider the high-level state priorities, keys to implementation, and criteria for evaluating proposed activities in the NPFP.
  - **WRAPS** – The Watershed Restoration and Protection Strategies (WRAPS) Report for the Mississippi River – Winona watershed identified low dissolved oxygen, elevated temperature, nitrate, total suspended solids (TSS), degraded physical habitat and loss of physical connectivity as the primary stressors. The WRAPS Report for the Mississippi River – La Crescent watershed also identified temperature, TSS and lack of habitat as stressors. Implementation actions to address these stressors should be prioritized in the plan.
  - **GRAPS** – The Groundwater Restoration and Protection Strategies (GRAPS) for the WinLaC planning area will be in development in the near future. This report will help identify specific groundwater issues in the planning area; therefore, implementation actions to address these issues should be considered in the plan. In addition, BWSR and several other state partners have recently developed the Groundwater/Drinking Water Protection Practices for Agricultural Lands guide. This guide provides information on a range of groundwater protection practices and funding programs to support practice implementation.
  - **Landscape Stewardship Plan** – Planning partners should consider incorporating the goals, prioritized activities, and Conservation Opportunity Areas (COAs) from the Mississippi River – Winona Watershed Landscape Stewardship Plan to help address forest management in the plan. Coordinated sustainable forest management can maintain watershed protection benefits and support economic uses. The Managing Private Forests on a Landscape Level handout can also be referenced for a summary of the relationship between landscape stewardship plans to comprehensive watershed management plans and the prioritize-target-measure approach to watershed management.
  - **Tillage & Erosion Survey Project** – BWSR has been working with the University of Minnesota and other partners on a program to systematically collect data and produce county, watershed, and statewide adoption estimates of conservation measures to address erosion. The Tillage and Erosion Survey Project can provide estimates on tillage trends, cover crop adoption, and land cover for subwatersheds within the plan area. This data can be useful for establishing measurable goals related to these land management practices in the plan.
  - **Daily Erosion Project (DEP) –** The DEP is a web-based application that utilizes the Water Erosion Prediction Project (WEPP) soil erosion model along with radar-derived precipitation data and slope, soil, and land management information to produce daily (storm event) and annual average

estimates of soil erosion and runoff at a small watershed scale. This data can enhance water quality modeling efforts and help to provide targeted BMP recommendations.

- **Soil Health** – The majority of the land use in the WinLaC planning area is agriculture. The concept and the associated practices of soil health have the potential to positively change the interaction of agriculture and the natural system at the soil level. Common soil health practices include the use of strip or no tillage, the use of cover crops, increased areas of continuous living cover, and extended crop rotations. Improving soil health can help decreased soil erosion, increase water infiltration, provide nutrient scavenging, and increase soil organic matter. In addition, there seems to be increased interest from landowners and operators about soil health. It is recommended that these soil health practices be prioritized for implementation in the plan. Additional information can be found on BWSR's Soils and Soil Health webpage and the Minnesota Office for Soil Health (MOSH) website.

- **Landscape Resiliency, Climate Adaption and Pollinator Habitat**

  - BWSR strongly encourages your planning partnership to consider the potential for more extreme weather events and their implications for the water and land resources of the watersheds in the analysis and prioritization of issues. The weather record for the WinLaC planning area shows increased frequency and severity of extreme weather events, which has a direct effect on local water management. Adjustments involving conservation and fieldwork planning and implementation should be explored; for instance, the use of an updated precipitation frequency chart such as the NOAA Atlas 14 when designing conservation projects. An additional source of information for use in the planning process is the BWSR Climate Resiliency Toolbox. The white paper from the Minnesota Interagency Climate Adaptation Team titled "Building Resiliency to Extreme Precipitation in Minnesota" also provides resiliency strategies related to this topic.

  - In 2019 Governor Walz signed an Executive Order for "Restoring Healthy, Diverse Pollinator Populations that Sustain and Enhance Minnesota's Environment, Economy, and Way of Life". BWSR encourages the partnership to prioritize actions that create areas of refuge and provide floral resources that can benefit a wide range of pollinators. BWSR has developed a Pollinator Toolbox that provides resources and guidance for project planning, implementation, and management.

- **Conservation Easements** – The State's Re-Invest in Minnesota (RIM) Reserve easement program and the Conservation Reserve Enhancement Program (CREP), in partnership with the United States Department of Agriculture (USDA), considers several site specific and landscape scale factors when funding applications. Though it is dependent on specific program terms, the State considers local prioritization of areas for easement enrollment. The plan should consider areas with a higher risk of contributing to surface and subsurface water degradation, such as highly erosive lands and wellhead protection areas that would benefit from being placed under permanent vegetative cover. Another factor to consider is that over the next 3 years (2021-2023) over 8,000 acres of Conservation Reserve Program (CRP) practices are scheduled to expire within the partnership's counties. The plan should recognize the potential impact these expiring contracts may have in the planning area and consider prioritizing working with producers regarding the management of those acres.

- **Local Controls** – Gaps or inconsistencies in local ordinances, policies, or enforcement could affect the success of your plan's implementation. SSTS compliance inspection requirements (property transfer, variance, etc.), level 3 feedlot inventories, drainage processes and proceedings, and shoreland regulations are some examples that should be explored during plan development.

- **Altered Hydrology** – The hydrologic conditions of the watersheds in this planning area have changed over time. In recent decades more precipitation, more runoff, and more runoff per unit of precipitation has been observed as well as more frequent periods of extremely low flow in some watercourses. These hydrologic changes as well as others have contributed to instability of natural and artificial watercourses, degradation of wetland habitats, loss of agricultural productivity, and increased the risk of flood damages. Recognizing altered hydrology as a priority issue in the plan will help ensure that a driving factor behind many related issues is directly addressed.
- **Wetlands** – Protection and restoration of wetlands provides benefits for water quality, flood damage reduction, and wildlife habitat. The plan should support the continued implementation of the Wetland Conservation Act and look for opportunities to improve coordination across jurisdictional boundaries. The plan should also identify high priority areas for wetland restoration and strategically target restoration projects to those areas. The Restorable Wetland Prioritization Tool is an example resource that can be used to help identify such areas. The state is embarking on a new wetland prioritization plan that will guide wetland mitigation in the future. Wetland restoration and preservation priorities in this plan may be eligible for inclusion in this plan in the future.
- **Urban Stormwater** – Urban stormwater runoff frequently contains pollutants such as pesticides, fertilizers, sediment, salt, and other debris, which can contribute to excess algae growth and poor water clarity/quality in our water resources. Poorly managed urban stormwater can also drastically alter the natural flow and infiltration of water, scour stream banks and harm or eliminate aquatic organisms and ecosystems. Municipal Separate Storm Sewer System (MS4) General Permits are owned/operated by the cities of Winona and La Crescent within the planning area. These MS4s should be engaged throughout the planning process to ensure that their Stormwater Pollution Prevention Programs are incorporated into the plan. Related to Winona, the recent Lake Winona Water Quality Improvement Plan should be utilized in this plan, including the modeling and implementation activities cost-benefit analysis that was completed. Smaller cities throughout the plan area should also be engaged in the process as they likely have fewer resources to address stormwater issues.

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 (Adam.Beilke@state.mn.us, 507-766-9820).

Sincerely,

Adam Beilke

Board Conservationist

Shaina Keseley

Clean Water Specialist

cc: WinLaC One Watershed, One Plan Partnership (via email)

Ed Lenz and Julie Westerlund, BWSR (via email)

Barbara Weisman, Dan Lais and Jeff Weiss, DNR (via email)

Margaret Wagner and Dawn Bernau, MDA (via email)

Carrie Raber and Jennifer Ronnenberg, MDH (via email)

Juline Holleran, Jeff Risberg and Emily Zanon, MPCA (via email)

DEPARTMENT OF NATURAL RESOURCES

Minnesota Department of Natural Resources
1200 Warner Road
St. Paul, MN 55106

April 28, 2021

Mississippi River Winona/LaCrescent One Watershed, One Plan Partnership
C/O Sheila Harmes, Winona County Water Planner
202 West Third Street
Winona, MN 55987

Subject: Department of Natural Resources priority concerns for the Mississippi River Winona/LaCrescent One Watershed, One Plan

Dear Ms. Harmes:

Thank you for the opportunity to provide Minnesota Department of Natural Resources (DNR) priorities and concerns for the Mississippi River Winona/LaCrescent watershed as you and your partners begin developing a Comprehensive Watershed Management Plan. I am writing on behalf of DNR Commissioner Sarah Strommen to share our resource priorities and express our support for this effort. The Winona/LaCrescent watershed is highly diverse and a wealth of information exists to guide plan development. Department of Natural Resources staff who work within the watershed have extensive knowledge and experience across multiple natural resource disciplines. We can provide data, reports, and presentations for your use in plan development. We encourage you to reach out to us for assistance.

Attached are suggested priorities you may choose to address in your plan. We focused priority development on core issues where the DNR plays an active role statewide. We also developed a companion list of suggested priorities and priority location maps for the planning area. We look forward to participating and providing assistance to help ensure success of the One Watershed One Plan (1W1P) process.

Our lead for the Mississippi River Winona/LaCrescent One Watershed, One Plan is Jeff Weiss, Clean Water Hydrologist in Rochester. Please contact Jeff by phone (507-259-0217) or email (jeffrey.weiss@state.mn.us) if you have questions or would like more information about the attached priorities.

Sincerely,

Grant L. Wilson
Central Region Director

Ec: Jeff Weiss (DNR), Barbara Weisman (DNR), Dan Lais (DNR), Adam Beilke (BWSR), Justin Watkins (MPCA), Jennifer Ronnenberg (MDH), Margaret Wagner (MDA)

Resource Concern: Altered Hydrology

Issue: Peak flows and flooding

The hydrology of the Winona/LaCrescent watershed has been highly altered for agricultural production and land development. This has resulted in increased peak flows and flooding, reduced infiltration of water, loss of water storage capacity, and increased stormwater runoff. With annual precipitation increasing due to climate change, water storage is a critical concern to the DNR.

Strategies to consider for peak flows and flooding:

- Increase water storage in the headwaters of the Whitewater subwatershed
- Help agricultural producers install controlled drainage tile systems to slow the flow of water into receiving waters
- Promote the use of cover crops to reduce runoff from row crop fields
- Encourage the conversion of marginal agricultural land to permanent native vegetation to promote infiltration and reduce runoff
- Work with DNR Floodplain Unit staff to update floodplain and shoreland zoning rules and reduce flooding impacts

Issue: Stream stability and habitat

Altered hydrology has caused miles of eroding stream banks and incised channels in the Winona/LaCrescent watershed. Restoring hydrologic function and instream habitat is a DNR priority. Stream channel restoration projects designed to restore or mimic natural channel processes can reduce flooding, improve water quality, stabilize stream banks, restore fish and wildlife habitat, and add water recreation opportunities.

Strategies to consider for stream habitat and stability:

- Work with the DNR to implement stream channel and aquatic habitat restorations using natural channel design principles to improve hydrologic function, sediment transport, and aquatic habitat
- Properly size bridges and culverts and install floodplain culverts where appropriate so that stream channel stability and connectivity is maintained. DNR has developed a suite of resources that can be accessed at this link: Geomorphic Approach to Infrastructure Design at Road-Watercourse Intersections
- Implement measures to increase water storage to reduce peak flows and runoff

Resource Concern: Conservation of Habitats and Rare Features

The Winona/LaCrescent watershed has many special and rare habitats and plant communities. Some are critically imperiled and could be lost without additional protection from development and pollution. These include calcareous fens, algific talus slopes, bottom land hardwood forests, and others.

Issue: Native plant communities and biodiversity

There are nine native plant community systems in the Winona/LaCrescent watershed. These plant communities provide a diversity of habitats and support many native wildlife, insect, and bird species. There are 13 sites with outstanding biodiversity and 29 with high biodiversity. Protecting these sites promotes watershed health and ecosystem resilience.

Strategies to consider for native plant communities and biodiversity:

- Protect native plant communities and increase habitat connectivity through easements, acquisition, and coordinating management with private landowners
- Control invasive plant species to protect and restore native plant communities
- Protect calcareous fens through zoning rules and groundwater appropriation monitoring
- Protect and maintain groundwater chemistry that supports rare or unique native plant communities

Resource Concern: Water Recreation

Issue: Impact of bacteria impairments of on aquatic recreation

Water quality impairments that impact aquatic recreation occur throughout the Winona/LaCrescent watershed and are a major concern for the DNR. Impairments are due to high levels of *E. coli* and/or fecal *coliform* bacteria from feedlots, land application of manure, and cattle in riparian areas. Leaking septic systems can also be a contributing factor. Demand for aquatic recreation opportunities is increasing as the cities of Rochester and Winona grow, further emphasizing the need to address these impairments.

Strategies to consider for bacteria impairments

- Evaluate the effectiveness of feedlot and manure application rules and make improvements where needed
- Enforce feedlot zoning and manure application regulations
- Examine feedlot density in relation to impairments, particularly in areas with sinkholes and other karst features, to determine a density that supports water quality standards for aquatic recreation
- Conduct E-DNA studies to determine bacteria sources and target BMP implementation
- Ensure that unsewered communities and private septic systems are in compliance with regulations

Issue: Nutrient loading to lakes with high recreational use

Lakes Winona, Airport, and Goodview as well as wetlands associated with the Mississippi River are impacted by nutrient loading from runoff. This reduces water clarity and aquatic plant growth and impacts fish and wildlife habitat. These lakes receive high recreational use for fishing, swimming, and kayaking and are important to local residents.

Strategies to consider for nutrient loading to lakes

- Educate property owners regarding the proper use of lawn fertilizers and pesticides
- Implement shoreland habitat restorations using native plants
- Implement runoff containment and filtering measures within the stormwater management system

Resource Concern: Climate Adaptation and Infrastructure Resiliency

Increased annual precipitation and more intense rainfall events are impacting hydrology, water quality, and infrastructure in the Winona/LaCrescent watershed. Planning for future climate conditions is becoming increasingly urgent. The One Watershed, One Plan process offers the opportunity to explore potential impacts of climate change on the watershed and ways to reduce them.

Issue: Infrastructure resilience to increased precipitation

Precipitation amounts and intensity are increasing. Infrastructure must be designed to withstand stresses from increased stream flow.

Strategies to consider for increased precipitation:

- Work with the DNR to assess the vulnerability of water resources to climate change
- Design new bridges and culverts to dimensions appropriate for future climate conditions so that hydrologic function is maintained
- Update stormwater systems to operate effectively under increased runoff
- Work with the DNR to update floodplain and stormwater ordinances to account for increased flood frequency and magnitude
- Increase water storage through wetland restoration and structural improvements
- Work with the DNR to use regional climate models together with watershed models to predict the impact of climate change on water quality and the landscape and target projects to address impairments

Issue: Climate adaptation and landscape resiliency

Climate adaptation refers to the ability of populations, species, or systems to adapt to a changing climate. As the climate becomes warmer and wetter changes will occur in the organisms that live here. Plants, animals, insects, and diseases that normally could not survive Minnesota winters may expand northward. Protecting and restoring habitats and ecosystem functions supports the resiliency of native species. The DNR can provide extensive support for the following strategies.

Strategies to consider for climate adaptation and resiliency:

- Evaluate the vulnerability of native habitats and species to climate change and implement projects with multiple benefits including resiliency
- Increase landscape diversity by restoring habitats that were historically common but are now rare such as headwater wetlands, prairies, and floodplain forests, to maximize ecosystem resiliency
- Develop a landscape monitoring plan to detect new occurrences of plants, animals, and insects so that potential threats to native species and agriculture can be evaluated and action plans developed

Resource Concern: Groundwater and Drinking Water

Drinking water in the Winona/LaCrescent watershed is provided by groundwater. It is vitally important that the quality and quantity of this resource is protected and wisely managed to protect public health.

Issue: Nitrate in drinking water and surface water and impacts on aquatic life

Nitrate in drinking and surface water is a growing concern of watershed residents and the Minnesota Department of Health. Several small communities in the watershed have drilled new water supply wells to reach groundwater that meets the nitrate standard, placing a significant economic burden on these communities.

Strategies to consider for nitrate in groundwater:

- Target nitrogen management BMPs in the upper watershed, the karsted lower watershed, and within drinking water supply management areas
- Implement nitrogen BMPs on lands within mapped springsheds and work with the DNR to evaluate BMP effectiveness by monitoring nitrate levels in springs
- Target trout stream springsheds for nitrogen reduction to improve water quality and reduce the effects of nitrate on fish and aquatic insects
- Install sinkhole buffers and berms to filter runoff

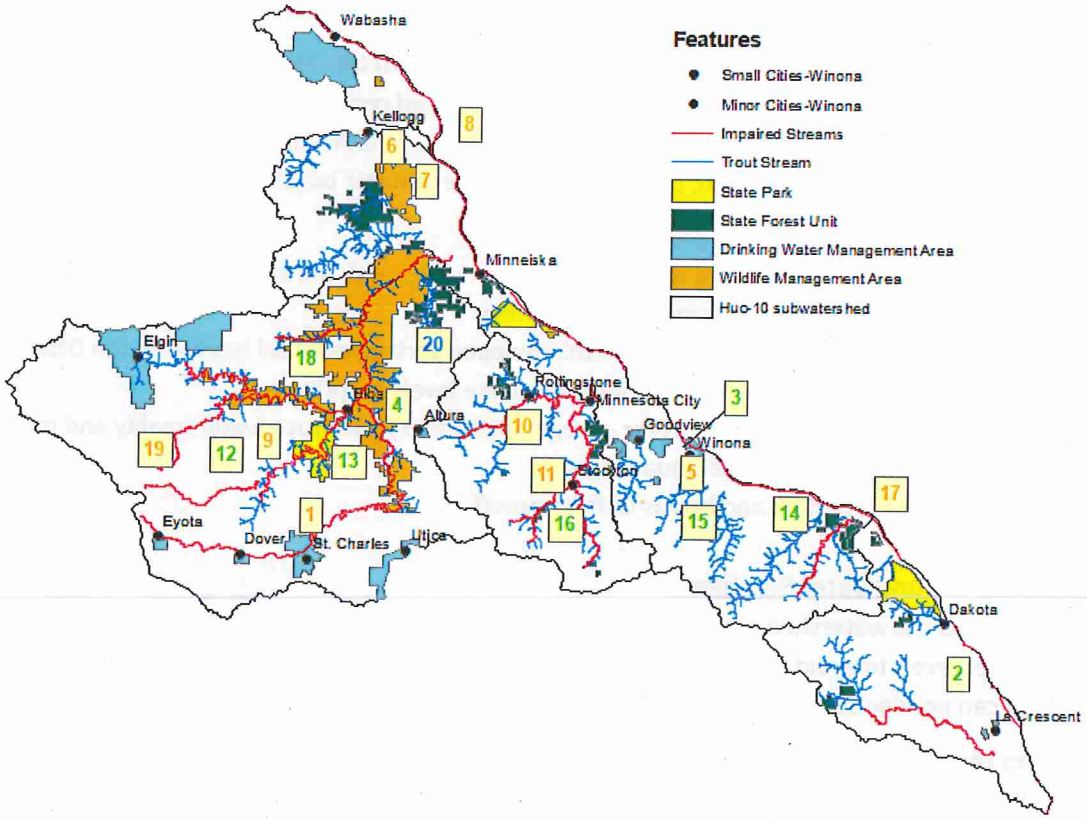
Issue: Sustainable Groundwater Supplies

As population growth in the watershed continues, groundwater withdrawals are increasing. It is important to monitor groundwater levels to avoid well interference issues and ensure that water availability meets water demand. The DNR can provide support with the strategies below.

Strategies to consider for groundwater quantity:

- Work with DNR hydrologists to ensure that water appropriation permits are obtained for all withdrawals that require a permit
- Work with DNR groundwater staff to Identify sites for additional observation wells to track groundwater levels over time
- Work with municipalities to improve water use efficiency

DNR Priority Locations



Minnesota Department of Natural Resources • Central Region
1200 Warner Road, St. Paul, MN 55106

Department of Natural Resources (DNR) Suggested Priority Locations for the Mississippi River Winona/LaCrescent One Watershed, One Plan

The following map and list of priorities was prepared by efforts led by the DNR Division of Ecological and Water Resources (EWR) with input from multiple DNR divisions. Staff from each of six Divisions were engaged to develop suggested priorities for the Mississippi River Winona/LaCrescent One Watershed, One Plan. Input was based on professional judgment from a combination of experience and local knowledge that comes from working in the watershed. We identified a mix of protection, restoration, and technical guidance strategies color coded as below.

Color coding for strategies listed below and on maps:

Strategy Categories
Protection
Restoration
Technical Guidance

Priorities with specific locations identified by Department of Natural Resources staff

1. **South Branch Whitewater** – Identify and work with riparian landowners to reduce runoff from barnyards and feedlots.
2. **Dakota and Pine Creeks** – Improve the use of riparian grazing BMPs.
3. **Airport Lake** – Implement a water level management plan coordinated by the City of Winona and DNR Fisheries.
4. **Crystal Springs State Fish Hatchery** – Implement groundwater protection measures for the hatchery springs.
5. **Lake Winona/Goodview Lake**– Work with the City of Winona to reduce nutrient loading from runoff.
6. **Gorman Creek** – Remove levees and restore the stream to its original channel downstream from Highway 61.
7. **McCarthy Lake WMA Area** – Restore wetland and upland habitat north of McCarthy Lake WMA to benefit water quality, game, and nongame wildlife.
8. **Lower Zumbro River** – Reconnect the Zumbro River with the historic floodplain in Zumbro Bottoms.
9. **Whitewater Subwatershed** – Use the completed DNR stream stability and sediment supply study to identify sites for channel restoration to address sediment loading and improve instream and riparian habitat.
10. **Rollingstone Creek** – Consult with DNR geomorphology specialists on conducting a stream stability and sediment supply study to identify potential locations for channel restoration to address sediment loading and improve aquatic habitat.
11. **Garvin Brook** – Consult with DNR geomorphology specialists on conducting a stream stability and sediment supply study to identify potential locations for channel restoration to address sediment loading and improve aquatic habitat.
12. **North and Middle Branches Whitewater** – Use cover crops in the upper watershed to reduce runoff and increase infiltration and water storage.

13. **Trout Run and Logan Creek** – Use cover crops to reduce runoff and increase infiltration and water storage.
14. **Cedar Valley Creek** – Increase the width of riparian buffers through the golf course to reduce fertilizer and pesticide runoff.
15. **East Burns Valley Creek** – Install storm water retention basins and rain gardens in the lower reach that is under residential development.
16. **Garvin Brook and Lower Pine Creek** – Continue early detection and control measures for invasive Japanese hops and knotweeds.
17. **Mississippi River** – Target terrestrial habitat restoration projects for threatened and endangered species.
18. **Whitewater System** – Protect groundwater characteristics that support rare or unique native plant communities and associated animal communities.
19. **North Branch Whitewater** – Implement a stream channel restoration project on 1.5 miles of the river at Viola.
20. **Trout Valley Creek** – Conduct a sediment supply study and implement measures to reduce sediment loading.
21. **Entire Watershed** – Assess and improve public water access sites.
22. **Entire Watershed** – Inventory and prioritize replacement of culverts and road crossings using natural channel design principles. Replace culverts that are barriers to fish passage.
23. **Entire Watershed** – Implement BMPs to increase water storage and reduce runoff.
24. **Entire Watershed** – Protect public drinking water supplies by implementing nitrogen BMPs in Drinking Water Supply Management Areas.
25. **Entire Watershed** – Protect rare features, plants, and animals through local zoning and land acquisition.
26. **Entire Watershed** – Prioritize restoration and protection of streams supporting heritage strain Brook Trout populations.
27. **Entire Watershed** – Maintain or improve instream and riparian habitat for species of greatest conservation need on public and private lands.
28. **Entire Watershed** – Work with private landowners to provide technical guidance on restoration of habitats in high scoring areas identified in the Wildlife Action Network.
29. **Entire Watershed** – Reduce bacteria loading from feedlots and pastures to address aquatic recreation impairments.
30. **Entire Watershed** – Make certain that all entities withdrawing groundwater at levels that require permitting apply for and obtain a water appropriation permit.
31. **Entire Watershed** – Conduct springshed mapping on streams that have native brook trout populations.
32. **Entire Watershed** - Install buffers around sensitive karst features including sinkholes, seeps, springs, and caves.
33. **Entire Watershed** – Implement reclamation of aggregate pits and quarries to improve habitat and water quality.
34. **Entire Watershed** – Examine the feasibility of restoring calcareous fens that have been degraded by reduced groundwater flow or livestock pasturing.

DEPARTMENT OF AGRICULTURE

May 14, 2021

Mississippi River Winona La Crescent Watershed, One Watershed, One Plan Partnership
C/O Sheila Harmes, Winona County Water Planner
202 West Third Street
Winona, MN 55987

Dear Mississippi River Winona La Crescent One Watershed, One Plan Partnership,

Thank you for the opportunity to provide priority issues for consideration in the development of the Mississippi River Winona La Crescent Watershed (1W1P). The Minnesota Department of Agriculture (MDA) looks forward to working with local government units, stakeholders, and other agency partners in the planning process. One of the MDA's roles related to the 1W1P process is to provide technical assistance. The MDA maintains a variety of water quality programs including applied research, on-farm demonstrations, and groundwater and surface water monitoring. Our goal is to provide you with data from these programs to better characterize the watershed, identify key resource concerns and further engage the agricultural community at the local level.

Minnesota Department of Agriculture Priority Concerns

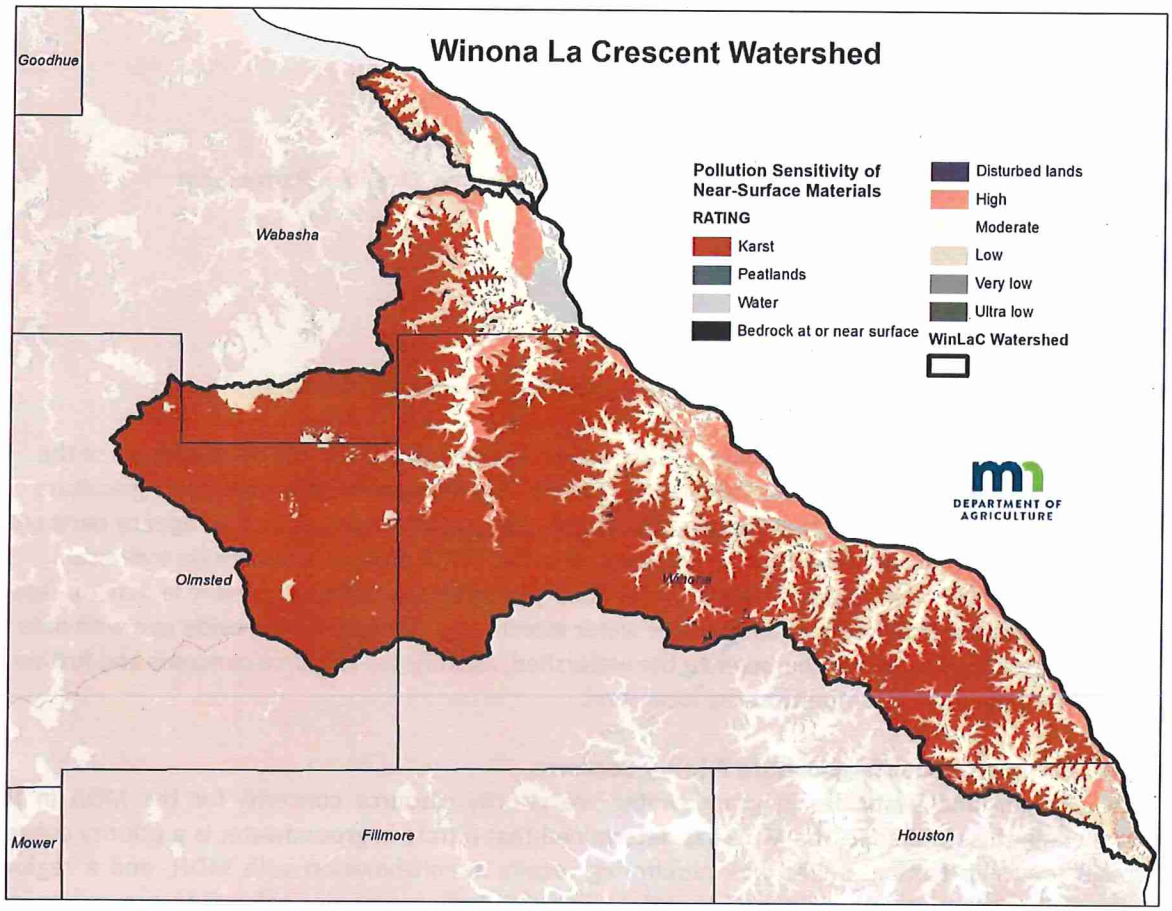
Nitrate-nitrogen and pesticides in groundwater are priority resource concerns for the MDA in this watershed. In this watershed The MDA has determined that nitrate in groundwater is a priority concern (through township testing, public well monitoring results in collaboration with MDH, and a regional private well monitoring network), and therefore implementation activities related to prevention and mitigation are priority for MDA. MDA has identified the Utica, Altura and Elgin DWSMAs, and townships where high nitrates in private wells were found as high priority areas.

The following is a list of pertinent activities, datasets, resources, and programs that the MDA has supported in the watershed to address these concerns. Please consider these activities and resources in the 1W1P development process for the Mississippi River Winona La Crescent Watershed.

Nitrogen Fertilizer Management Plan (NFMP)

The NFMP is the state's blueprint for preventing or minimizing the impacts of nitrogen fertilizer on groundwater. The original plan was developed in 1990 and was updated in 2015. The Nitrogen Fertilizer Management Plan is available at: www.mda.state.mn.us/nfmp .

The primary goal of the NFMP is to involve local farmers and crop advisers in problem-solving to address elevated levels of nitrate in groundwater. As part of the NFMP, the MDA designed the Township Testing Program (TTP) to assess nitrate-nitrogen concentrations in private wells within areas that are vulnerable to groundwater contamination (See vulnerable area map below).



This image shows the Mississippi Winona La Crescent watershed on the Pollution Sensitivity of Near-Surface Material. The Karst and High ratings indicate areas where nitrate can move easily into groundwater.

Township Testing Program (TTP)

The MDA has identified townships throughout the state that are vulnerable to groundwater contamination and have significant row crop production. Within the WinLaC River Watershed, the MDA has sampled private wells within all three counties. The sampling includes a first round of sampling when all homeowners within the township were offered a test kit, and a second round when trained MDA staff resampled and evaluated the location and conditions of wells where nitrate-nitrogen was detected.

- Olmsted, Wabasha and Winona Counties have been through both the initial testing and the follow-up testing.

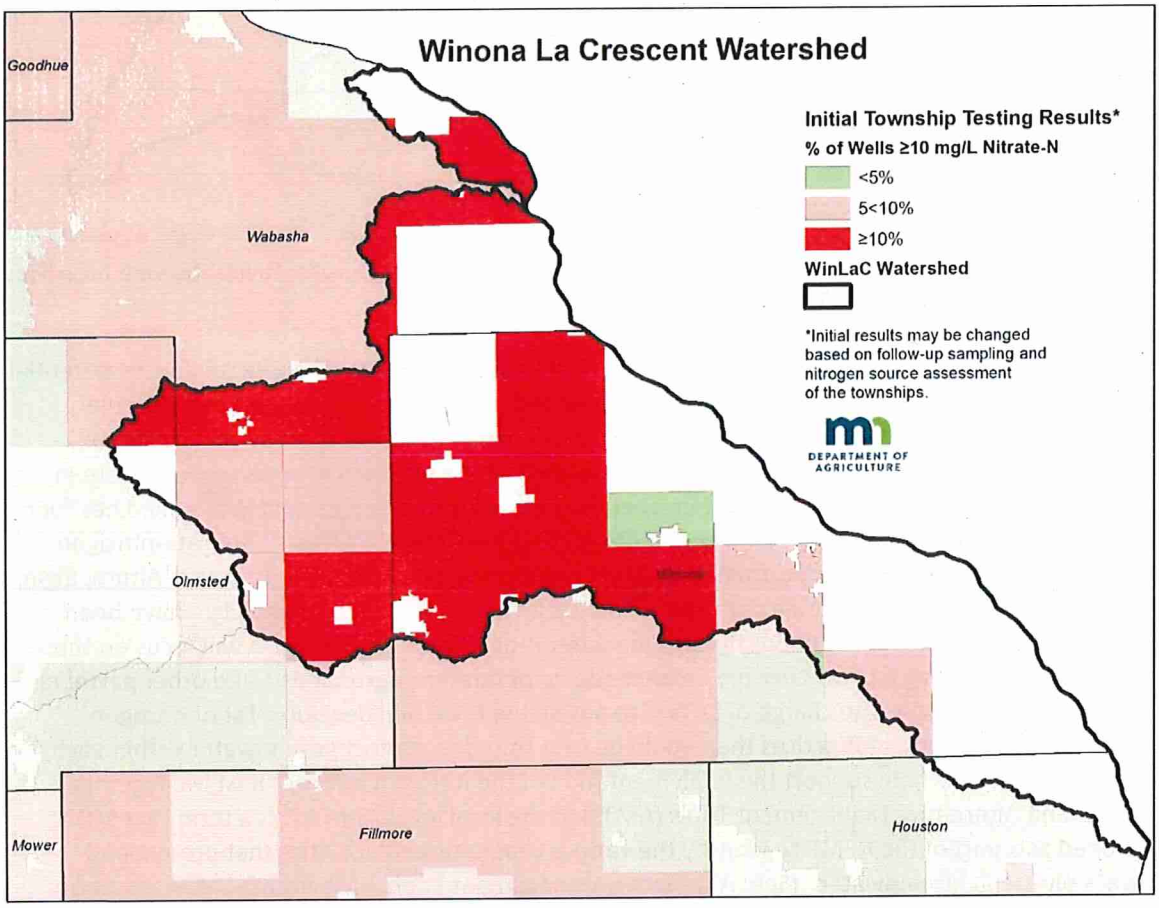
Initial Township Testing Results

County	Number of Townships Tested	Number of Wells	Number of Townships with Wells at or Over the Health Risk Limit (10 mg/L Nitrate-N)					
			<5%	5-9%	10-19%	20-29%	30-39%	>40%
Olmsted	11	1057	5	4	1	1	0	0
Wabasha	14	1087	1	0	8	4	1	0
Winona	13	940	2	2	5	1	1	2

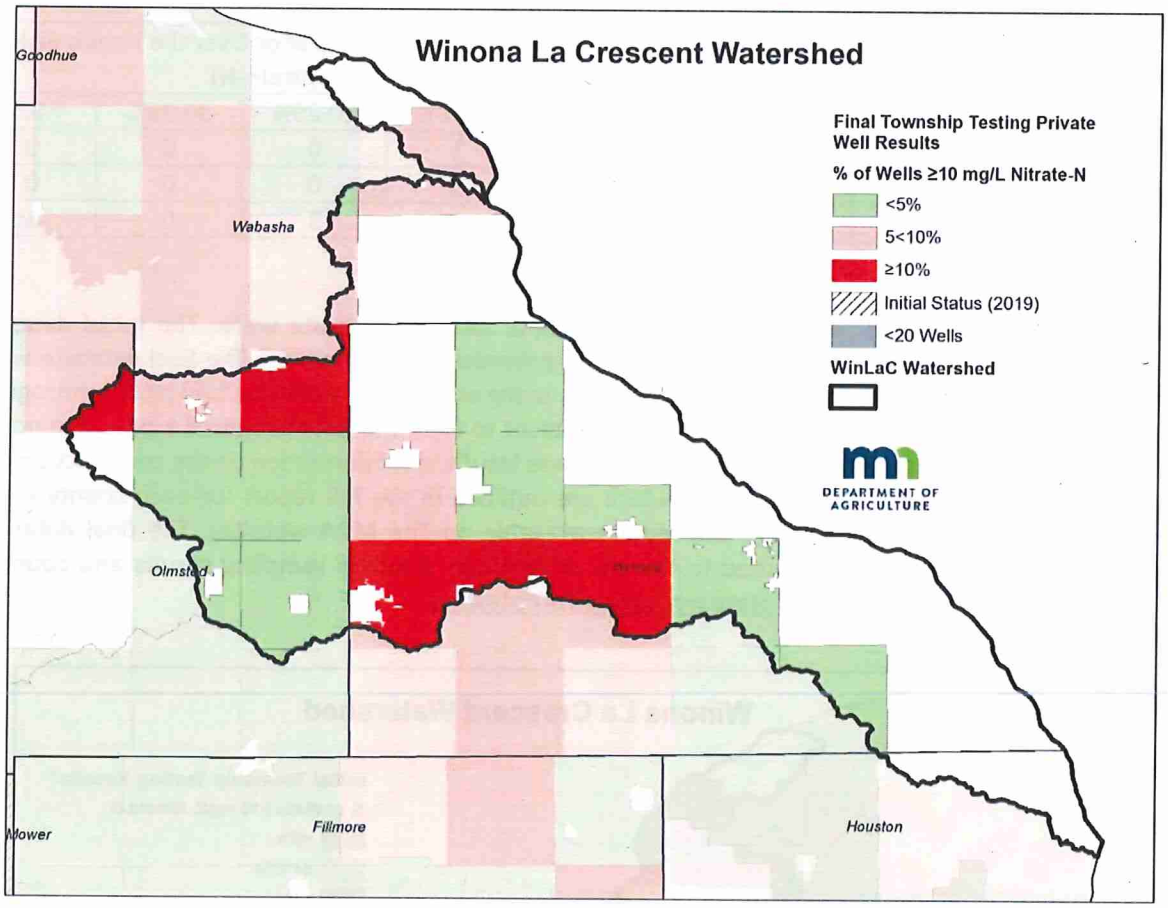
Final Township Testing Results

County	Number of Townships Tested	Final Well Dataset	Number of Townships with Wells at or Over the Health Risk Limit (10 mg/L Nitrate-N)					
			<5%	5-9%	10-19%	20-29%	30-39%	>40%
Olmsted	11	923	10	0	1	0	0	0
Wabasha	14	827	4	5	5	0	0	0
Winona	13	731	6	3	3	3	0	1

Two datasets, "Initial" and "Final", are used to evaluate nitrate in private wells. The initial dataset represents private well drinking water regardless of the potential source of nitrate. The final database was formed through an assessment process to evaluate wells. In the assessment, wells that had nitrate-nitrogen results over 5 mg/L were removed from the initial dataset to form the final dataset if a potential non-fertilizer source or well problem was identified, there was insufficient information on the construction or condition of the well, or for other reasons which are outlined in the full report for each county (see Appendix E for details located in the full reports available on The MDA website). The final dataset represents wells with nitrate attributed to the use of fertilizer. **Detailed sampling results and county reports are available at: www.mda.state.mn.us/townshiptesting**



This map displays the initial Township Testing Program results. Initial results represent private well drinking water regardless of nitrate source.



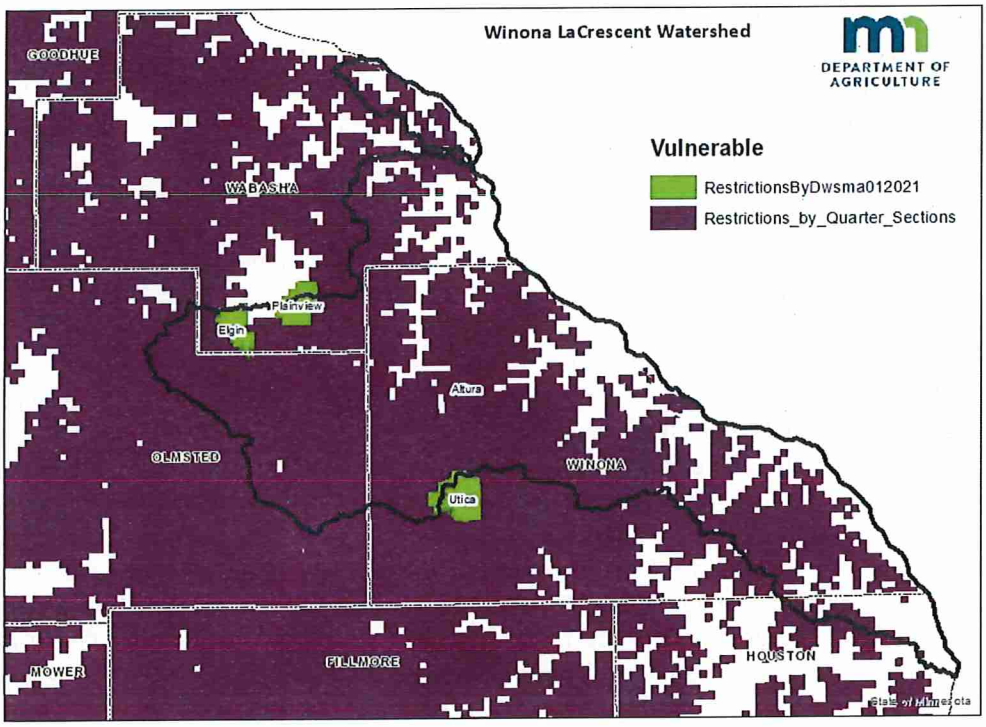
This map displays results from the Township Testing Program, including final results. Townships with hash lines represent initial testing results and townships without hash lines are final.

Another outcome of the NFMP is the Groundwater Protection Rule (GPR). The GPR minimizes potential sources of nitrate pollution to the state's groundwater and protects our drinking water. The rule restricts the application of nitrogen fertilizer in the fall and on frozen soils in areas vulnerable to contamination, and it outlines steps to reduce the severity of the problem in areas where nitrate in public water supply wells is already elevated. The Mississippi Winona La Crescent Watershed has four Drinking Water Supply Management Areas (DWSMAs) that have elevated levels of nitrate-nitrogen (nitrate) in their public wells as determined by MDH monitoring data. This includes Utica, Altura, Elgin, and Plainview. Based on monitoring data and follow-up analysis; Utica, Altura and Elgin have been designated as Level 2 DWSMAs under the Groundwater Protection Rule. The MDA will focus on these areas and begin forming a Local Advisory Team made up of farmers, agronomists and other partners that work in the DWSMA. The charge of LATs is to advise the MDA and develop a list of nitrogen fertilizer Best Management Practices that would be best suited to protect groundwater within each DWSMA. The LAT will help support the implementation of the nitrogen fertilizer Best Management Practices and Alternative Management Tools (AMTs) at the local level. "AMTs " is a term that MDA developed as a part of the NFMP to identify the various programs and activities that protect and mitigate nitrate in groundwater. (See: Alternative Management Tools | Minnesota Department of Agriculture (state.mn.us) Most importantly the goal is to work with local farmers and agronomists to promote science-based and economically viable practices to reduce nitrate in groundwater. The fourth

area is the Plainview DWSMA, MDA is gathering and analyzing additional information about the source of nitrate-nitrogen in the well and has delayed the level determination for good cause.

More information can be found at:

- Groundwater Protection Rule https://www.mda.state.mn.us/nfr
- Vulnerable Groundwater Areas Map www.state.mn.us/vulnerableareamap
- Mitigation Level Determination www.mda.state.mn.us/mitigation-level-determination



This map displays the statewide fall restrictions and the drinking water supply management areas with elevated nitrates located within the Mississippi Winona La Crescent Watershed. Altura is included and is difficult to see on the map.

The MDA recognizes that there can be sources in addition to nitrogen fertilizer that contribute to high levels of nitrate in groundwater and we recommend that other sources of nitrogen be considered if significant. We appreciate the opportunity to identify these NFMP activities, and we look forward to discussing these further for possible inclusion in the 1W1P.

Private Well Pesticide Sampling (PWPS)

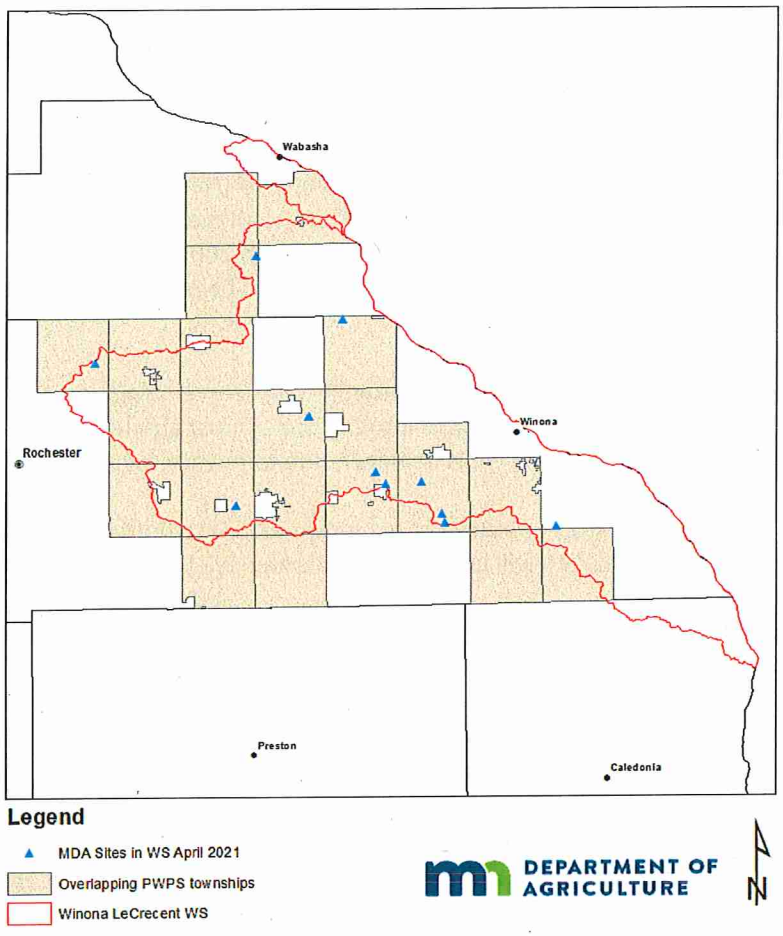
The MDA began evaluating pesticide presence and magnitude in private residential drinking water wells as part of the Private Well Pesticide Sampling (PWPS) Project in 2014. This is a companion program to the MDA Township Testing Program (TTP). Townships in different counties have been, and will continue to be, sampled every year until the project concludes; expected to be in the next couple of years. The townships included in the PWPS depend on the voluntary participation of well owners and may not reflect all of the townships sampled in the TTP.

- As part of the PWPS Project, wells in 22 townships in Olmsted, Wabasha and Winona Counties were sampled. The sampling occurred in 2015 and again in 2019 in Olmsted County, in 2017 in Winona County, and in 2018 in Wabasha County. The chemistry data is available for the wells; however due to privacy rules, the well locations can't be shared.
- Twenty-nine pesticides or pesticide degradates were detected in wells in these townships. Two wells had a concentration that exceeded the established human health reference value for the compound. These occurred in Winona and Olmsted counties.
    - In Winona County, the insecticide cyfluthrin was detected (7,400 ng/L) above the 6,000 ng/L human health reference value in a well located in Pleasant Hill township.
        - The MDA collected confirmation samples approximately two months after the first sample, and cyfluthrin was not detected above the MRL of 100 ng/L.
    - In Olmsted County, a concentration of total cyanazine (1,006 ng/L) was found to be above 1,000 ng/L human health reference value in a well located in Farmington township.
        - The MDA collected confirmation samples approximately two months after the first sample. The total cyanazine concentration found by the contract lab was 1,424 ng/L, while a concentration of 952.4 ng/L was found by the MDA Lab.

In 2015, the laboratory analyzed for 22 compounds. In 2016, a new laboratory was selected and could analyze for approximately 125 compounds. Olmsted County was resampled in 2019 to analyze for the additional pesticides. Samples from Wabasha and Winona were analyzed for the larger number of compounds. Cyanazine degradates were not included in the contract lab's analytical list when sampling was performed in Winona (2017) and Wabasha (2018) Counties. The MDA is planning to perform follow-up sampling during 2021 in southeastern Minnesota counties that were sampled as part of the PWPS Project prior to 2019, so that they can be evaluated for the presence and concentration of total cyanazine.

More information is available at: www.mda.state.mn.us/pwps

MDA Sample Locations in the
Winona - Le Crecent River Watershed
(Ambient Monitoring and PWPS Townships)



Pesticide Water Quality Monitoring

The MDA has been conducting pesticide monitoring in groundwater since 1985, and in surface waters since 1991. The purpose of the MDA's pesticide monitoring program is to determine the presence and concentration of pesticides in Minnesota waters, and present long-term trend analysis. Trend analysis requires a long-term investment in monitoring within the MDA's established networks.

Annually, the MDA completes approximately 250 sample collection events from groundwater and 700 sample collection events from rivers, streams, and lakes across the state. In general, the MDA collects water samples from agriculture and urban areas of Minnesota and analyzes water for up to approximately 180 different pesticide compounds that are widely used and/or pose the greatest risk to water resources. Groundwater monitoring is conducted by the MDA and Minnesota Pollution Control Agency staff. Surface water monitoring is conducted by the MDA and local organizations. All monitoring is completed following annual work plans and standard operating procedures (SOP's) developed by the MDA.

The MDA releases an annual water quality monitoring report that includes all pesticide water quality data and long term trends is available at www.mda.state.mn.us/monitoring. MDA's surface and groundwater

water quality data is also available at the National Water Quality Monitoring Council: https://www.waterqualitydata.us/

Groundwater Monitoring Wells

- Within the Winona-Le Crescent Rivers Watershed, the MDA currently samples three sites. Two are springs and the other is a domestic well.
- Current Springs
  - Springs are currently sampled twice a year, in June and in August.
  - One of the spring sites is the Crystal Springs Fish Hatchery. Crystal Spring #1 has been sampled at least once a year since 2000 and continues to be sampled. Crystal Spring #2 was sampled at least annually from 2000 through 2006.
  - The second spring site is Canfield spring and it has been sampled at least once a year since 2007.
- Current Domestic wells
  - Domestic wells are used for monitoring in southeastern Minnesota because of the high cost of installing monitoring wells into the upper most aquifer in the area. The chemistry data is available for these wells however, due to privacy rules, the well locations can't be shared.
  - A new domestic well in Olmstead County was added to the MDA's network in 2021. Data collected from this site will be available after the 2021 sampling season.
- Historic Sample Sites
  - The MDA has sampled other springs and domestic wells within the watershed in the past.
    - One spring (Trout Valley) was sampled four times in 2011.
    - Seven domestic wells within the watershed were sampled a number of times from 1986 through 1989. These locations are no longer sampled.
- In 2019, seventeen different pesticides or pesticide breakdown products (or degradates) were detected in the springs and wells. None have exceeded human health reference values. This is consistent with historical data form this area. Nitrate-nitrogen (nitrate) has been detected in the springs and wells. The nitrate concentrations range from not detected to 18.7 mg/L, exceeding the health risk limit for nitrate (10 mg/L) in many samples.

Monitoring of the MDA's springs and wells in the watershed is expected to continue into the future.

Surface Water Monitoring

- The MDA has completed 1,450 pesticide water quality sample collection events from 8 river and stream locations from 1991-2020. In addition, the MDA has completed two pesticide water quality sample collection events from Lake Winona There are currently no pesticide water quality impairments in the watershed.
- The MDA has been actively monitoring the Middle Branch of the Whitewater River at Olmsted County Road 107 (S001-831) since 1993 and the South Branch of the Whitewater River at Winona County Road 112 (S000-321) since 1992. The MDA will collect pesticide water quality samples until at least 2023.

Southeast Minnesota Volunteer Nitrate Monitoring Network

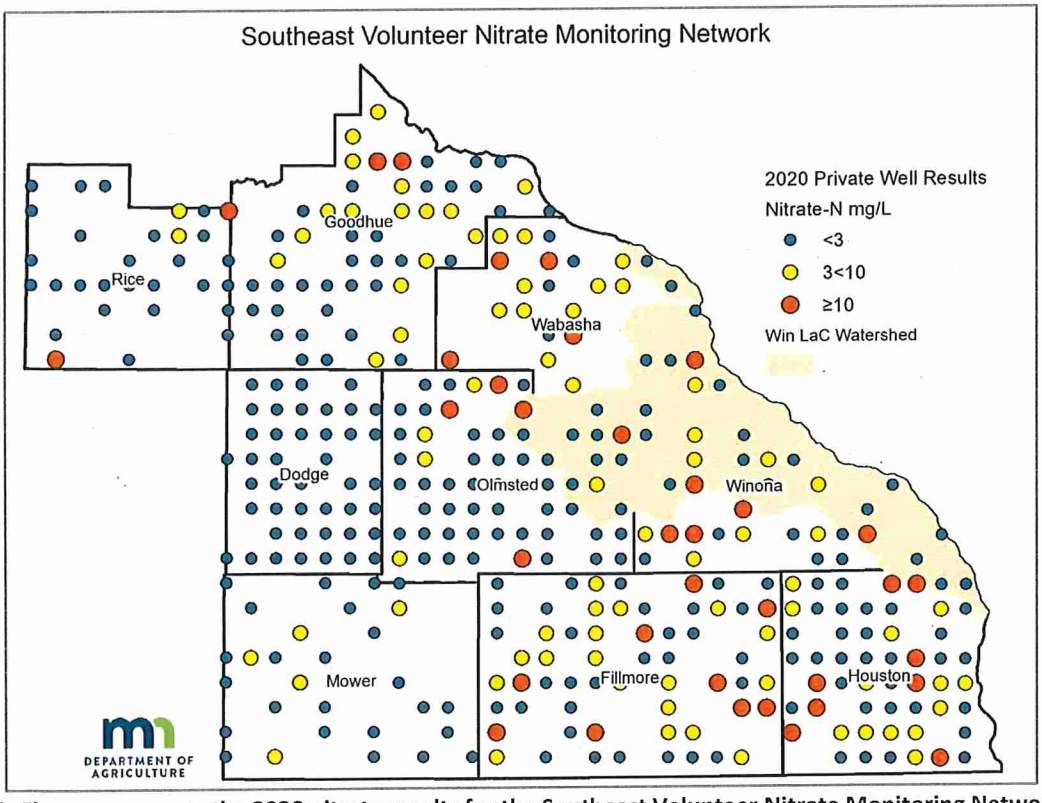
In 2006, nine southeast Minnesota counties coordinated planning to develop a Volunteer Nitrate Monitoring Network (VNMN) to monitor long term trends of nitrate concentrations in private drinking water wells throughout southeastern Minnesota. From 2006 until 2012 the Project team included nine southeastern Minnesota counties and multiple state agencies funded by the EPA 319 Program and the MPCA Clean Water Partnership (CWP) Program. The first two years of the project were primarily the

planning stage, the first round of samples were collected in 2008. In 2013, the program was changed to incorporate more analytes in selected wells, but was no longer sampling the entire network for nitrate. In 2014, the Minnesota Department of Agriculture coordinated with the County Water Planners and Southeast Minnesota Water Resources Board (SEMNWRB) to continue sampling all of the wells in the network on an annual basis to determine long term trends and keep the original network intact where possible.

Homeowners are the cornerstone of this network, this work could not be done without them. Network participants are sent a nitrate test kit directly to their home on an annual basis by the lab. The homeowner simply fills up the bottle and sends it directly back to the lab for analysis. The lab then sends homeowners their results.

In 2020, 381 private drinking water wells were sampled for nitrate. A summary of results:

- 69.3% were < 3 mg/L
- 21.3% were 3<10 mg/L
- 9.4% were ≥10 mg/L
- More information is available at: https://www.mda.state.mn.us/southeast-minnesota-volunteer-nitate-monitoring-network



This Figure represents the 2020 nitrate results for the Southeast Volunteer Nitrate Monitoring Network.

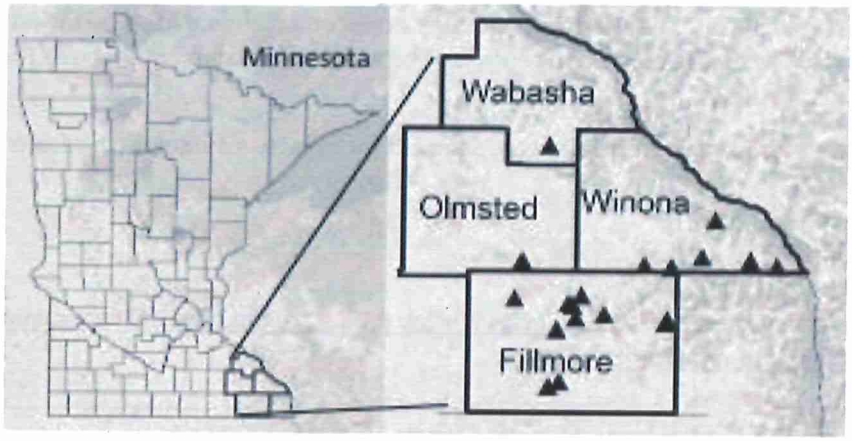
Discovery Farm: Edge of field Monitoring

Edge of field monitoring is important for relating farm practices and weather conditions to offsite movement of nutrients, sediments and pesticides. There are currently no Discovery Farms in the Winona La Crescent Watershed. For more information, please visit www.discoveryfarmsmn.org.

Southeast Minnesota Soil Water Nitrate-Nitrogen Concentrations

In a collaborative project, soil water nitrate concentrations below the root zone were measured under different cropping systems to assess the impact of land cover on water quality. The result of this five-year project conducted in southeastern Minnesota (including Winona, Olmsted and Wabasha counties) between 2011 and 2015 are summarized in the figure below (a total of nearly 3000 lysimeter samples).

- More information is available at:
  https://wrl.mnpals.net/islandora/object/WRLrepository%3A3654/datastream/PDF/view



This Figure represents the lysimeter network locations across a four County area in southeast Minnesota.

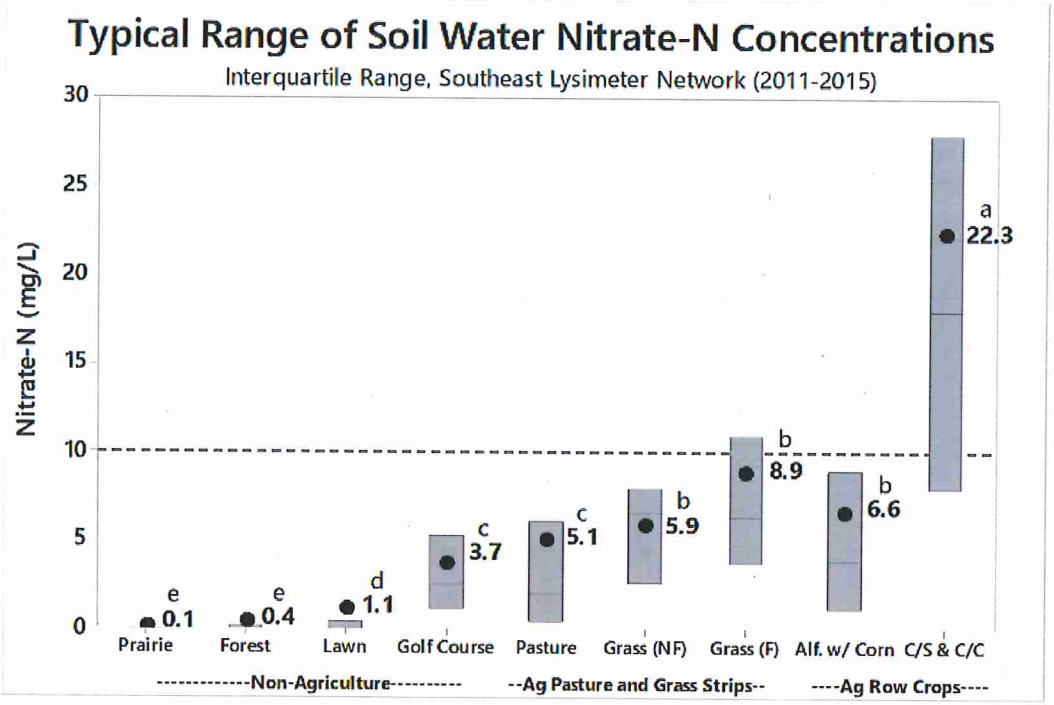


Figure 7 from Examination of Soil Water Nitrate-N Concentrations from Common Land Covers and Cropping Systems in Southeast Minnesota Karst.

Nitrogen and Pesticide Use Surveys

The MDA surveys farmers through the National Agricultural Statistics Service (NASS) on practices related to crops and farm inputs. The most recent nitrogen use survey was for the 2014 crop year, while the most recent pesticide use survey was from the 2013 crop year. The two tables below provide insights into nitrogen rates by rotation in this watershed, and more information is available at: https://www.mda.state.mn.us/pesticide-and-fertilizer-use-surveys

Average County Nitrogen Fertilizer Rates for Corn Following Soybeans			
County	Number of Farm Fields	Average Nitrogen Rate Pounds per Acre	Average Corn Yield Bushels per Acre
Winona	21	145	169
Olmsted	15	145	175
Wabasha	15	143	168
Houston	11	14	167

Average County Nitrogen Fertilizer Rates for Corn Following Corn			
County	Number of Farm Fields	Average Nitrogen Rate Pounds per Acre	Average Corn Yield Bushels per Acre
Winona	12	164	172
Olmsted	8	169	184
Wabasha	11	151	172
Houston	9	165	174

For reference, the University of Minnesota nutrient management recommendations for agronomic crops grow in MN can be found here: https://extension.umn.edu/nutrient-management/crop-specific-needs

Nutrient Management Initiative (NMI)
Southeast Minnesota Nitrogen BMP Outreach Program (SE BMP)
UMN Nitrogen Rate and Timing Research Trials

The NMI program assists crop advisers and farmers in evaluating nutrient management practices on their own fields utilizing on-farm trials. This is a great opportunity to promote new strategies that could improve fertilizer use efficiency, as well as to help open the door to include local farmers and crop advisers in the water quality discussion. Across the state NMI trials have included cover crops, fertilizer rate, placement, and timing, as well as precision agriculture and technology. Through this program crop advisors work directly with farmers and focus on new management strategies within the farmer's field. The trials in this watershed have focused on nitrogen application rates and timing (split application) on corn following soybeans and corn following corn.

The SE BMP program works with farmers, crop advisers, and project partners to install, evaluate, and compare on-farm trials. To help with these comparisons, the MDA is also evaluating the usefulness of in-season nitrogen management tools. The on-farm trials compare current and alternative N management practices that may help reduce nitrate losses or boost yields. Trials consist of two to four treatments, with two or three replications per trial to look at what was "better". Nitrogen rates and timing are the most common comparison in the Mississippi River Winona La Crescent Watershed.

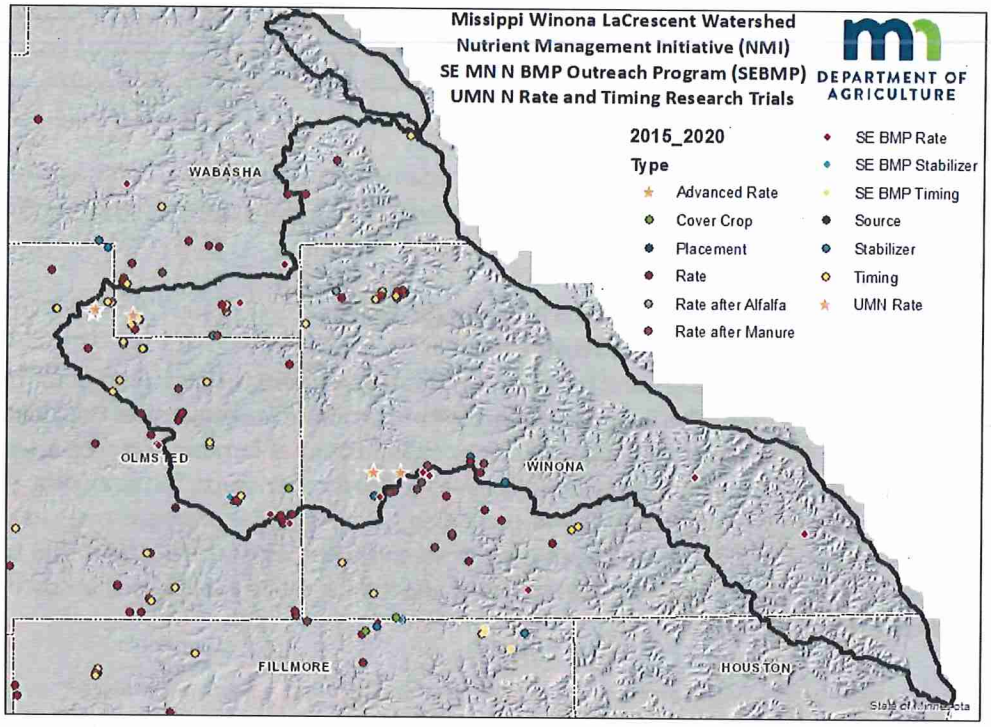
More advanced trials in this program are coordinated with University of Minnesota researchers and have been used to help guide corn nitrogen rate recommendations for this region of the state. The UMN N rate and timing research trials work closely with farmers and their crop advisors to increase their confidence

in and adoption of region-specific N BMPs to improve water quality. The objective of these trials is to measure the effects of N rate and application timing on corn production, nitrogen use efficiency, net return and residual soil nitrate. Each on-farm trial consists of seven N rates at planting plus three split-applied treatments (at planting and at V4-V5). A total of twenty trials have been established from 2015 to 2020.

Since the beginning of these three programs (2015-2020), there have been approximately 76 on-farm trials established in the Mississippi River Winona La Crescent Watershed (see map below).

More information on these on-farm trial programs is available at:

- Nutrient Management Initiative www.mda.state.mn.us/nmi
- SE MN Nitrogen BMP Outreach Program https://www.mda.state.mn.us/nitrogen-bmp-outreach-program
- UMN Nitrogen Rate and Timing Research Trials, full PDF report is available upon request. http://cnrc.agron.iastate.edu/



This Figure represents the on-farm trial locations across the Mississippi Winona La Crescent Watershed.

Minnesota Agricultural Water Quality Certification Program (MAWQCP)
The MAWQCP is a voluntary opportunity for farmers and agricultural landowners to take the lead in implementing conservation practices that protect water quality. Participants that implement and maintain approved farm management practices will be certified and in turn obtain regulatory certainty for a period of ten years. This is a planning program that should be included in the 1W1P because it is an opportunity for agricultural producers to evaluate nutrient and field management practices within the watershed to help reduce losses.

MAWQCP participants are eligible to receive financial assistance through NRCS's RCPP Land Management sign up which follows the EQIP payment schedule for practices beneficial to water quality. This opportunity is specifically for MAWQCP participants. MAWQCP offers a supplemental financial assistance grant program to program participants for the implementation of conservation practices. The grant offers up to $5,000 per fiscal year and can be combined with other sources of public financial assistance for producers to receive up to 75% total cost share.

Currently 72 certified farmers are farming 38,116 acres on 359 parcels in the WinLac River watershed. Additional information on the MAWQCP is available at: www.mda.state.mn.us/awqcp.

Additional Resources and Opportunities for BMP funding and Cost-Share

Minnesota Agricultural BMP Handbook (revised in 2018)
The MDA recently supported an update to this handbook initially created in 2012. This handbook provides a comprehensive summary of BMPs that are practical for Minnesota. The handbook incorporates the most current data to create realistic estimates of the benefits of best management practice implementation. Estimates of effectiveness, economic consideration and other potential barriers are included with each BMP description in this handbook. This resource may be an especially useful reference for outreach and implementation planning efforts in the agricultural portions of the Zumbro River watershed. This handbook is available at: www.mda.state.mn.us/agbmphandbook

Agricultural Land Preservation Program
The MDA assists local government in protection of farmland through its Agricultural Land Preservation Program. This includes online tools and programmatic support. More information is available at https://www.mda.state.mn.us/environment-sustainability/farmland-protection

Agricultural Growth, Research, and Innovation (AGRI) Program
The AGRI program has funding that may be helpful in water quality protection. Specifically:

- The AGRI **Livestock Investment Grant** encourages long-term industry development for Minnesota livestock farmers and ranchers by helping them improve, update, and modernize their livestock operation infrastructure and equipment. More information is available at www.mda.state.mn.us/livestockinvestment.

- The AGRI **Sustainable Agriculture Demonstration Grant** supports innovative on-farm research and demonstrations. It funds projects that explore sustainable agriculture practices and systems that could make farming more profitable, resource efficient, and personally satisfying. Findings are published in the MDA's annual *Greenbook*. More information is available at www.mda.state.mn.us/sustagdemogrant.

The AgBMP Loan Program: www.mda.state.mn.us/agbmploans
The AgBMP Loan Program is a water quality program that provides low interest loans to farmers, rural landowners, and agriculture supply businesses. The purpose is to encourage agricultural best management practices that prevent or reduce runoff from feedlots, farm fields, and other pollution problems identified by the county in local water plans. In addition, these loans are available to help finance repairs, replacement wells, or water treatment equipment to provide safe drinking water to rural residents who have water quality issues.

Thank you again for the opportunity to provide background and relevant information. We look forward to being involved in the 1W1P process.

Sincerely,

Dawn Bernau

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Soil Scientist - MDA Fertilizer Field Unit
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DEPARTMENT OF HEALTH

Protecting, Maintaining and Improving the Health of All Minnesotans

May 10, 2021

Sheila Harms
Winona County Water Planner
202 West Third Street
Winona, MN 55987

Dear Sheila:

Subject: Initial Comment Letter – *Mississippi River Winona La Crescent 1W1P*

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 Mississippi River Winona La Crescent 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:

Prioritize Drinking Water Supply Management Areas (DWSMA) in the Mississippi River Winona La Crescent Watershed 1W1P.

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.

Prioritize Sealing Abandoned 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.

Prioritize Protection of Private Wells

Many residents of Mississippi River Winona La Crescent Watershed 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.

Prioritize Protecting Noncommunity Public Water Systems

Noncommunity public water systems provide drinking water to people at their places of work or play (schools, offices, campgrounds, etc.). Land use and management activities (maintaining/upgrading SSTS, well sealing, etc.) should consider effects on these public water systems. Find information regarding noncommunity public water systems in the watershed in

reports titled Source Water Assessments (SWA) at:
https://www.health.state.mn.us/communities/environment/water/swp/swa.html

Source Water Assessments provide a concise description of the water source used by a public water system and discuss how susceptible that source may be to contamination.

Prioritize areas were public and private drinking water wells are impacted by nitrate.

Prioritize these protection areas by working with landowners on nutrient management, SSTS, and other sources of nitrogen. Due to large areas of karst geology, this area is extensive throughout the planning area. Consider ways to further prioritize using multiple criteria, such as well density, population served, well construction, public vs. private, etc.

Prioritize protection activities in highly vulnerable DWSMAs where there are not currently water quality impacts to drinking water aquifers.

Maintaining aquifers with good water quality is a worthwhile investment. Promote management activities that reduce or minimize the risk potential contaminants or land uses may pose to the aquifer. These DWSMAs are primarily located in the Mississippi River alluvial terrace formations.

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 contaminates, 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 *WinLac 1W1P*. 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) 517-4118 or jennifer.ronnenberg@state.mn.us.

Sincerely,

Jennifer Ronnenberg

Jennifer Ronnenberg, Principal Planner
Minnesota Department of Health
Source Water Protection Unit
18 Woodlake Dr. SE
Rochester, MN 55904

Attachments

CC: Mark Wettlaufer, MDH Source Water Protection Unit
Bob Tipping, MDH Source Water Protection Unit
Carrie Raber, MDH Source Water Protection Unit
Chris Elvrum, MDH Well Management Section
Adam Beilke, BWSR Board Conservationist
Shaina Keseley, BWSR Clean Water Specialist
Jeff Weiss, DNR
Justin Watkins, MPCA
Margaret Wagner, MDA

MDH Data and information:

- Drinking Water Statistics – 100% of the drinking water in the planning area is from groundwater. Groundwater aquifers used in the planning area range from surficial sand and gravel to the Mt. Simon sandstone formation.

- A spreadsheet of the public water supply systems in the watershed, status in wellhead protection planning, and any drinking water protection concerns or issues that have been identified in protection areas. This information can help you understand the drinking water protection issues in the watershed, prioritize areas for implementation activities, and identify potential multiple benefits for implementation activities.

- Shape files of the Drinking Water Supply Management Areas (DWSMA) in the watershed are located at https://www.health.state.mn.us/communities/environment/water/swp/maps/index.htm.

MDH Figures:

- A figure detailing the "Pollution Sensitivity of Near-Surface Materials" in the Winona-La Crescent Watershed. This information can help you understand the ease with which recharge and contaminants from the ground surface may be transmitted into the upper most aquifer on a watershed scale. Individual wellhead protection areas provide this same information on a localized scale. This is turn can be used to prioritize areas and implementation activities.

- A figure detailing "Pollution Sensitivity of Wells" in the Winona-La Crescent Watershed. This information can help you understand which wells in the watershed are most geologically sensitive based on the vulnerability of the aquifer in which the well is completed. This information allows for targeting of implementation activities to the sources of water people are drinking.

- A figure detailing "Nitrate Results" in the Winona-La Crescent Watershed. This shows sampling results of known wells to highlight areas where there is nitrate contamination of the water people are drinking. This represents one data source for nitrate results, seek other sources for a more comprehensive understanding. This figure can help prioritize implementation activities aimed at reducing nitrate levels in the sources of drinking water.

- A figure detailing "Arsenic Results" in the Winona-La Crescent Watershed. This information can help you understand which wells in the watershed contain elevated arsenic levels.

- A figure detailing "DWSMA Vulnerability" in the Winona-La Crescent Watershed. This information can help you understand which DWSMA is most vulnerable to contamination from the ground surface. This figure allows for targeting of implementation activities for public water systems.

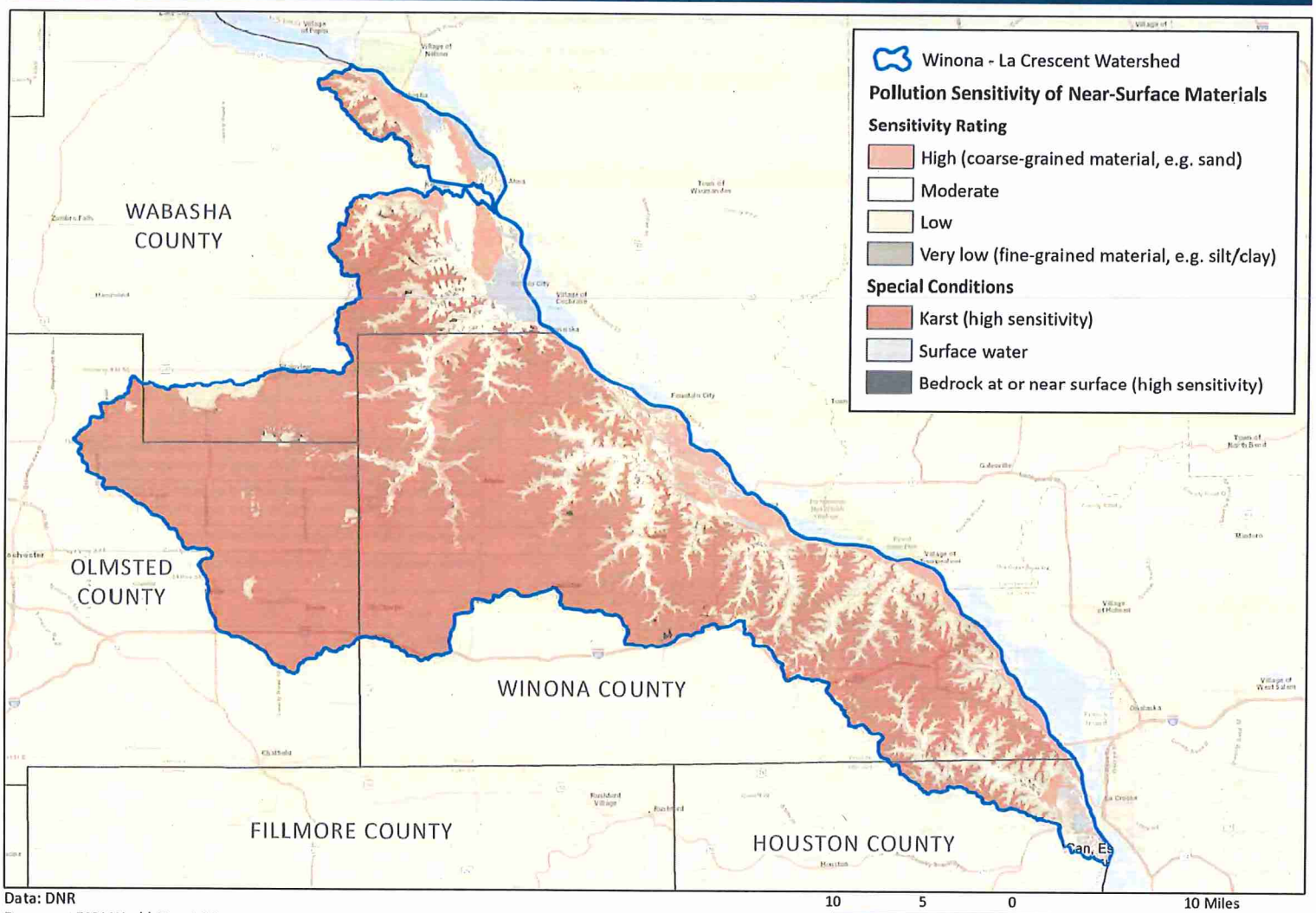
Mississippi River Winona La Crescent 1W1P Area Public Water Systems - Drinking Water Protection Concerns for Water Quality

Aquifer Risk	Name	County	Watershed	Subwatershed	Type of System	WHP Plan	DWSMA Vulnerability	Drinking Water Protection Concerns
Very high potential contaminant risk - due to lack of geologic protection to groundwater and surface water influence								
Focus on Impacts from land use practices and surface water runoff								
	Elgin	Wabasha	Whitewater	Whitewater	Municipal	Beginning amendment	Very high, high, moderate, low	Primary well to most of the city is vulnerable. Increasing nitrate trend, average value: 7.7 mg/L. MCL exceedance on three occasions. Water chemistry indicates surface water influence.
High potential contaminant risk - due to lack of geologic protection to groundwater and surface water influence								
Focus on potential land use contaminant sources that may impact water quality								
	LaCrescent	Houston	LaCrosse-Pine	Pine Creek	Municipal	Complete	High, moderate, low	Vulnerability is likely due to well construction. No nitrate concerns.
	Wabasha	Wabasha	Whitewater	Winona-Miss	Municipal	Complete	High, moderate, low	Vulnerability due to lack of geologic protection. Nitrate values for all wells are elevated, average values of 1.8 mg/L, max of 5.6 mg/L
	Altura	Winona	Whitewater	Garvin Brook	Municipal	Beginning amendment	High	Nitrate concerns. Well #2 has decreasing nitrate trend, Well #3 has increasing nitrate trend. Both wells 10-yr average: 6.3 mg/L
	Stockton	Winona	Whitewater	Garvin Brook	Municipal	In process	High, low	One primary well is vulnerable, due to lack of geologic protection. Water chemistries indicate surface water influence.
	Bethany Water Company	Winona	Whitewater	Whitewater	Non-municipal	In process	High	Average 10-year nitrate value 5.1 mg/L. Water chemistries indicate surface water influence.
Moderate potential contaminant risk - due to well construction and/or leaky geologic protection from surface water influence								
Focus on potential land use contaminant sources that may impact water quality								
	Rollingstone	Winona	Whitewater	Garving Brook	Municipal	Complete	Moderate, low	Vulnerabilities due to possible well construction issues or leaky geologic conditions. Water chemistries indicate minor surface water influence.
	St. Charles	Winona	Whitewater	Whitewater	Municipal	Complete	Moderate, low	Vulnerabilities due to possible well construction issues or leaky geologic conditions. Water chemistries indicate minor surface water influence.
	Winona	Winona	Whitewater	Winona-Miss	Municipal	Complete	Moderate, low	Vulnerabilities due to lack of geologic protection on terrace wells.
	Hidden Valley MHP	Winona	Whitewater	Winona-Miss	Non-municipal	In progress	Moderate	Primary well is vulnerable. Water chemistry indicates surface water influence.
Low potential contaminant risk - due to well construction and/or good geologic protection from surface water influence								
Focus on sealing of unused wells and old public water supply wells (funding available from MDH)								
	Dover	Olmsted	Whitewater	Whitewater	Municipal	Complete	Low	Sealing old, unused wells
	Eyota	Olmsted	Whitewater	Whitewater	Municipal	Complete	Low	Sealing old, unused wells
	Goodview	Winona	Whitewater	Winona-Miss	Municipal	Complete	Low	Sealing old, unused wells
	Elba	Winona	Whitewater	Whitewater	Municipal	Not started	Unknown	
	Green Terrace Mob Est	Winona	LaCrosse-Pine	Halfway Creek	Non-municipal	Not started	Unknown	

Summary of Community, Municipal Public Water Systems
12 total: 8 vulnerable, 3 non-vulnerable, 1 unknown vulnerability
Summary of Community, Non-municipal Public Water Systems
3 total: 2 vulnerable, 1 unknown vulnerability
Summary of Non-Community, Non-Transient Public Water Systems
13 total: unknown vulnerabilities

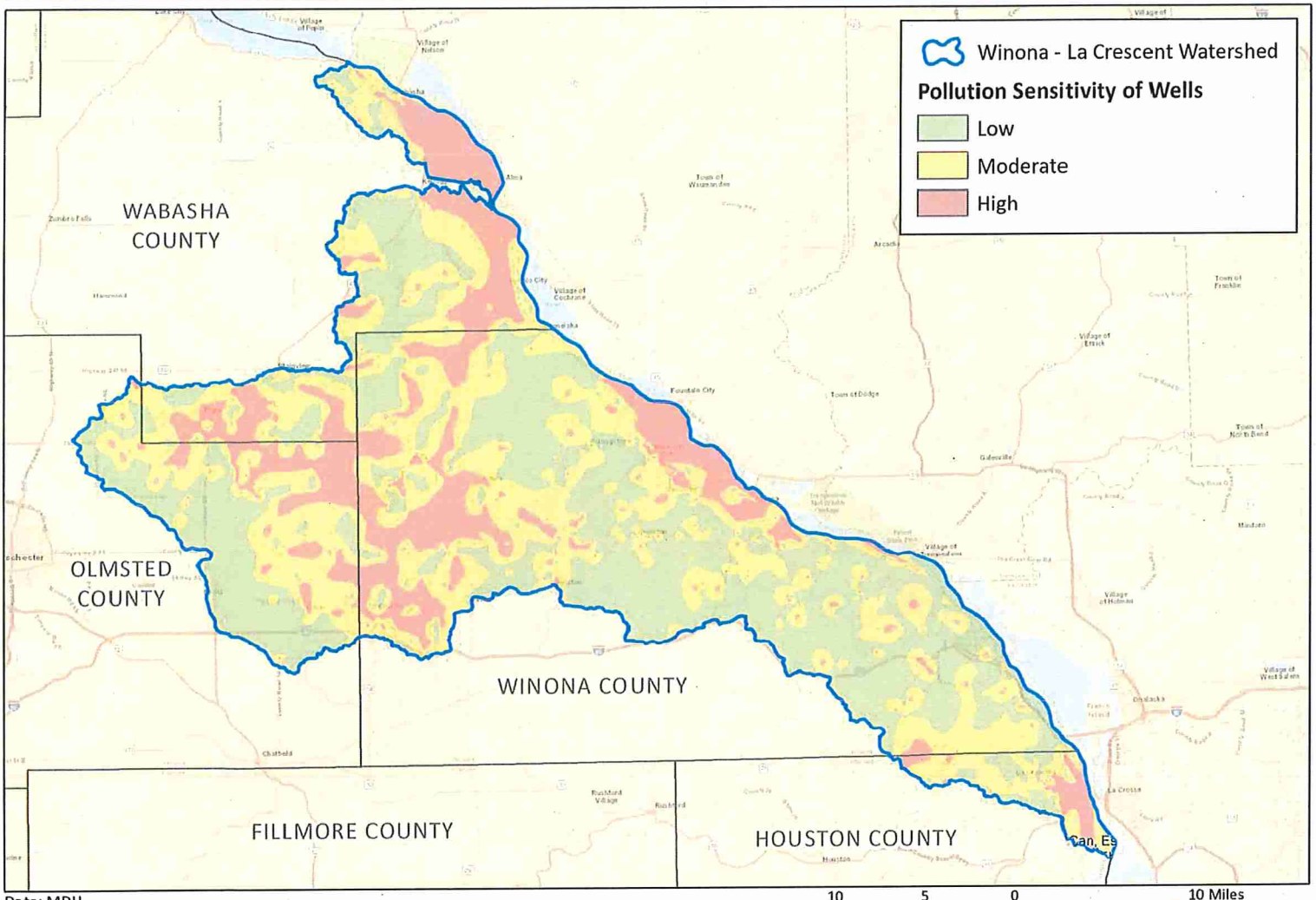
Acronyms:
SWCA=Surface Water Contribution Area
DWSMA=Drinking Water Supply Management Area
WHP=Wellhead Protection Plan

Winona-La Crescent Watershed - Pollution Sensitivity of Near-Surface Materials



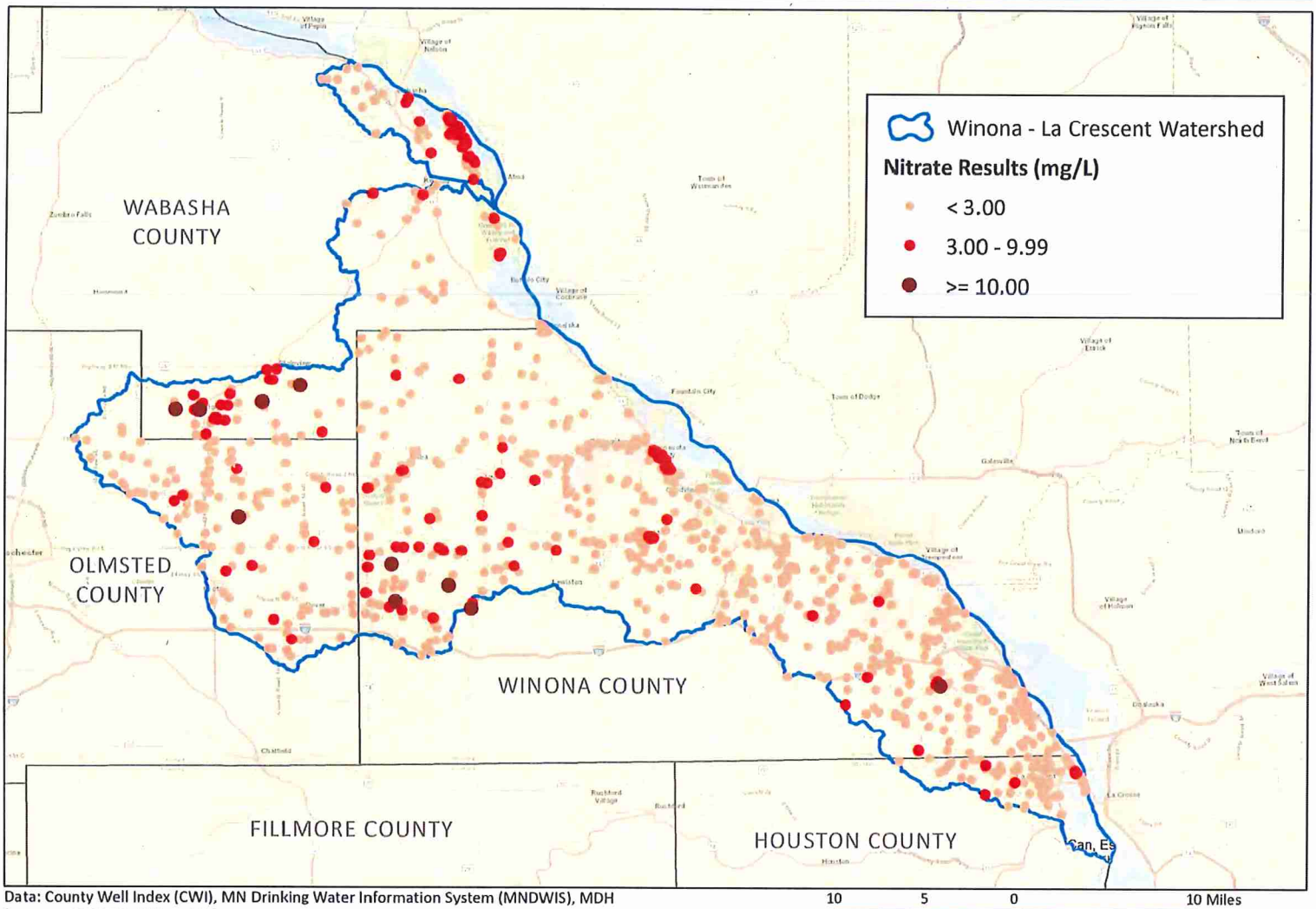
Data: DNR
Basemap: ESRI World Street Map

Winona-La Crescent Watershed - Pollution Sensitivity of Wells



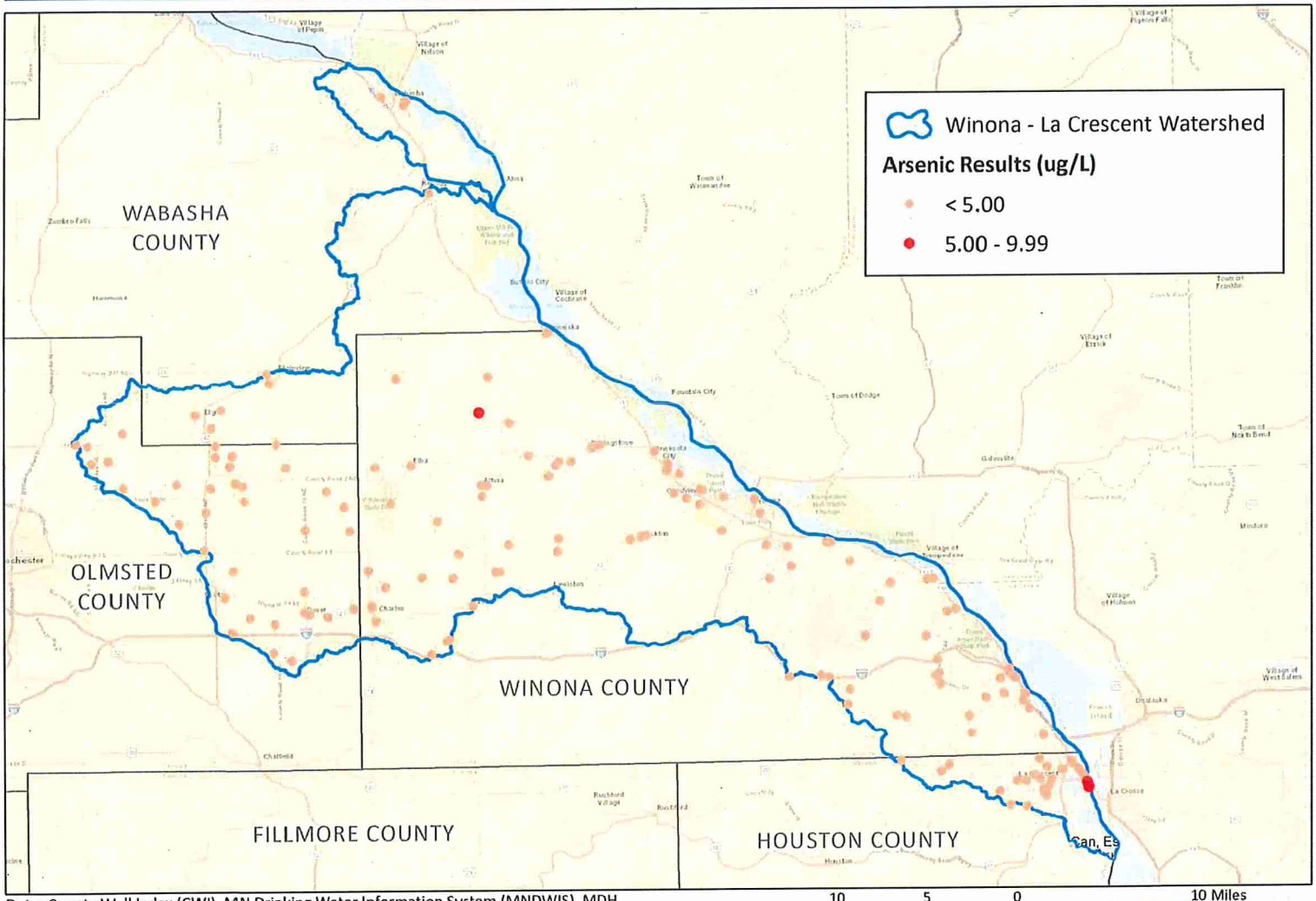
Data: MDH
Basemap: ESRI World Street Map

Winona-La Crescent Watershed - Nitrate Results



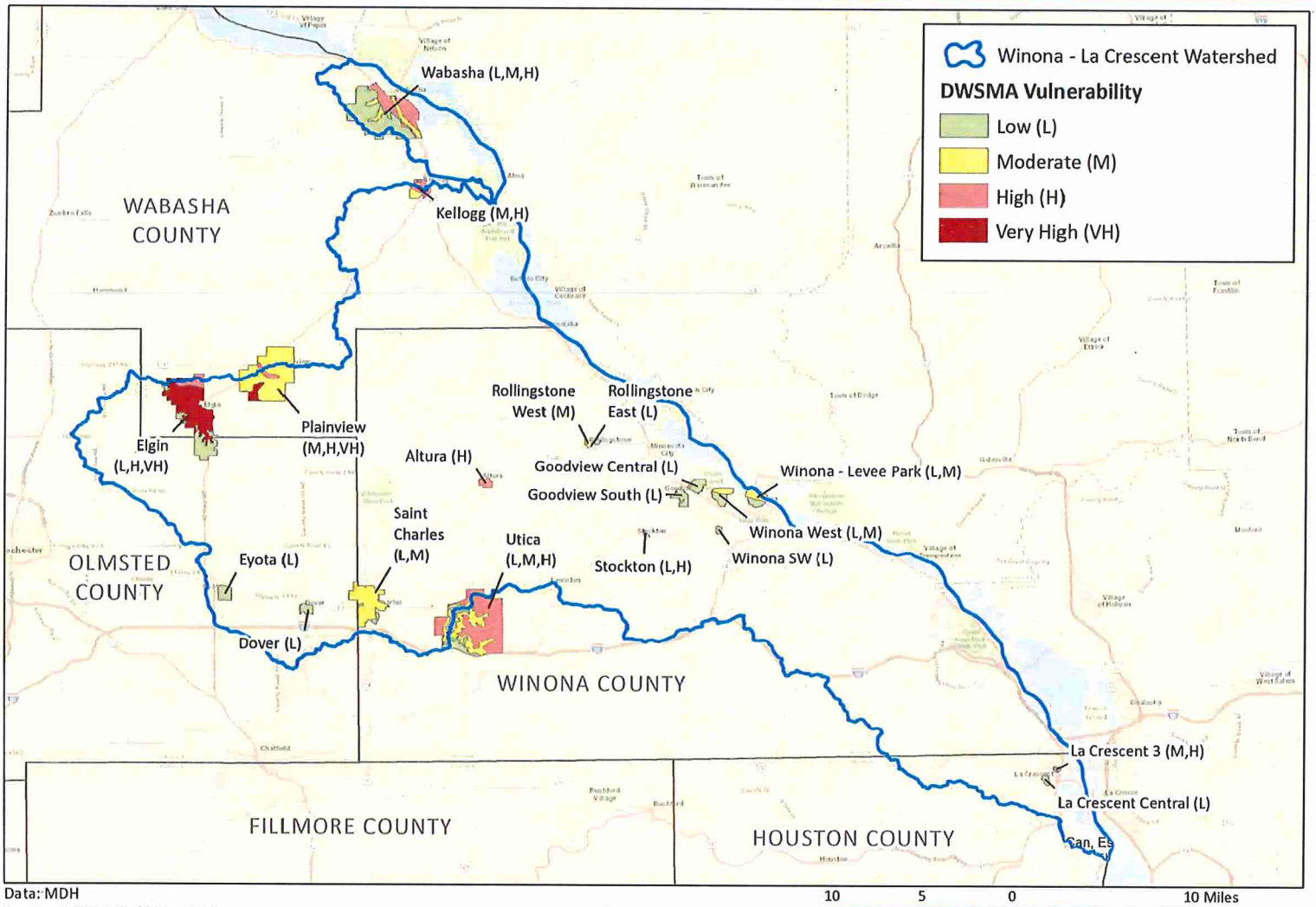
Data: County Well Index (CWI), MN Drinking Water Information System (MNDWIS), MDH
Basemap: ESRI World Street Map

Winona-La Crescent Watershed - Arsenic Results



Data: County Well Index (CWI), MN Drinking Water Information System (MNDWIS), MDH
Basemap: ESRI World Street Map

Winona-La Crescent Watershed - DWSMA Vulnerability



Data: MDH
Basemap: ESRI World Street Map

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

April 20, 2021

Sheila Harmes
Winona County Water Planner
Winona County
202 W 3rd St
Winona, MN 55987

RE: Priority Concerns for Mississippi River – Winona and Mississippi River – La Crescent One Water, One Plan

Dear Ms. Harmes:

The Minnesota Pollution Control Agency (MPCA) appreciates the opportunity to provide input at the outset of the One Water, One Plan (1W1P) process in the Mississippi River – Winona and Mississippi River – La Crescent (WinLaC) watersheds. We thank you for your efforts and for considering our input.

The MPCA has coordinated and funded many efforts in the WinLaC Watershed and is excited to provide technical information, tools and strategies for use in 1W1P planning process. A summary of select products is included as a preface to a listing of priority concerns. Others are summarized on MPCA's watershed web pages:

Mississippi River - Winona: https://www.pca.state.mn.us/water/watersheds/mississippi-river-winona
Mississippi River – La Crescent: https://www.pca.state.mn.us/water/watersheds/mississippi-river-la-crescent

The MPCA is committed to interpreting and applying the substance of the WRAPS, NRS, water quality models, SID conclusions, etc. going forward as these and other priority concerns are installed and addressed in the 1W1P framework. We hope the information provided is helpful in prioritizing water resource work to protect and improve human health and the environment.

Again, thank you for the opportunity to provide priority watershed concerns. We look forward to participating in the Plan development and review. If we may be of further assistance, please contact Emily Zanon at 507-206-2613 (Emily.Zanon@state.mn.us) at the MPCA Rochester Regional Office.

Sincerely,

Emily Zanon

This document has been electronically signed.

Emily Zanon
Environmental Specialist
Watershed Division

EZ:jdf

The following MPCA products are available for use in the 1W1P process:

Watershed Monitoring and Assessment Reports: The assessment report summarizes results of intensive watershed monitoring.

- Mississippi River – Winona (2013): https://www.pca.state.mn.us/sites/default/files/wq-ws3-07040003b.pdf
- Mississippi River - La Crescent[a] (2018): https://www.pca.state.mn.us/sites/default/files/wq-ws3-07060002b.pdf
  a. *Also includes the Upper Iowa and Mississippi River – Reno watersheds.*

Watershed Biotic Stressor Identification Reports: The stressor identification report examines biota impairments in the context of probable causal factors (i.e. "stressors").

- Mississippi River – Winona (2015): https://www.pca.state.mn.us/sites/default/files/wq-ws5-07040003a.pdf
- Mississippi River – La Crescent (2018): https://www.pca.state.mn.us/sites/default/files/wq-ws5-07040006a.pdf

Watershed Total Maximum Daily Load (TMDL) Studies: A TMDL study uses a variety of methods to evaluate the current loading, contributions by the various pollutant sources, as well as the allowable pollutant loading capacity of impaired stream reaches.

- Mississippi River-Winona (2016): https://www.pca.state.mn.us/sites/default/files/wq-iw9-18e.pdf
- Mississippi River – La Crescent (2020): https://www.pca.state.mn.us/sites/default/files/wq-iw9-26e.pdf

Watershed Restoration and Protection Strategy Reports: The Watershed Restoration and Protection Strategy (WRAPS) Report summarizes foundational technical information and stakeholder input to provide a starting point from which to develop tools that will help local governments, land owners, and special interest groups determine (1) the best strategies for making improvements and protecting resources that are already in good condition, and (2) focus those strategies in the best places to do work. The WRAPS includes goals, timelines, pollutant source information and management strategies distilled from statewide studies/strategies such as the Minnesota Nutrient Reduction Strategy (NRS) and Nitrogen in Minnesota Surface Waters.

- Mississippi River-Winona (2016): https://www.pca.state.mn.us/sites/default/files/wq-ws4-28a.pdf
- Mississippi River – La Crescent (2020): https://www.pca.state.mn.us/sites/default/files/wq-ws4-71a.pdf

Mississippi River-Winona SWAT Modeling Project and LiDAR Analysis (2014): This SWAT modeling project simulated potential flow, sediment, nitrate and phosphorus reductions from implementing agricultural best management practices (BMPs) in the Whitewater and Garvin Brook/Rollingstone Creek watersheds of southeastern Minnesota. Model project memo located at https://www.pca.state.mn.us/water/watersheds/mississippi-river-winona. Data files available from MPCA staff upon request.

Mississippi River – La Crescent ACPF Analysis (2020): Two ACPF analysis were conducted to aid in identifying and prioritizing restoration efforts in the La Crescent Watershed:
1. Multiple sediment trapping and nutrient removal BMP suitability analysis at the HUC 12 scale.

2. Identify existing and potential water storage ponds in the drainage area of Pine Creek to reduce peak flows. Outcomes of ACPF are summarized in the La Crescent WRAPS report; data files available from the MPCA staff upon request.

Water Quality Assessment Results Data Viewer (currently maintained reporting website): This workbook lets users view and download results of monitoring and assessment decisions for Minnesota waters based on their designated uses and watershed. It also provides additional data related to lake and stream protection, prioritization, lake trophic state, and lake clarity trends.
https://public.tableau.com/profile/mpca.data.services#!/vizhome/WaterQualityAssessmentResultsDataViewer/HomePage

Watershed Pollutant Load Monitoring Network (currently maintained website). The Watershed Pollutant Load Monitoring Network (WPLMN) measures and compares data on pollutant loads from Minnesota's rivers and streams and tracks water quality trends. A new data viewer allows for interactive examination and retrieval of load data, including sites in the CRW.
https://www.pca.state.mn.us/water/watershed-pollutant-load-monitoring-network

MPCA Environmental Data Access (EDA) maps (currently maintained websites). MPCA maintains several online tools that enable a user to search for and access environmental data. This includes:
Surface Water Data Access tool: https://www.pca.state.mn.us/eda-surface-water-data
Groundwater Data Access tool: https://www.pca.state.mn.us/water/groundwater-data
Spring Data: no online data tool at this point; available through MPCA staff upon request.

Geologic Controls on Groundwater and Surface Water Flow in Southeastern Minnesota and its Impact on Nitrate Concentrations in Streams (Minnesota Geological Survey, 2014). This report summarizes the results of a Minnesota Geological Survey (MGS) investigation conducted for the MPCA designed to support watershed planning efforts in southeast Minnesota. Specifically it provides better understanding of the geologic controls on nitrate transport in the region, including nitrate in groundwater that is the source of baseflow to streams.
http://conservancy.umn.edu/handle/11299/162612

According to the findings of these and other works, the MPCA lists the following priority concerns for consideration in the 1W1P process:

- **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. Minnesota's NRS documented an approximate 0% change in the nitrogen load leaving our state since the 1990s. In the karst region many springs show increasing nitrate concentration trends. "Moving the needle" on nitrates will be a challenge going forward; one that should be addressed in the WinLaC 1W1P. Nitrate is a greater concern in the Mississippi River – Winona (MR-Winona) portion of the WinLaC because of the greater amount of cultivated acres (Mississippi River - La Crescent is dominated by forest). The MR-Winona WRAPS draws on various citations to describe sources (cultivated acres are the dominant source), transport (nearly all nitrogen in the MR-Winona is loaded to surface waters via vertical leaching loss) and the best strategies for nitrate reduction (source control and vegetative scouring). The report also provides stakeholder-derived example combinations of BMPs that (per best estimates) would result in a 20% reduction of the nitrogen load leaving the watershed (see Figure 34 in MR-Winona WRAPS). Nitrogen BMPs need broad application in our state and in the WinLaC Watershed. Because prioritization for nitrogen work in southeast Minnesota cannot be

sufficiently accomplished via runoff-based GIS models, the 1W1P could consider a "layering" approach to prioritization: focus on areas that show high nitrate loading (per model), have drinking water issues (per MDH and/or private well analysis), MDA Nitrogen Rule priority areas (Level 2 DWSMAs) and show biota stressed by nitrate (per stressor identification). The 1W1P should also work to temper expectations regarding nitrate water quality changes in trout streams, given the lag-time in delivery from land through groundwater to surface waters (see MGS report listed above). Areas of the WinLaC Watershed where increased nitrates have been noted are South Fork Whitewater River, Middle Fork Whitewater River and Crow Spring (see Mississippi River – Winona WRAPS page 44). The aquatic life in Bear Creek have also been identified as stressed by nitrate. Nitrate is also a concern in groundwater sources. Very high to high vulnerable Drinking Water Supply Management Areas (DWSMAs) exist for Elgin, Plainview, and Utica (see DNR Watershed Health Assessment Framework).

- **Improve and protect the watershed's lake.** The WinLaC 1W1P area has one recreational lake: Lake Winona (split into two basins referred to as Northwest Bay and Southeast Bay). Eutrophication of Lake Winona is largely driven by internal nutrient cycling, but stormwater inputs and inflows from upstream lakes (Boller's Lake) are also priority nutrient sources. The MPCA developed water quality goals for Lake Winona to meet nutrient standards for Shallow Lakes in the North Central Hardwood Forests (NCHF) Ecoregion. In developing the MR-Winona WRAPS, a citizen group, Healthy Lake Winona, was formed to bring awareness to and help restore Lake Winona's two basins. The group continues to explore nutrient sources, nutrient removal options and lake restoration.
- **Further study and address habitat and sediment issues in streams.** Degraded and/or insufficient stream habitat is a prevalent stressor of biota (i.e. "fish and bugs") in southeast Minnesota and in the WinLaC Watershed. This is especially important in the WinLaC Watershed since it is considered one of the top recreational trout fishing destinations in the state of Minnesota. The 1W1P should consider the best strategies for addressing habitat issues in various settings and at various scales. Sediment (and associated turbidity) is a pollutant of concern and a prevalent stressor of aquatic life in the WinLaC. It is implicitly addressed by the priority concerns listed throughout in that focusing on pollutant and pathogen load reductions and stream habitat issues will also result in corresponding sediment load reductions. State monies are supporting natural channel design and trout habitat improvement projects. Specific projects include, but are not limited to Pine Creek project near New Hartford in MR-LC and South Fork Whitewater. A thoughtful and technically supported approach to optimally applying these various habitat improvement methods would be a good outcome for 1W1P. Specifically, identifying where habitat improvement projects are most appropriate in the watershed, as opposed to a more watershed-wide implementation approach. Specific areas in the WinLaC Watershed were high sediment loading in present includes headwater areas of Rollingstone Creek, Garvin Brook, North Fork Whitewater, Middle Fork Whitewater, and tributaries of the South Fork Whitewater (see WRAPS Figure 12). Pine Creek in the La Crescent Watershed and North Fork Whitewater in the Winona Watershed are recommended for continued habitat restoration. Other areas of recommended for habitat restoration have been identified in the MR-Winona WRAPS (Figure 27).
- **Protection of baseflow especially in coldwater Trout Streams.** The distinctive landscape of the Driftless Area is characterized by craggy limestone, sandstone valleys, and steep hillsides. This ancient terrain, which was bypassed by the most recent glaciation, is characterized by one of the highest concentrations of limestone spring creeks in the world. The spring water emerging from limestone bedrock provides a near constant flow of cold water. The limestone enriches the water with essential minerals for aquatic insects and other creatures, which contributes to

prime conditions for healthy populations of trout and other coldwater dependent species. Trout anglers produce an economic benefit to the Driftless Area in excess of $1.1 billion every year (Northstar Economics & Trout Unlimited 2008). The WinLaC Watershed is a popular trout fishing destination in the Midwest making the protection of coldwater streams not only an environmental priority, but an economic priority. A majority of the coldwater streams in the WinLaC (approximately 60%) meet criteria the southeast Minnesota coldwater F-IBI. A focus of protection work should be preserving the baseflow of streams by maintaining riparian vegetation, protecting baseflow (reduce and restore ponded springs) and continued monitoring of water temperature to detect any changes. Temperature stressors for aquatic life are not common throughout the watershed but are a priority in some subwatersheds, and could become stressors if baseflow is not protected. Restoring riparian vegetation, limiting riparian grazing and better understanding natural temperature transitions will aid in establishing trout stream priorities. Questions still exist about the impact climate change has on stream temperatures. Regardless, climate change is an important consideration when developing protection and restoration strategies for coldwater resources. Areas of the WinLaC Watershed identified as having temperature priorities include Pine Creek (protect upper coldwater reach, restore lower warmwater reach) and Bear Creek. Additional temperature research is recommended for Bear Creek. Another area of research that may be needed is the impact groundwater withdraw has on groundwater inputs to surface water. Fully supporting aquatic life areas are identified in the MR – Winona WRAPS (p. 47).

- **Increase perennial land acreage.** More living cover on the land reduces pollutant loads and provides wildlife habitat. This is a multiple-benefits "parent" strategy from which various specific strategies could be shaped. Examples in the WRAPS documents include:
    - Keep existing pastures and rangeland; look for opportunities to convert marginal row; crop acres. Pasture is a working-lands BMP that is an integral part of local economies;
    - Encourage re-enrollment of expiring CRP contracts;
    - Manage forest acres with stewardship planning;

  Garvin Brook, Middle Fork Whitewater and North Fork Whitewater riparian corridors are a high priority for restoration. The NRS and numerous other technical documents cite the multiple benefits of perennials. The 1W1P should provide a foundation for efforts going forward to increase perennial acres in the watershed.
- **Continue work to reduce pathogens in surface waters**. The presence of fecal pathogens in surface water is a regional problem in southeast Minnesota. The issue was well-described in a stakeholder driven process that culminated in approval of 39 approved fecal coliform TMDLs for streams and rivers in the region. The Revised Regional *Total Maximum Daily Load Evaluation of Fecal Coliform Bacteria Impairments in the Lower Mississippi River Basin in Minnesota* was approved in 2006. Subsequent to TMDL approval, stakeholders completed an implementation plan. According to the findings and strategies summarized in these documents, numerous projects have been executed in efforts to reduce pathogen loading to the region's surface waters. Many problematic feedlot runoff sites, unsewered communities and over-grazed pastures (among others) have been addressed via grant funding. The *E. coli* TMDLs in the WinLaC should be considered (for planning purposes) an addendum to the regional TMDL work and 1W1P should support continued work to better understand *E. coli* indicator presence (see TMDLs document for research needs) and reduce pathogen loading to surface waters. South Fork Whitewater and Garvin Brook and Rollingstone Creek are noted as areas with high concentration of animal units and *E. coli* impairments (see WRAPS page 42 and 56). In Pine Creek, pasture management is recommended to address *E. coli* impairment.

Stockton - Rollingstone - MN City Watershed District

April 5, 2021

Sheila Harmes
Winona County Water Planner
202 West Third Street
Winona, MN 55987

Ms. Harmes and WinLaC Partnership,

Thank you for sending the Notification for development of the WinLaC Comprehensive Management Plan.

As part of the transition to more efficient prioritization of water resource issues and concerns, the Stockton-Rollingstone-Minnesota City Watershed District (SRMCWD) incorporated its Watershed Management Plan into Winona County's Local Water Management Plan when it was amended in 2019. https://www.co.winona.mn.us/sites/co.winona.mn.us/files/files/Private_User/plaes/Water%20Plan/FINAL%20WinCo%20LWM%20Plan%2012-1-2019.pdf

The SRMCWD is active in the WinLaC Partnership and priorities of the SRMCWD that can be addressed within the 1W1P process include the following:

- Flood mitigation particularly in Stockton and downstream to Minnesota City – The Stockton Flood report was completed in 2009 and details flood protection measures and feasible options. https://www.co.winona.mn.us/sites/winonacounty.new.rschooltoday.com/files/StocktonFloodReport.pdf
- Addressing water quality impairments
- Prevent soil erosion and control sediment

Additionally, the SRMCWD recently completed a Strategic Session with its Advisory Committee to guide its actions in the near future. Being an active participant in the 1W1P process is included within the developed strategic plan (attached).

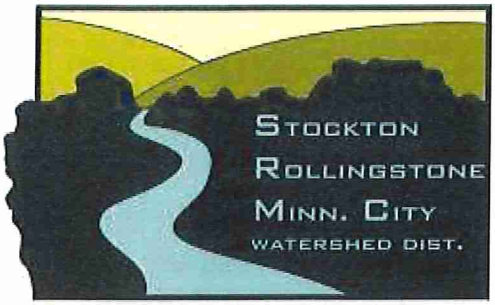
It is the intent of the SRMCWD Watershed District to improve its capacity to manage resources by partnering with Winona County and the other WinLaC Partners to more efficiently identify and prioritize water resource issues and concerns. The Watershed District is looking forward to participating in the planning process.

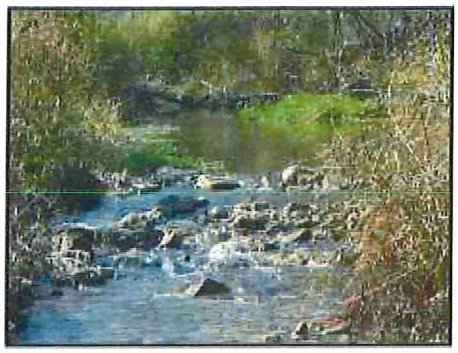
Sincerely,

Machelle Frisbie

Machelle Frisbie, Board Chair

Strategic Assessment and Plan 2020





Purpose

The purpose of the "Strategic Assessment and Plan" is to guide the actions of the governmental unit from now to December 31, 2024.

Governance

The appointed Board of Managers meets on a regular basis for discussion and decision making about the implementation of its policies and programs.

- Chair - Carlus Dingfelder
- Secretary - Machelle Frisbie
- Treasurer - Bill Haxton

Snapshot of Current Condition in Watershed

Board managers, county staff, county commissioner, and an advisor identified four priority areas that are timely for attention.

What are the current resource concerns or opportunities that you are seeing in the watershed? (The major streams within the District are Garvin Brook, Stockton Valley Creek, and Rollingstone Creek).

September 14, 2020 Work Session

A. **Water: Ponding, Flooding and Other Excess**

Heavy spring and summer rains as of the past three years have increased the runoff to the point that the water runoff, because the soil isn't capable of absorbing additional rainfall, is creating ditching off fields nearby the streams that needs addressing to help mitigate the silt deposited in the stream.

B. **Soil and Water: Erosion - Shoreline, Bank and Channel Erosion and Sediment in the Water**

Creeks are changing paths, taking out banks, muddy and the sand movement in streams is causing silting and sand on banks (i.e., Streambank improvements and stabilization, use of perennial vegetation).

The quality of wildlife habitat is impacted both on land and in the streams. Pollinator projects can help.

C. **Human: Pollution of Streams with Trash or Garbage**

Trash and garbage are in the creek in sufficient quantities and size that individuals and or families cannot remove it easily alone and equipment is often required. For example, tires are a problem in some streams.

D. **Water Quality Degradation**

Groundwater quality with presence of harmful nitrates can be found in various areas of the watershed.

Points of Pride

Pond Clean Out Program - over the past few years this effort has led to measurable outcomes. Traction has been made by providing a means of creating awareness and with financial assistance.

Goals and Actions 2020-2024

The plan is intended to guide decision making and actions in 2021, 2022, 2023 and 2024. The goals are likely to remain similar over time. The objectives under each goal will likely evolve as efforts are underway or complete and new opportunities arise. Each year, as part of the annual work plan, the intent is to identify objectives and to determine who is responsible to initiate discussion or guide actions.

A. GOAL: Increase impact on conditions in the watershed by becoming more future orientated with increased strategy formulation and policy making as a Board of Managers.

1. Manage business as guided by the 2019 Stockton-Rollingstone-Minnesota City Watershed District Watershed Management Plan

    a. Develop an annual work plan. Within the plan for each year, prioritize one or more effective strategies to

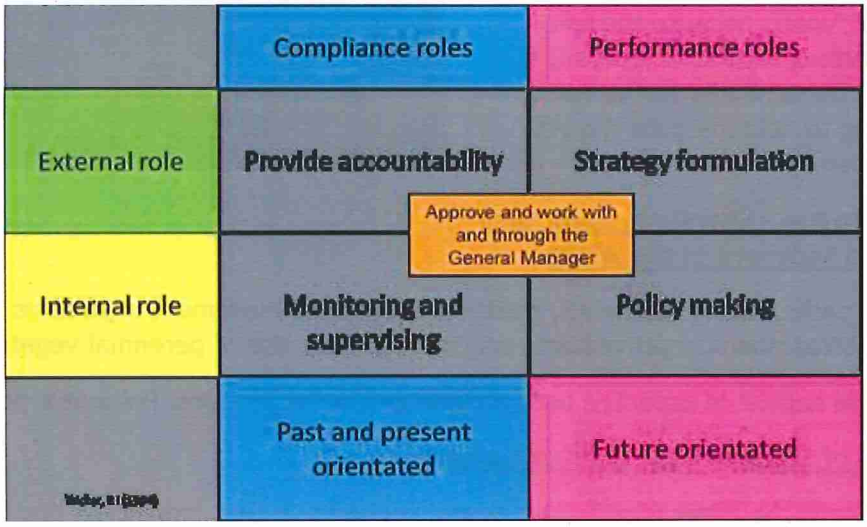
    b. Initiate a Stream Cleanup effort.

    c. Revise guidelines and promote the cost-share for Erosion Control Practices.

    d. Review progress and barriers toward planned activities and identify practical next steps to make progress on plans, goals, and strategies twice a year

    Lead: Discuss at Board Meetings

ROLE OF BOARD: Acting for Compliance Now with intention of Moving to Performance



2. Participate in in a policy making role in One Watershed, One Plan for Mississippi-Winona/La Crescent Watersheds; support the use of science and studies to identify effective strategies within the watershed.

    (Anticipate targets and objectives will be developed as part of Comprehensive Watershed Management Plans through the 1W1P program).

    Lead: Sheila Harmes, Winona County Policy Member: Machelle Frisbie, District Manager

B. GOAL: Effectively operate the Watershed District organization according to MN Statutes 103D.

1. Clarify staffing expectations for the short-term regarding what is volunteer and what is paid for Machelle Frisbie who is assuming a staffing role in addition to a Board role). Lead: Machelle, Carlus and Adam

2. Form and maintain an Active Advisory Committee of 3 to 5 people; hold yearly meetings of the Advisory committee and/or communicate regularly with advisors about SRMC WD matters
   Lead: Carlus Dingfelder
   Members: Matthew Monahan, Pheasants Forever
   Duane Wirt
   Bill Rowekamp, SWCD
   Open: Trout Unlimited _____

3. Develop a meaningful mission statement. The mission of the Stockton Rollingstone Minnesota City Watershed District is:
   "Enhance water quality and reduce flooding through resources, partnerships, and planned efforts to serve the residents of the Watershed District."

4. Focus on making progress on the annual workplan by increasing the number of meetings to monthly.

5. Develop an annual budget for 2021 and review quarterly during business meetings
   Lead: Bill H, Machelle, Carlus with advice by Adam and input from others via board discussion

6. Hold steady on the 2021 Levy through Winona County
   Lead: Carlus Dingfelder

7. Participate in educational activities for professional development
   a. Board of Water and Soil Resources (BWSR Academy and other offerings)
   b. University of Minnesota
   c. Minnesota Association of Watershed Districts

   Lead: All board and advisers with discussion at Board meetings

8. Maintain a three-person board of managers for 2021-24. Relook at this decision once the *Mississippi-Winona/La Crescent Watersheds Comprehensive Watershed Management Plan* is ratified.

Reminder of Some Additional Recommended Actions Named in Other Plans

Complete an Annual Report Lead_____

Complete a Financial Audit Lead_____

Develop a data practices policy Lead_____

Review and revise Watershed District Rules Lead_____

Provide training and resources to managers on procedures and laws under MN Rules 103D _____

C. GOAL: Solidify relationships and create stronger water resource partnerships by increasing participation with other governmental entities and other organizations.

1. Develop and print a one-page handout about the Watershed District (as well as an internal guide of organized talking points to use in group meetings).

Lead: Machelle and Lew

2. Interact and communicate with the Winona County SWCD Board; minimum of meeting biannually with the board.

Lead: Bill H. and Bill R.

3. Participate more with townships; annually provide an update at Townships Administrative monthly meeting.

Lead: Sheila and Machelle

4. Communicate with other conservation-type organizations to share goals and priorities and explore mutually beneficial actions. *Including and not limited to: Trout Unlimited, Deer Hunters Association*

Reminder of Some Additional Recommended Actions Named in Other Plans

Collaborate with Winona Co. to explore ways of improving services and becoming more efficient
Lead_____

Partner with SWCD on projects of mutual interest (Cost-share to promote pasture management with perennial vegetation; assist with grade stabilization structures, waterways, and diversions).

Lead_____

Host an educational event Lead_____

Maintain and enhance web-based location for WD information Lead_____

Provide support to landowners for water retention by cost-sharing Lead _____

Partner with NRCS for protection strategies for the City of Stockton Lead_____

Partner Contact: Sue Glende, NRCS

Completed: 11.15.2020

Whitewater River Watershed Project

400 Wilson, PO Box 39 ❋ Lewiston, MN 55952 ❋ (507) 523-2171 ❋ Fax: (507) 523-3717

April 15, 2021

Sheila Harmes
Winona County Water Planner
202 West Third Street
Winona, MN 55987

Ms. Harmes and WinLaC Partnership,

Thank you for sending the Notification for development of the WinLaC Comprehensive Watershed Management Plan.

At nearly 205,000 acres, the Whitewater River Watershed is the largest subwatershed of the WinLaC Planning Area. The watershed consists of primarily agricultural lands in Olmsted, Wabasha and Winona Counties. In addition to farming, this watershed is also an economically important outdoor recreation and tourism destination, with over 100 miles of designated trout streams and two popular state parks.

The Whitewater Joint Powers Board (WJPB) administers the Whitewater Watershed Project and has a strong history of conservation initiatives by working to nurture a land stewardship ethic in the watershed. Created in 1989, the WJPB addresses water quality issues on a watershed basis, and works collaboratively with its partners and landowners. Since its inception, over 30 multi-year projects were awarded and implemented. All of the WJPB projects are completed with the acknowledgment that conservation efforts need to be flexible to meet the fiscal land management needs of the landowner, as well as meeting water quality goals.

Identified priorities of concern within the Whitewater River Watershed include sedimentation and degraded water quality. The Whitewater River Watershed faces water quality challenges that stem from karst geology; fractured limestone and sinkholes pose risks to local groundwater quality. Additionally, steep topography and erosive soils increase potential for pollutant runoff and sedimentation in streams.

Several streams do not meet water quality standards. Water quality impairments include bacteria, nitrates and turbidity. According to the 2020 impaired waters list, the North Branch from Carley State Park to its mouth and its tributary, Logan Creek, are both impaired for both bacteria and turbidity. The entire Middle Branch is impaired due to turbidity and bacteria, and, its lower portions have high nitrate levels. All of the South Branch is impaired for bacteria and turbidity and lower portions are impaired for nitrates. The main stem also has high turbidity levels.

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Recommendations for effective watershed plan implementation include:

- Technical and financial assistance to landowners to complete effective conservation practices
- Efforts to foster peer to peer education among farmers with a focus on soil health principles
- Collaboration among the citizens, local governmental units and state partners – Good conservation needs collaboration to be successful
- Voluntary adoption of effective conservation practices

The WJPB looks forward to providing input for plan content and participating as an active partner during implementation of the developed Comprehensive Watershed Management Plan.

Sincerely,

Josh Elsing
Whitewater JPB Chair

Joint Powers Board Members

Matt Flynn Olmsted Co. Commissioner	Steve Jacob Winona Co. Commissioner	Robert Walkes Wabasha Co. Commissioner
Lynn Zabel Wabasha SWCD Supervisor	Josh Elsing Winona SWCD Supervisor	James Rentz Olmsted SWCD Supervisor

Appendix E. TMDL Summary Table

WinLaC Partnership 1W1P

Total Maximum Daily Load (TMDL) Table

Below is a summary of TMDL load reductions (% Reduction) for sediment (**Table 1**), nitrate (**Table 2**), and phosphorus (**Table 3**). The nearest Prioritize, Target, and Measure Application (PTMApp) priority resource point was used to estimate the existing load being delivered to each impaired resource, and a target reduction was calculated based on applying the TMDL percent reduction to the Existing Load. Since the TMDL has different loads under various flow regimes, many of which have no data, the TMDL % reduction was calculated as the percent decrease between the sum of the existing loads and the sum of total loading capacity.

Table 1. Sediment load reduction

Planning Region	AUID	Reach Name	Reach Description	TMDL % Reduction	Nearest PTMApp Priority Resource Point	Existing Load (tons/yr)	Target Reduction (tons/yr)	Comments
Whitewater	07040003-512	Whitewater River, South Fork	T106 R10W S1, west line to N Fk Whitewater R	73%	10	24,085	17,505	
Whitewater	07040003-523	Whitewater River, North Fork	M Fk Whitewater R to S Fk Whitewater R	89%	11 & 12	36,464	32,462	
Whitewater	07040003-533	Rollingstone Creek	Unnamed cr to Garvin Bk	88%	5	13,361	11,748	
Whitewater	07040003-537	Whitewater River	S Fk Whitewater R to Beaver Cr	90%	48	41,714	37,583	
Whitewater and Small Tributaries	07040003-539	Whitewater River	T109 R10W S36, south line to Mississippi R	87%	3	31,806	27,789	
Whitewater	07040003-552	Logan Branch	Unnamed cr to N Fk Whitewater R	78%	14	8,277	6,497	07040003-536 in the TMDL

Planning Region	AUID	Reach Name	Reach Description	TMDL % Reduction	Nearest PTMApp Priority Resource Point	Existing Load (tons/yr)	Target Reduction (tons/yr)	Comments
Whitewater	07040003-553	Whitewater River, North Fork	T108 R11W S30, west line to Unnamed cr	67%	*	25,234	16,975	
Whitewater	07040003-554	Whitewater River, North Fork	Unnamed cr to M Fk Whitewater R	79%	11	16,958	13,427	
Garvin Brook	07040003-559	Stockton Valley Creek	T106 R8W S23, south line to Garvin Bk	55%	30	8,943	4,925	
Garvin Brook	07040003-595	Garvin Brook	T107 R8W S2, south line to Mississippi R (Burleigh Slough)	7%	6	20,456	1,519	
Whitewater	07040003-F17	Whitewater River, South Fork	St Charles Twp Rd 7 to T106 R10W S2, east line	**	13	8,330	**	
Whitewater	07040003-F19	Whitewater River, Middle Fork	Crow Spring to N Fk Whitewater R	36%	12	19,607	7,056	
Whitewater	07040003-F30	Logan Branch	Headwaters to Unnamed cr	78%	*	4,564	3,583	07040003-536 in TMDL

*These have no close priority resource point in PTMApp. Existing load is based on sed_mass_flow_acc layer at the outlet of the stream with an approximate decay factor applied.

**TMDL had no load reduction data, and therefore no target reduction

Table 2. Total nitrogen load reduction

Planning Region	AUID	Reach Name	Reach Description	TMDL % Reduction	Nearest PTMApp Priority Resource Point	Existing Load (lbs/yr)	Target Reduction (lbs/yr)	Comments
Whitewater	07040003-512	Whitewater River, South Fork	T106 R10W S1, west line to N Fk Whitewater R	49%	10	1,183,967	584,484	
Whitewater	07040003-611	Crow Spring (Middle Fork Whitewater River Tributary)	Unnamed cr to M Fk Whitewater R	*	**	200,021	*	
Whitewater	07040003-F17	Whitewater River, South Fork	St Charles Twp Rd 7 to T106 R10W S2, east line	21%	13	542,999	116,169	
Whitewater	07040003-F19	Whitewater River, Middle Fork	Crow Spring to N Fk Whitewater R	0%	12	860,803	0	

* TMDL had no load reduction data, and therefore no target reduction

** This reach has no close priority resource point in PTMApp. Existing load is based on the TN_mass_flow_acc layer at the outlet of the stream with an approximate decay factor applied.

Table 3. Phosphorus load reduction

Planning Region	AUID	Reach Name	Reach Description	TMDL % Reduction	Nearest PTMApp Priority Resource Point	Existing Load (lbs/yr)	Target Reduction (lbs/yr)	Comments
Small Tributaries	85-0011-02	Lake Winona (Northwest)	Lake Winona (Northwest)	39%	32	3127	1220	
Small Tributaries	85-0011-01	Lake Winona (Southest)	Lake Winona (Southest)	31%	25	3159	979	

Appendix F. Resource and Subwatershed Prioritization Maps

WinLaC Partnership —1W1P—

Appendix F: Resource and Subwatershed Prioritization

Background

The WinLaC Planning Region Resource and Subwatershed Prioritization process was created to characterize the priority issues defined by the WinLaC plan and introduce the geospatial information used to prioritize the issues locationally. Geospatial data layers were used to prioritize issues by subwatershed (HUC-12) throughout the WinLaC planning boundary. HEI, SMUMN, the Planning Work Group, and the Technical Advisory Committee selected the geospatial data layers most representative for each issue. Then, HEI ran a geospatial analysis to identify areas important for protection and restoration efforts for each issue considering the data selected.

Maps are organized in this Appendix first by resource: Groundwater, Surface Water, Land Use, and Habitat & Recreation. Then, comprehensive ranks for each resource are presented for each planning region. Comprehensive ranks were established by summing up the weights for each category and for each issue, to get an overall priority score. This score was turned into a percentile and using natural breaks, with ranks established for High, Medium, and Low.

GROUNDWATER

Priority Issue(s)

Category	Issue Statement	Priority
	Elevated levels of **nitrates** in drinking water from agricultural and wastewater sources	**A**
	Increased **protection of wellhead/source water areas** to reduce groundwater contamination	**A**

Criteria for Prioritizing Resources and Subwatersheds

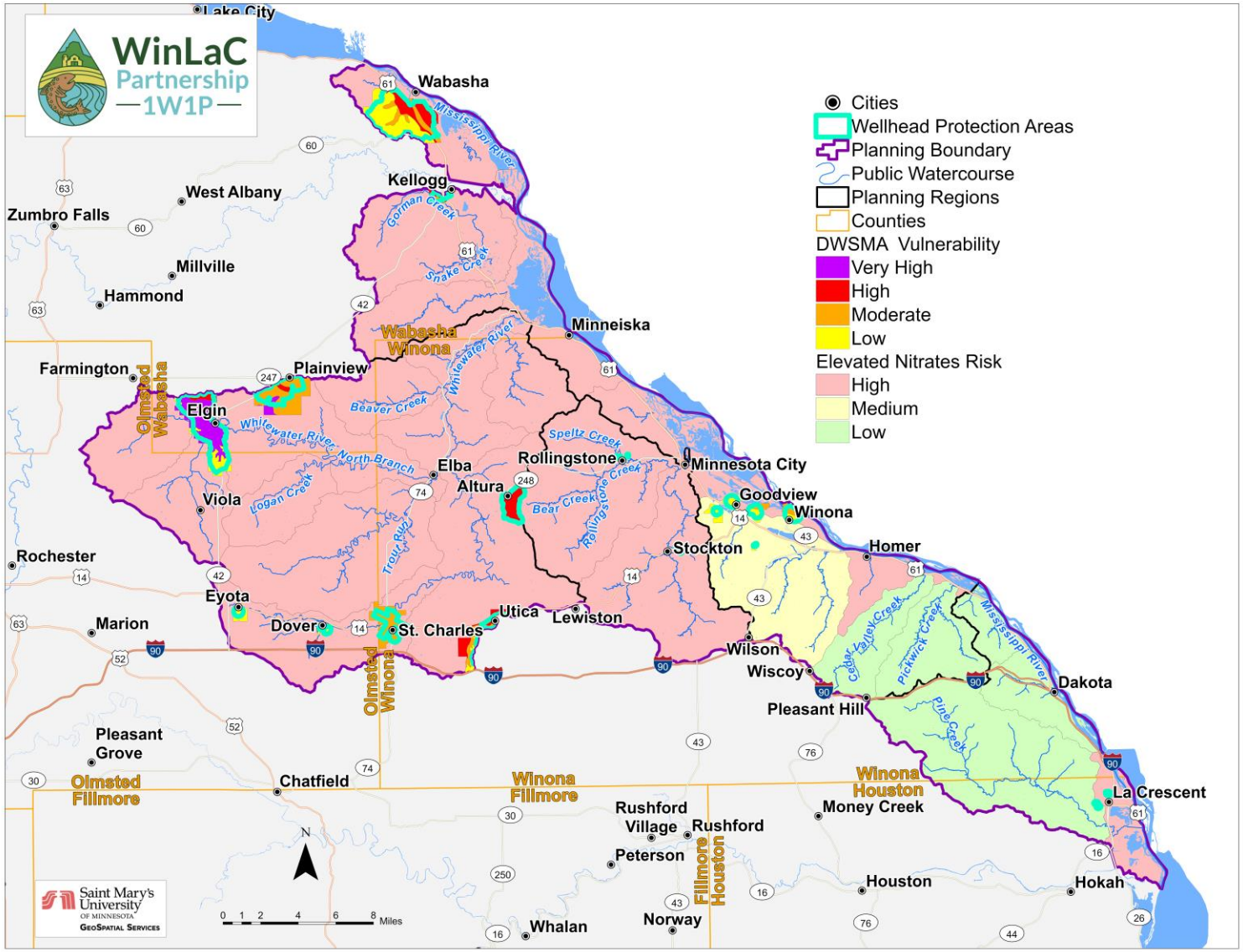
Geospatial Layers:

- DWSMAs and WPAs
- MDH Pollution Sensitivity Layer
- MDA Initial Township Testing Dataset

Prioritization Methodology:

First, the Near-Surface Pollution Sensitivity Layer (1=low, 2-med, 3-hi, 4=very high) was reviewed to determine the average rating per subwatershed. Then, subwatersheds were split into three natural breaks of “Restoration-High,” “Restoration-Medium,” and “Protection.” Protection was defined as 0-1.93, Restoration-Medium as 1.93-2.33, and Restoration-High as above 2.33. Next, considered the “High” and “Very High” DWSMA vulnerability. If the subwatershed contains one of those, it was automatically upgraded to a “Restoration-High” category. Finally, if a “High” Township Testing result overlays the subwatershed, the subwatershed was automatically classified as “Restoration-High” (except for Pleasant Valley Creek, which overlays only minimally; this was kept at a “Restoration-Medium”).

Priority Resources and Subwatersheds Map



Priority Issue(s)

Category	Issue Statement	Priority
	**Unsealed or poorly constructed wells** as a conduit for groundwater contamination from the land surface	**B**

Criteria for Prioritizing Resources and Subwatersheds

Geospatial Layers:

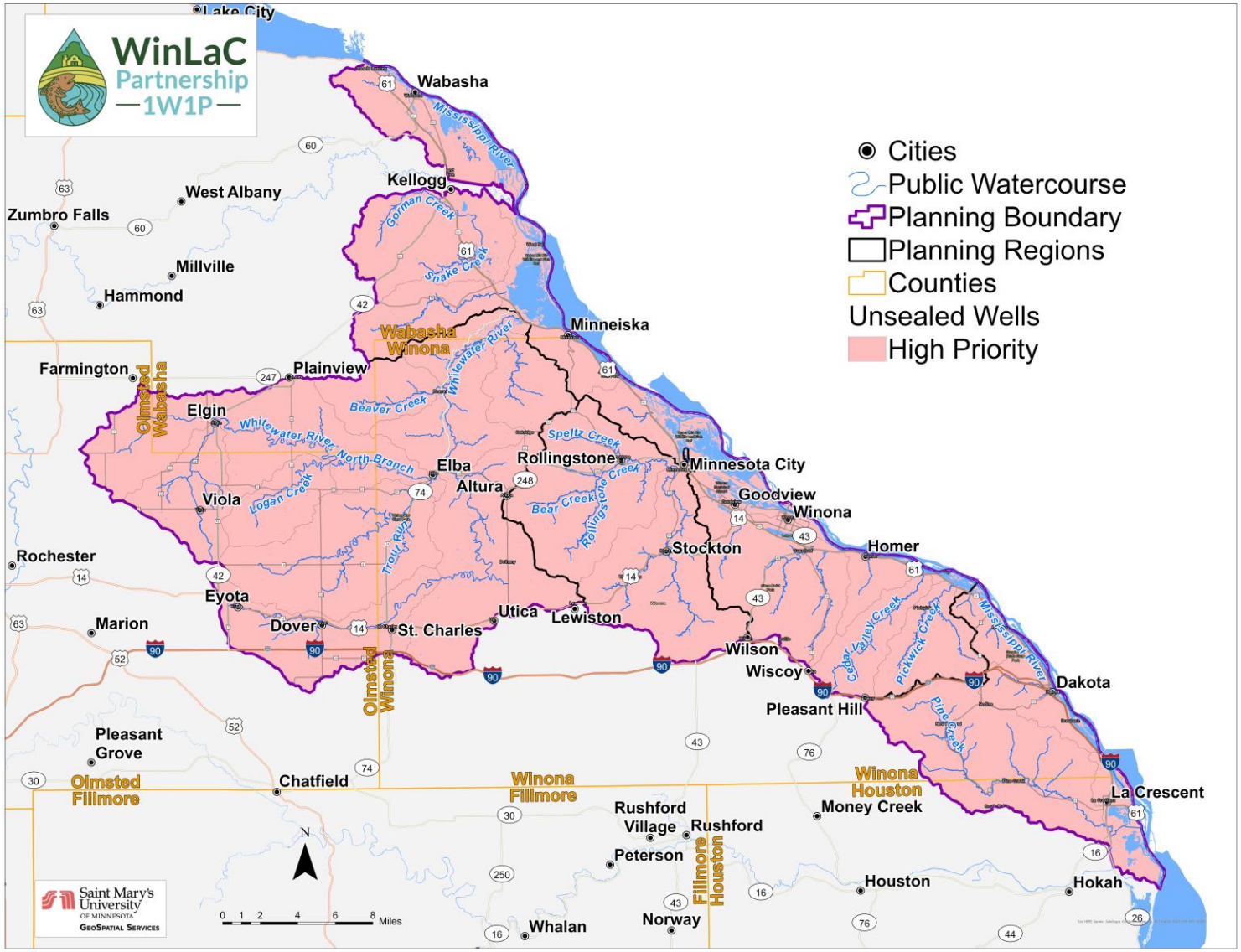
- None- Issue considered watershed-wide

Prioritization Methodology:

None- the PWG wants to address poorly constructed and unsealed wells on a case-by-case basis.

WinLaC Partnership —1W1P—

Priority Resources and Subwatersheds Map



Priority Issue(s)

Category	Issue Statement	Priority
	Surface and groundwater interconnectivity due to **karst geology**	**B**

Criteria for Prioritizing Resources and Subwatersheds

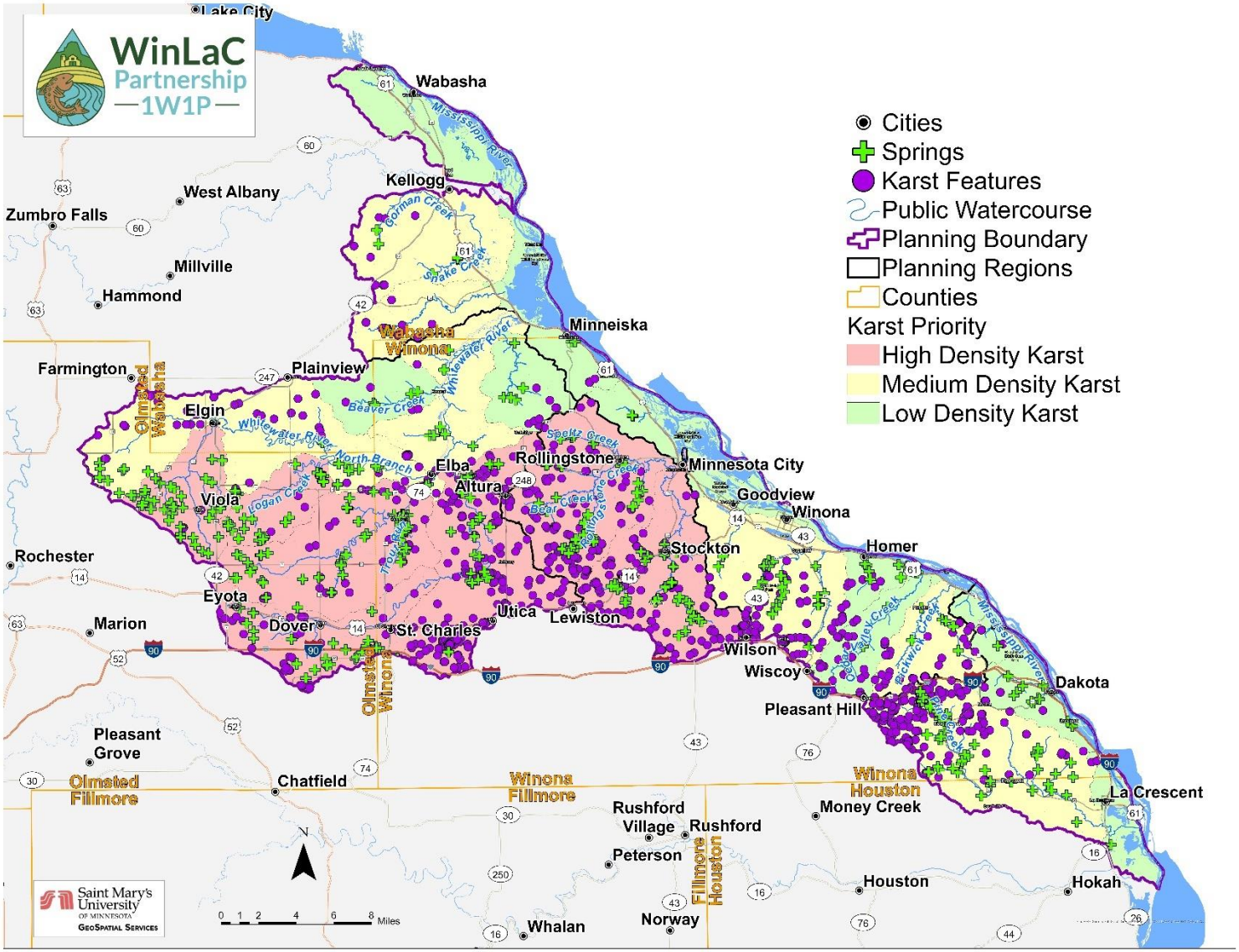
Geospatial Layers:

- Concentration of karst / springs per subwatershed
- Karst features database
- Decorah and St. Lawrence edges

Prioritization Methodology:

To sort into categories of “High,” “Medium,” and “Low” Density Karst, percentiles were used for four metrics: Springs per catchment area; Karst point features per catchment area; Percentile for total area of karst-prone formations; Percentile for area of Decorah and St. Lawrence Edges. These percentiles were summed, and then the percentiles of these summed four percentiles taken. Finally, the three natural breaks corresponded to splitting the percentiles created categories for “High,” “Medium,” and “Low” Density Karst.

Priority Resources and Subwatersheds Map



SURFACE WATER

Priority Issue(s)

Category	Issue Statement	Priority
	Excess **nutrients (nitrogen and phosphorus)** loading to watershed streams, and impact on aquatic life	**A**
	Need for increased **field management practices** to reduce **excessive nutrient** and sediment delivery to streams and enhance **nutrient cycling**	**A**

Criteria for Prioritizing Resources and Subwatersheds

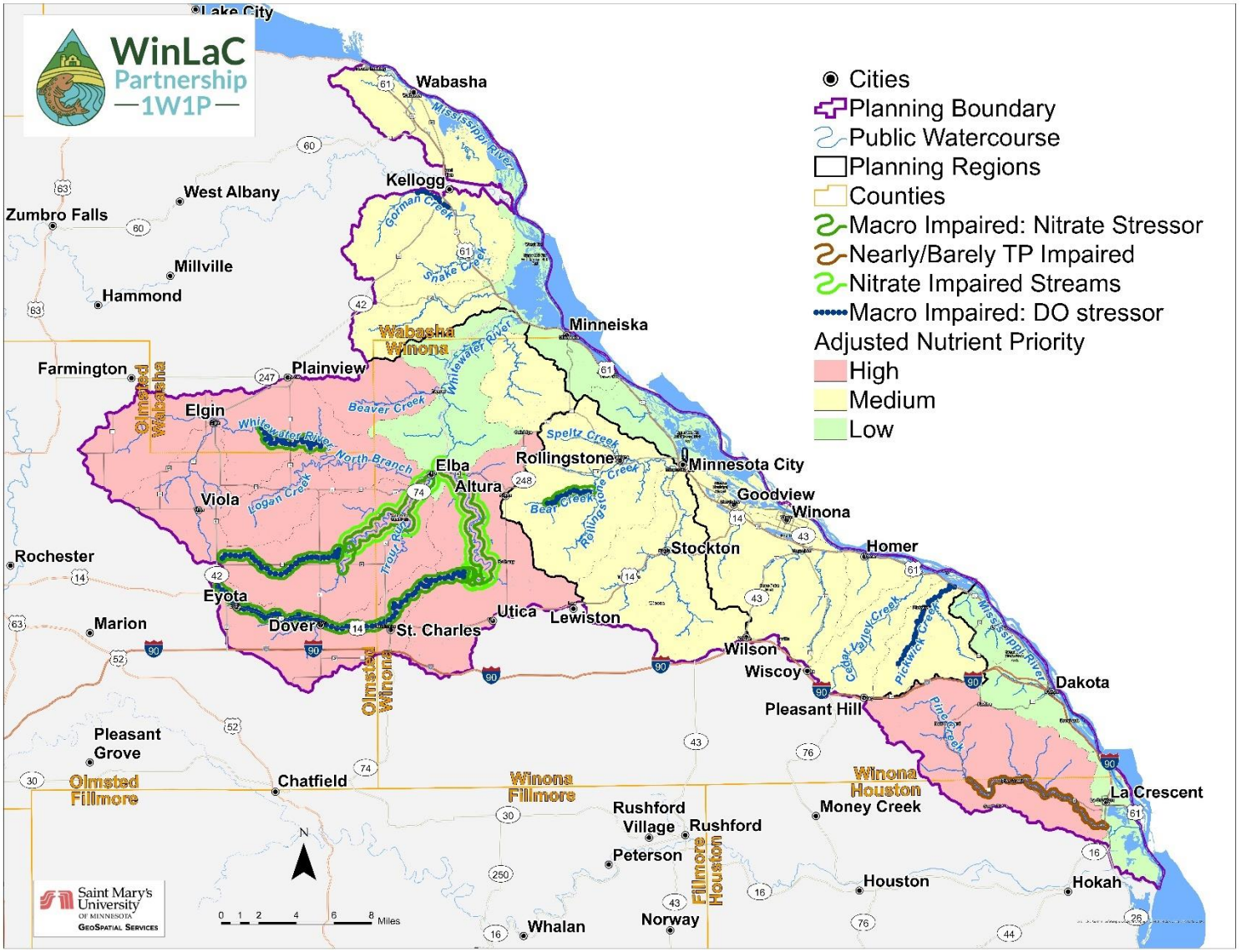
Geospatial Layers:

- SWAT loading results for nitrogen and phosphorus
- PTMApp results for nitrogen and phosphorus
- Nutrient impaired streams (or macroinvertebrate impairments with nutrients as stressor)
- Streams that are nearly or barely impaired for nutrients
- Winona WRAPS Figure 22 (Priority areas for nutrient management implementation)

Prioritization Methodology:

PTMApp data shows the subwatersheds that contribute the greatest surface runoff loads for total nitrogen and total phosphorus. This information was compared to existing SWAT loading results for nitrogen and phosphorus and was used to inform subwatershed prioritization related to these priority issues. If a subwatershed included a macroinvertebrate impairment, it was moved to “Medium”. If an impairment was present, it was moved to a “High”.

Priority Resources and Subwatersheds Map



Priority Issue(s)

Category	Issue Statement	Priority
	**Urban stormwater runoff** which can contribute to poor water clarity / quality, alter natural flow and infiltration of water, and harm aquatic life	**A**
	**Nutrient runoff and legacy loading in Lake Winona** and its impact on water clarity, aquatic life, and habitat	**B**

Criteria for Prioritizing Resources and Subwatersheds

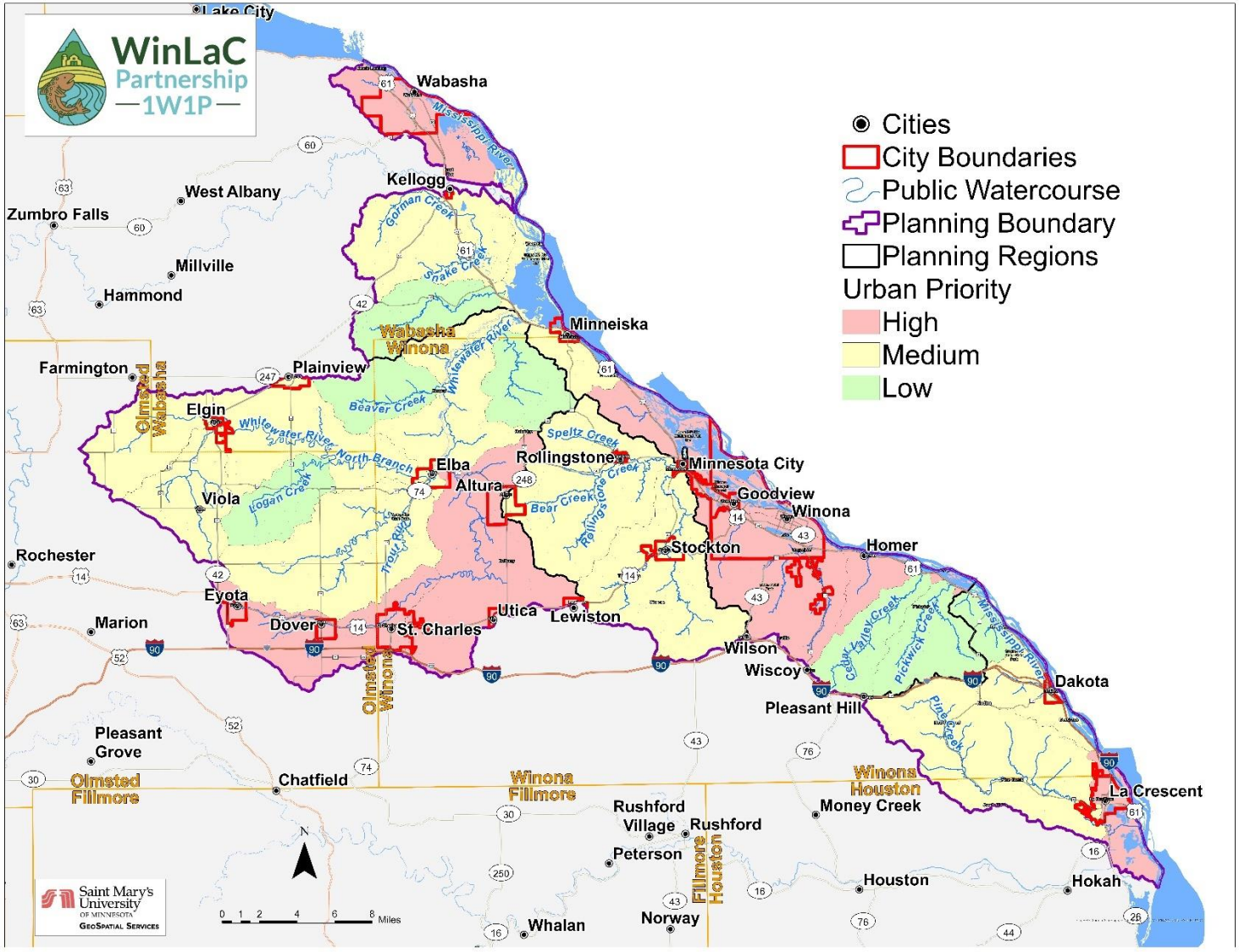
Geospatial Layers:

- Municipal boundaries
- Winona WRAPS Figure 28 (Priority areas for stormwater management)

Prioritization Methodology:

The data below prioritized subwatersheds based on their prominence of municipal boundaries to create an urban runoff heatmap.

Priority Resources and Subwatersheds Map



Priority Issue(s)

Category	Issue Statement	Priority
	Excessive upland and overland **sediment loading** due to various land use practices	**A**
	**Excess sediment loading** as a primary stressor to aquatic life, habitat, and recreation	**A**

Criteria for Prioritizing Resources and Subwatersheds

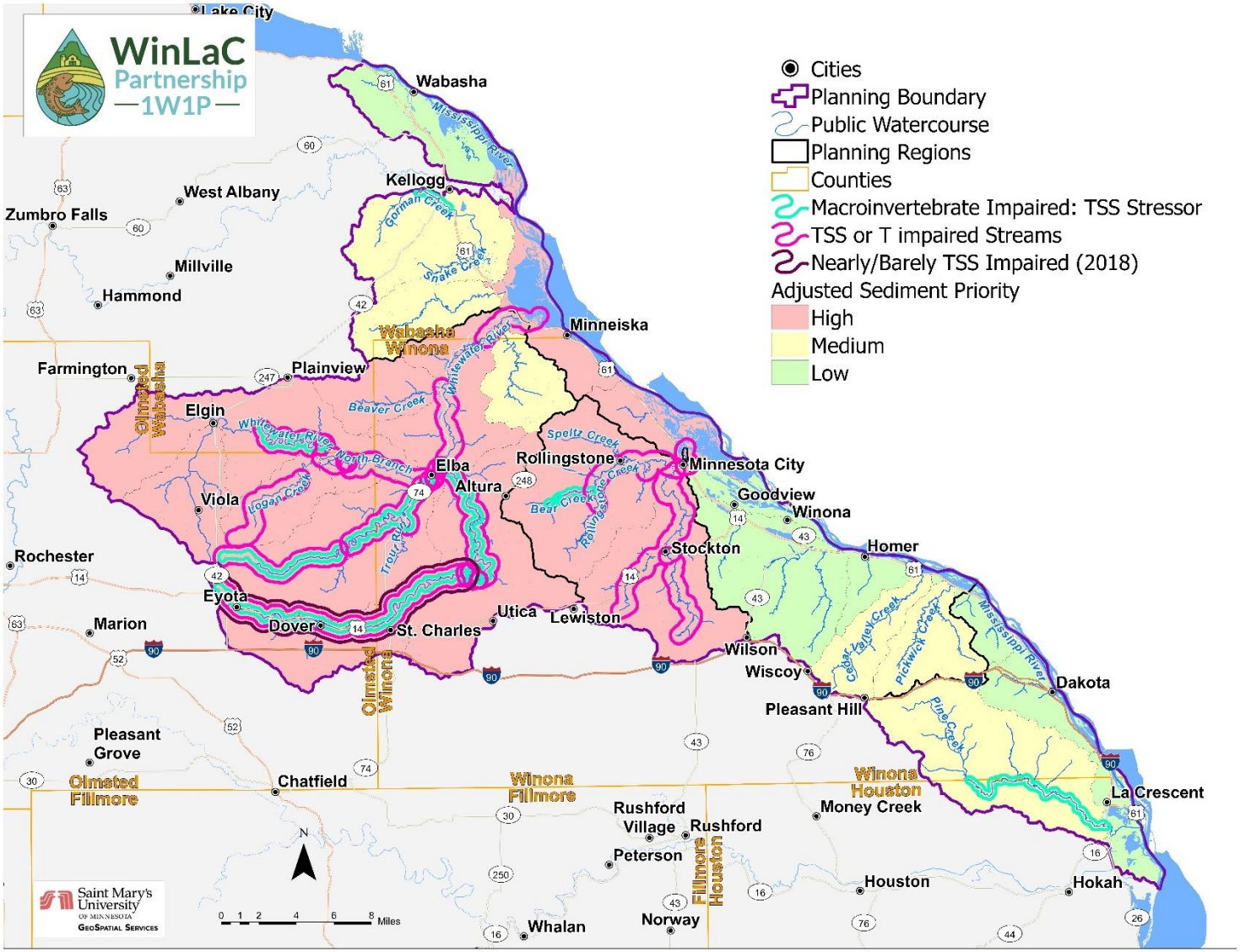
Geospatial Layers:

- SWAT loading results for sediment
- PTMApp results for sediment
- Sediment impaired streams (Total Suspended Solids (TSS) or turbidity (T)) (or macroinvertebrate impairments with sediment as stressor)
- Nearly or barely impaired streams for sediment

Prioritization Methodology:

PTMApp data shows the subwatersheds that contribute the greatest surface runoff loads for sediment. This information was compared to existing SWAT loading results (where it exists) for sediment and was used to inform subwatershed prioritization related to these priority issues. Layers are also shown on the following map indicating locations of sediment (Total Suspended Solids (TSS) or turbidity (T)) impaired streams (2020), and streams that are nearly or barely impaired for sediment.

Priority Resources and Subwatersheds Map



Priority Issue(s)

Category	Issue Statement	Priority
	Flooding and its associated impact to homes, infrastructure, and natural resources	**B**
	Increased drainage (tile networks and drainage ditches) increasing downstream speed and velocity of water and associated sediment/ nutrient delivery to channels and ditches	**B**
	Increased annual precipitation and more intense rainfall events and their impact on hydrology, water quality, and infrastructure, and the need to plan for resiliency.	**A**

Criteria for Prioritizing Resources and Subwatersheds

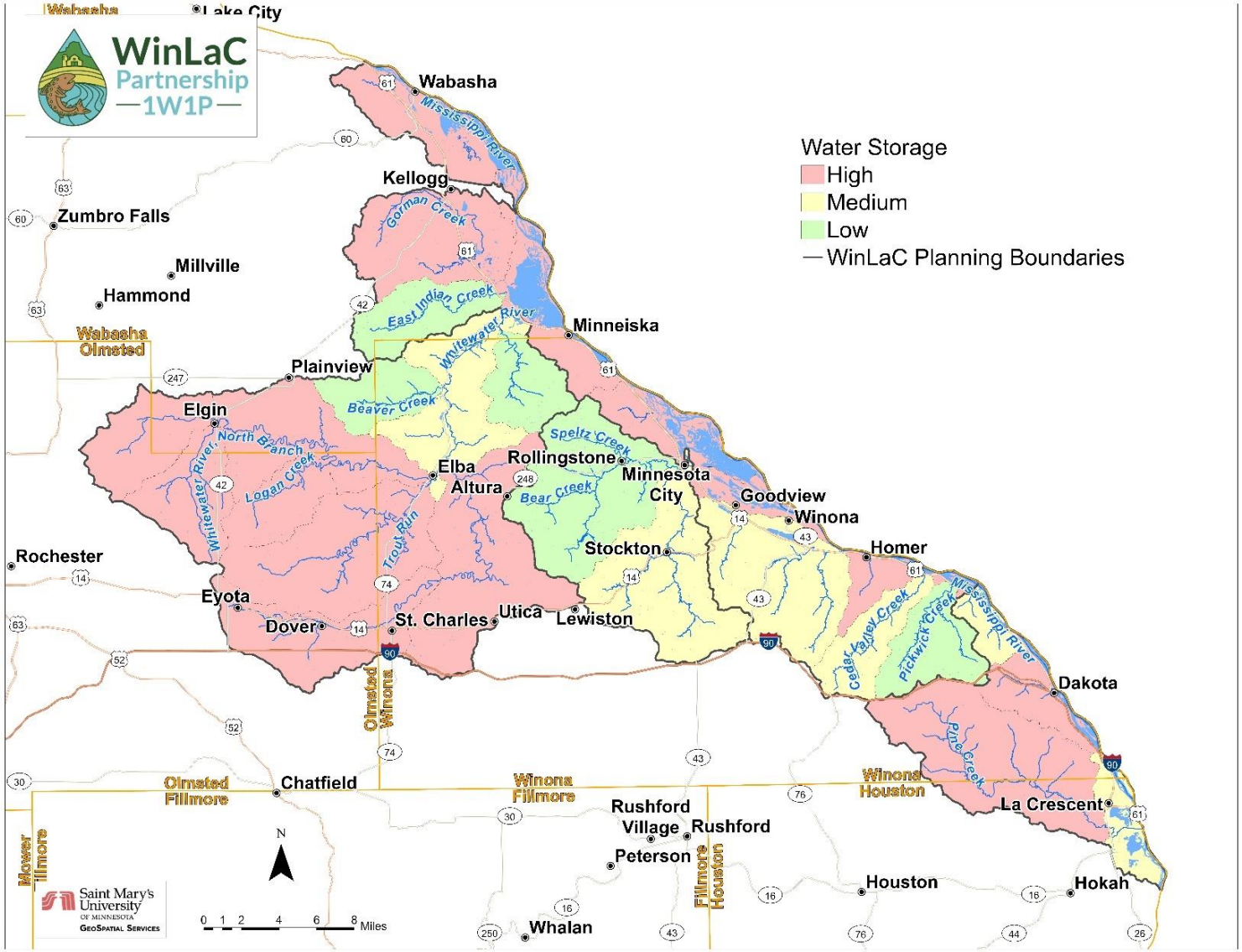
Geospatial Layers:

- Local knowledge- locations suitable for storage
- NWI wetlands layer
- Altered watercourse layer

Prioritization Methodology:

High priority subwatersheds in the upland area of the watershed feature a large prominence of altered watercourses. High priority subwatersheds adjacent to the Mississippi River feature a large prominence of riverine, floodplain wetlands that are a focus for protection and restoration efforts related to storing water. La Crescent and Winona are priorities as flooding here would impact a significant number of people.

Priority Resources and Subwatersheds Map



Priority Issue(s)

Category	Issue Statement	Priority
	Excess **sediment from near-channel and in-channel sources** (floodplains, terraces, and streambanks)	**B**

Criteria for Prioritizing Resources and Subwatersheds

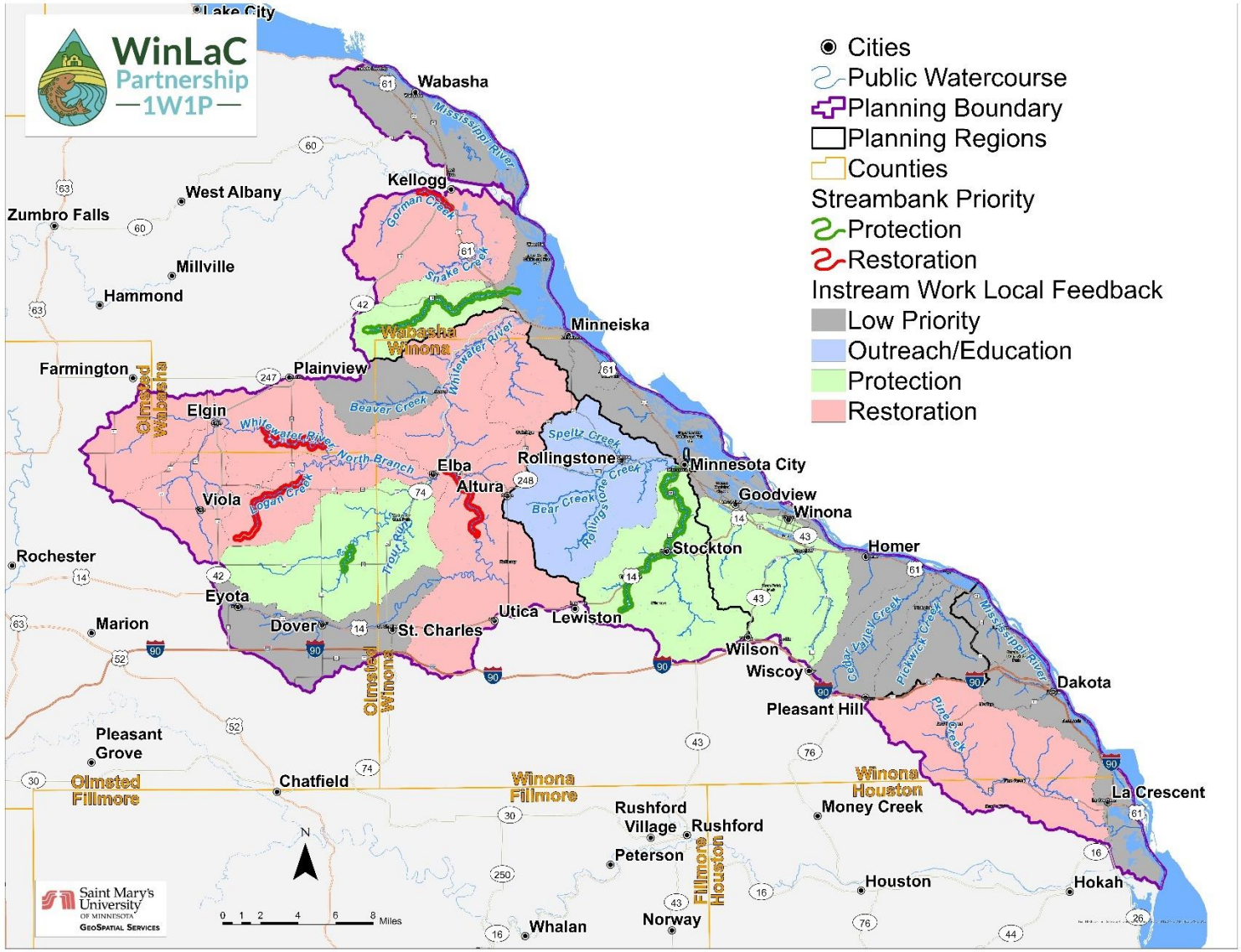
Geospatial Layers:

- Local knowledge
- Winona WRAPS Figure 25 and 27 (Priority areas for implementation of BMPs to improve riparian corridor management/ streambank restoration and erosion)
- DNR Whitewater River Watershed WARSSS Study results

Prioritization Methodology:

Local subject matter experts within the WinLaC Planning Work Group identified reaches where they would prioritize habitat projects; focusing on stream bank or in-channel habitat improvement. Those reaches are shown on the following map. Subwatersheds are prioritized based on prominence of these features and comparison to Winona WRAPS Figures 25 and 27 described above, and based on DNR WARSSS results based on locations of high bank erosion.

Priority Resources and Subwatersheds Map



Priority Issue(s)

Category	Issue Statement	Priority
	**Pasture runoff** and need for **managed grazing** within riparian corridors	**B**

Criteria for Prioritizing Resources and Subwatersheds

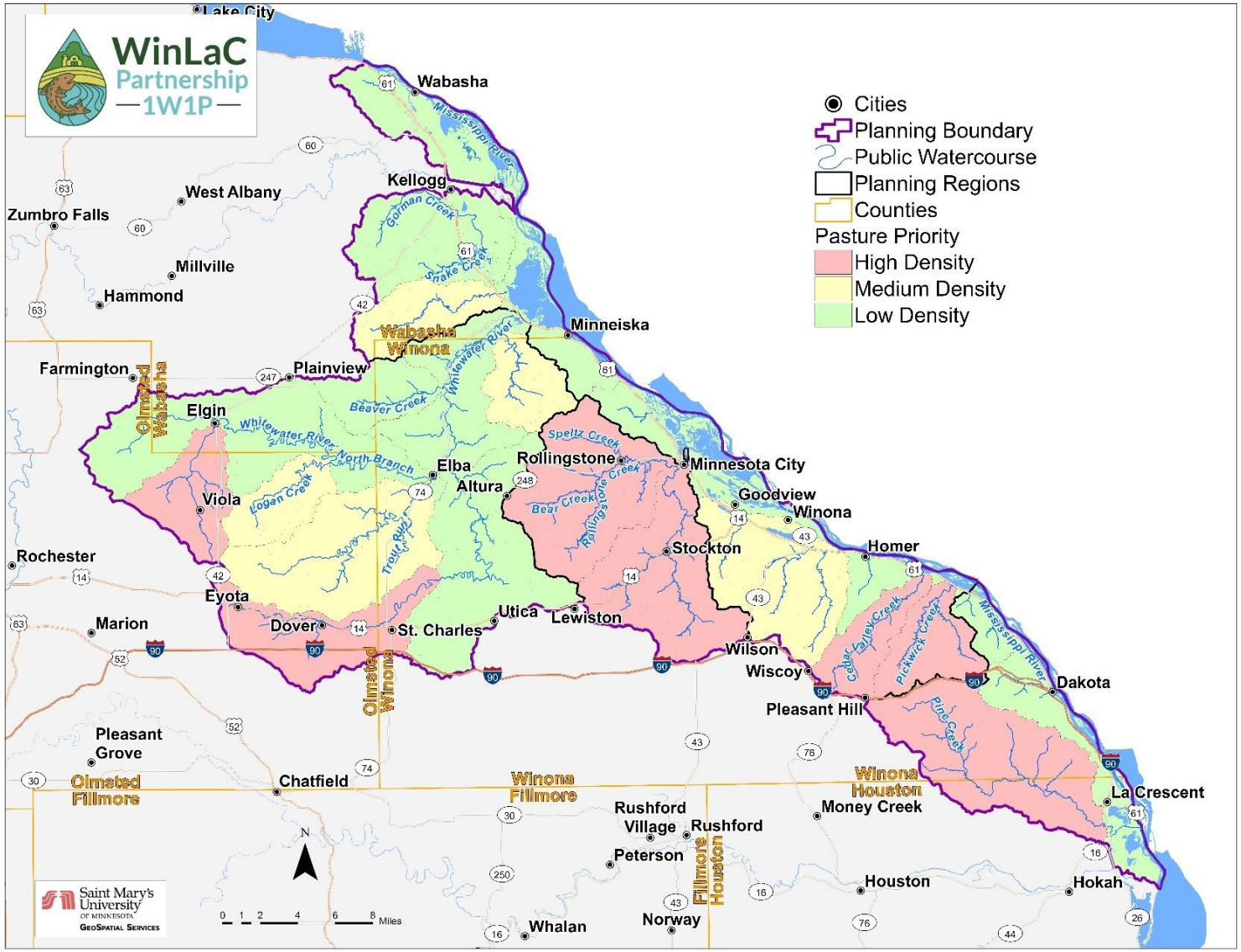
Geospatial Layers:

- NLCD Land use – “Pasture” land use overlapping perennial streams

Prioritization Methodology:

First, applied a 100-meter buffer to the DNR map of buffer-required watercourses for perennial streams and public ditches. Then, an intersect function was run to identify all pasture land use within that buffer (NLCD Class 81). This intersected area was divided by the subwatershed area. Natural breaks on quantiles were “Low Density” = 0-0.25, “Medium Density” = 0.25-0.75, and “High Density”>0.75.

Priority Resources and Subwatersheds Map



Priority Issue(s)

Category	Issue Statement	Priority
	Continued **high levels of E. coli** despite numerous reduction efforts and its impact on aquatic recreation opportunities	**B**

Criteria for Prioritizing Resources and Subwatersheds

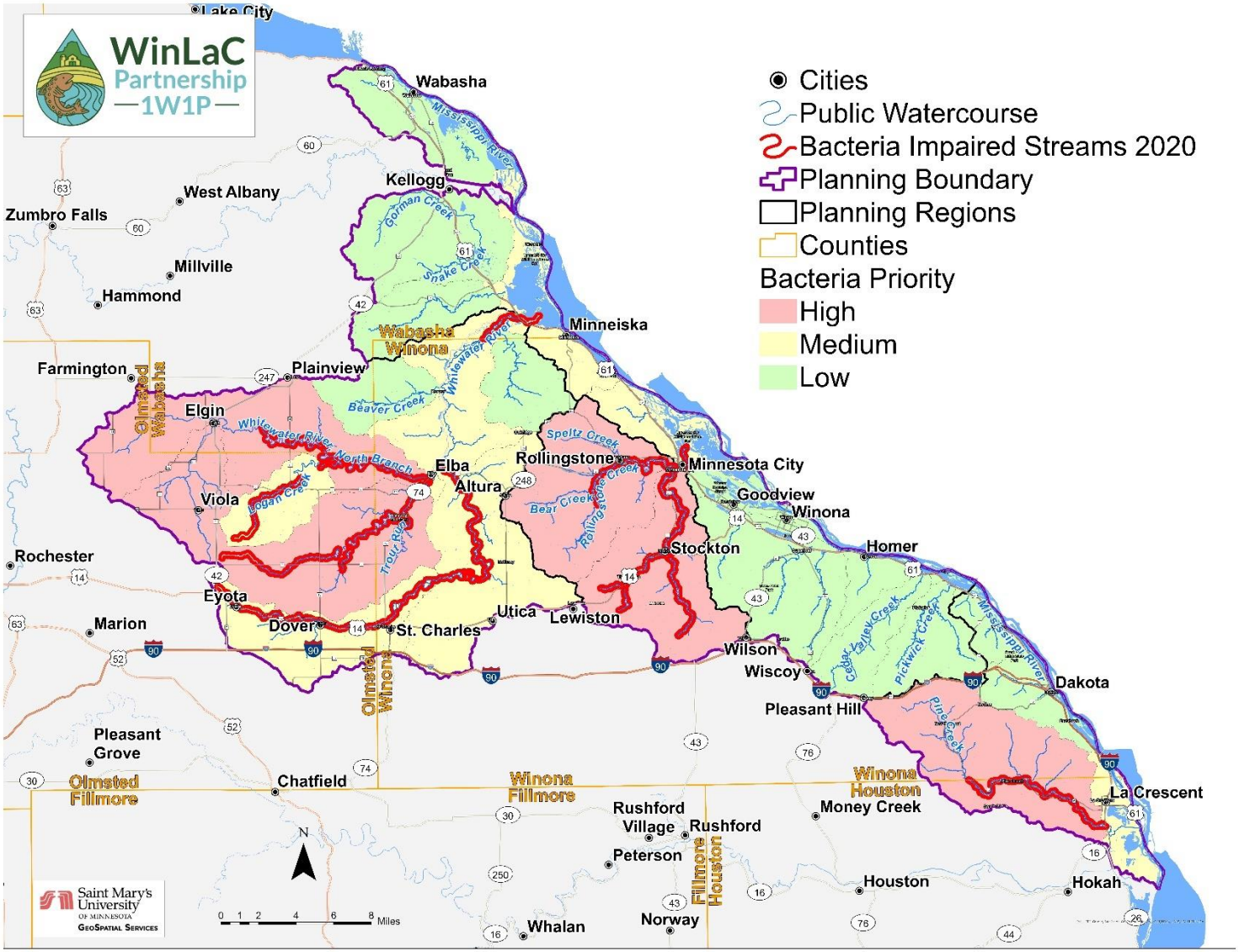
Geospatial Layers:

- Bacteria impaired waters
- Nearly or barely impaired waters for bacteria
- Winona WRAPS Figure 23 (Priority areas for implementation of BMPs for fecal coliform)

Prioritization Methodology:

First, if the subwatershed intersected with a bacteria (*E. coli* or Fecal Coliform) impaired stream, the subwatershed was characterized as a "Restoration-Medium" with the rest defined as "Protection." But, if the subwatershed was a priority defined in the Winona WRAPS Figure 23, the subwatershed was characterized as a "Restoration-High Priority." However, the Winona WRAPS does not include the La Crescent Watershed area. As not to exclude La Crescent, the subwatershed with a long stretch of a bacteria impaired stream was characterized as a "Restoration- High Priority." *Note*: there were no nearly or barely impaired streams for *E. coli* within the WinLaC watershed.

Priority Resources and Subwatersheds Map



Priority Issue(s)

Category	Issue Statement	Priority
	Enhancement and protection of **trout fisheries and habitat** from adverse conditions	**B**

Criteria for Prioritizing Resources and Subwatersheds

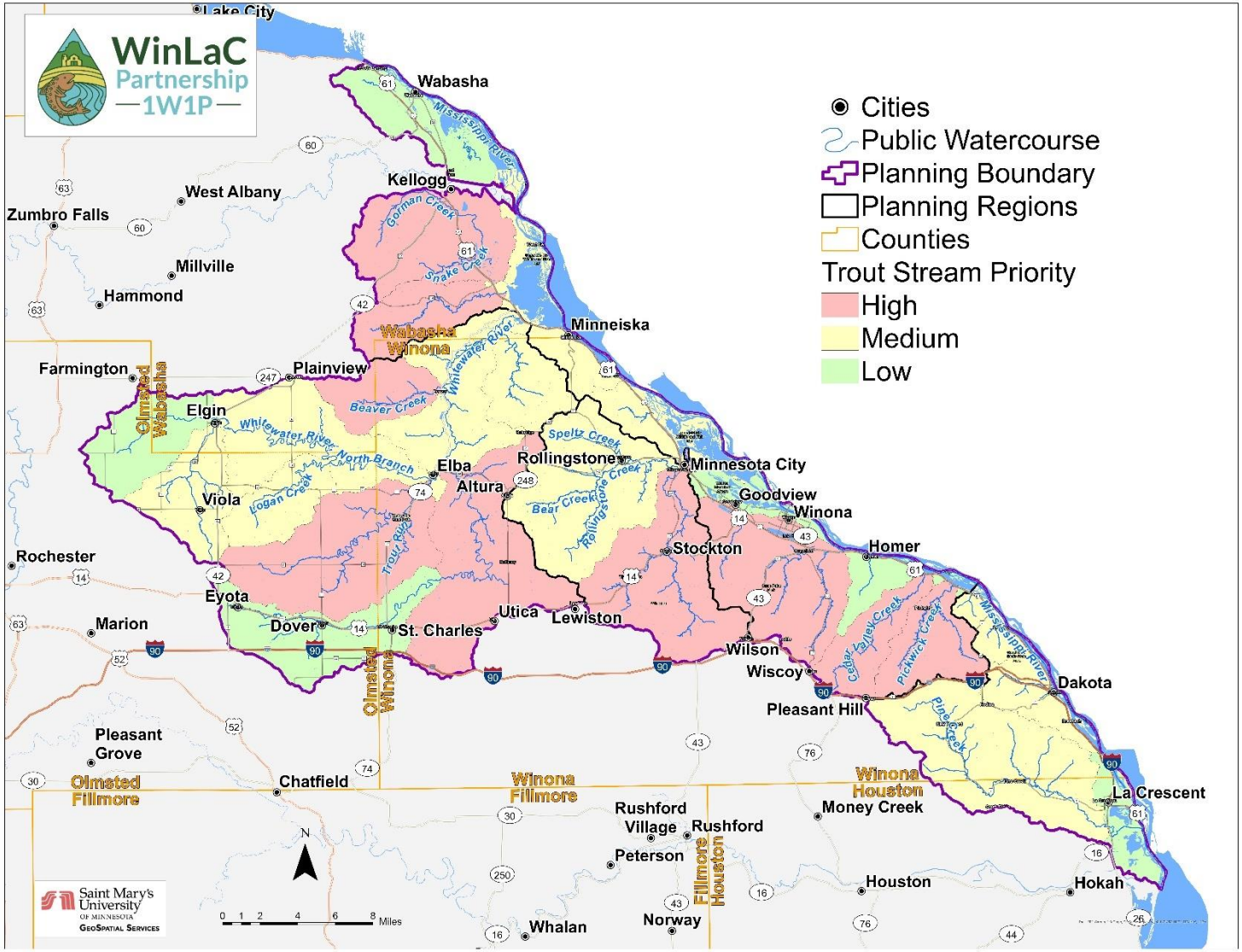
Geospatial Layers:

- Trout streams
- Trout habitat improvement locations (DNR)

Prioritization Methodology:

If the trout stream length per area is less than the 5% quantile, it was characterized as a “Low” priority. Otherwise, the subwatershed was characterized as “Medium”. Then, it was a “High” if it included a trout stream habitat improvement project.

Priority Resources and Subwatersheds Map



Priority Issue(s)

Category	Issue Statement	Priority
	Presence of **aquatic invasive species** threatening aquatic vegetation and aquatic life	**B**

Criteria for Prioritizing Resources and Subwatersheds

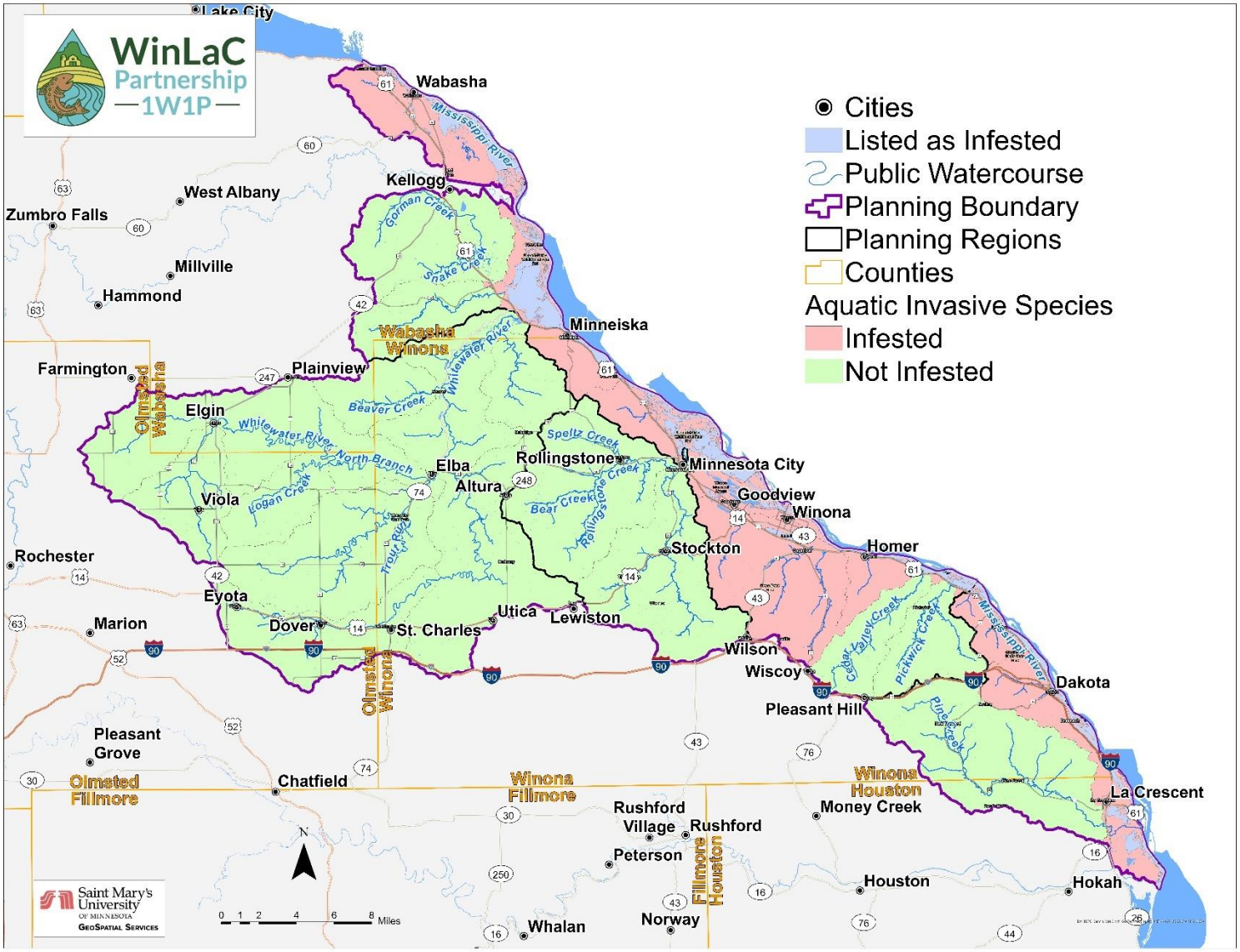
Geospatial Layers:

- Infested Waters

Prioritization Methodology:

If the listed infested waters intersected with the subwatershed, it was characterized as a “Infested.” Otherwise, the subwatershed was characterized as a “Not Infested.”

Priority Resources and Subwatersheds Map



LAND USE

Priority Issue(s)

Category	Issue Statement	Priority
	**Failing or noncompliant septic systems** and their potential for groundwater and surface water contamination	**A**

Criteria for Prioritizing Resources and Subwatersheds

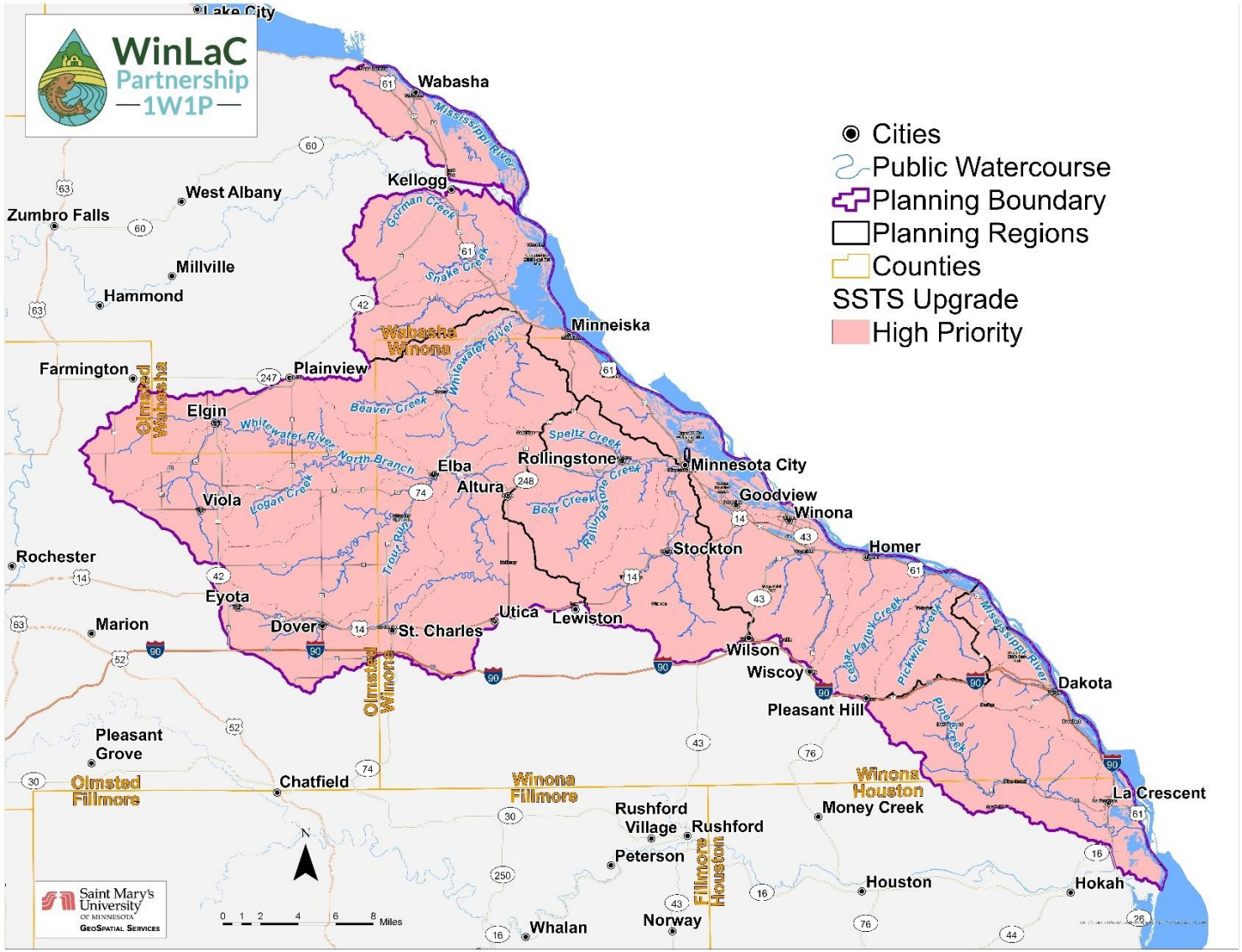
Geospatial Layers:

- None- Issue considered watershed-wide

Prioritization Methodology:

None- the PWG wants to address failing or non-compliant septic systems on a case-by-case basis.

Priority Resources and Subwatersheds Map



Priority Issue(s)

Category	Issue Statement	Priority
	Need for improving **soil health** for carbon sequestration and agricultural productivity	**A**

Criteria for Prioritizing Resources and Subwatersheds

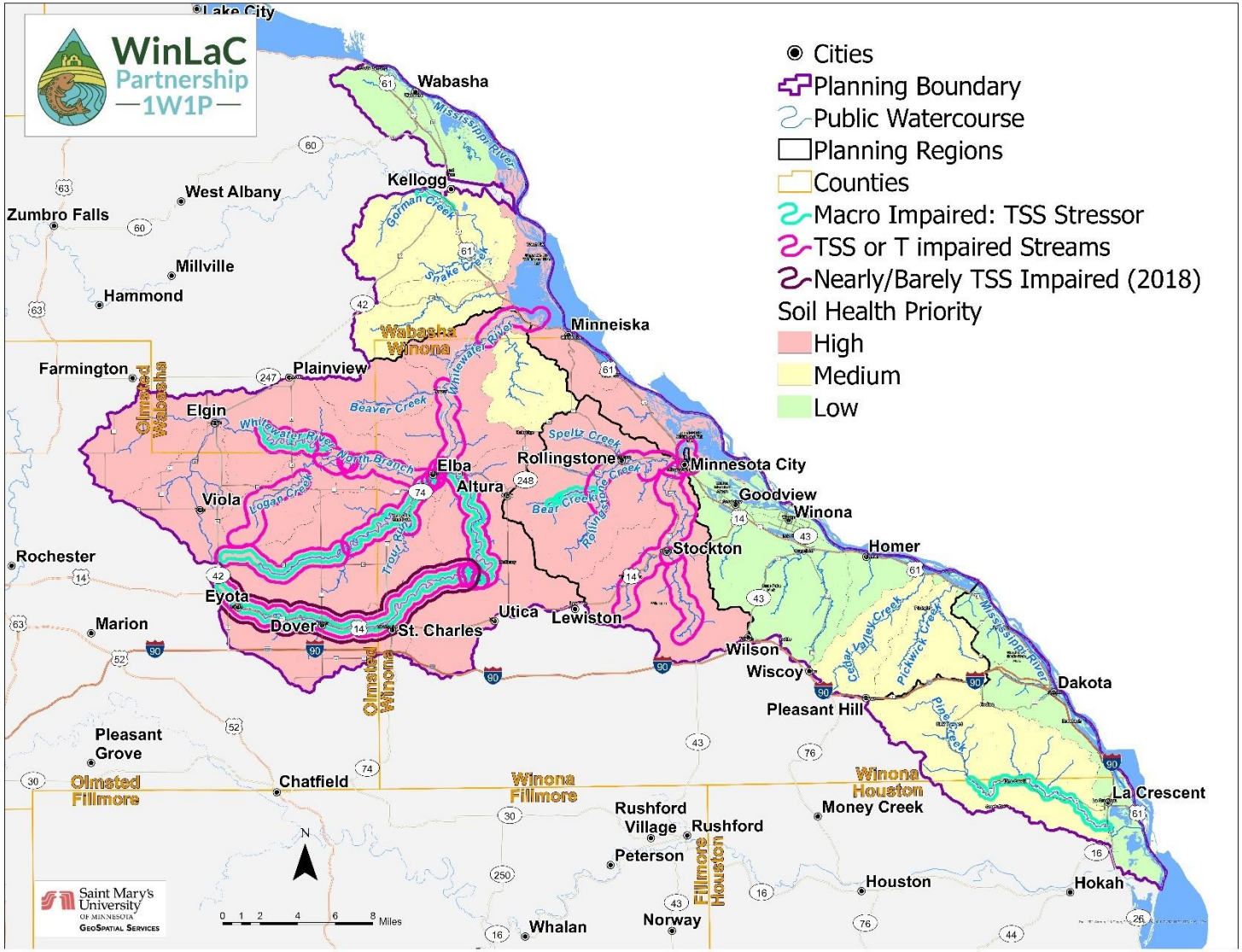
Geospatial Layers:

- SWAT loading results for sediment
- PTMApp results for sediment
- Sediment impaired streams (Total Suspended Solids (TSS) or turbidity (T)) (or macroinvertebrate impairments with sediment as stressor)
- Nearly or barely impaired streams for sediment

Prioritization Methodology:

PTMApp data shows the subwatersheds that contribute the greatest surface runoff loads for sediment, used as a proxy for soil health. This information was compared to existing SWAT loading results (where it exists) for sediment and was used to inform subwatershed prioritization related to these priority issues. Layers are also shown on the following map indicating locations of sediment (Total Suspended Solids (TSS) or turbidity (T)) impaired streams (2020), and streams that are nearly or barely impaired for sediment.

Priority Resources and Subwatersheds Map



HABITAT AND RECREATION

Priority Issue(s)

Category	Issue Statement	Priority
	Enhancement and long-term protection of **forest, native prairie, and pollinator habitats and corridors**	**B**
	Increased presence of **terrestrial invasive species** and its impact on native plant species	**B**

Criteria for Prioritizing Resources and Subwatersheds

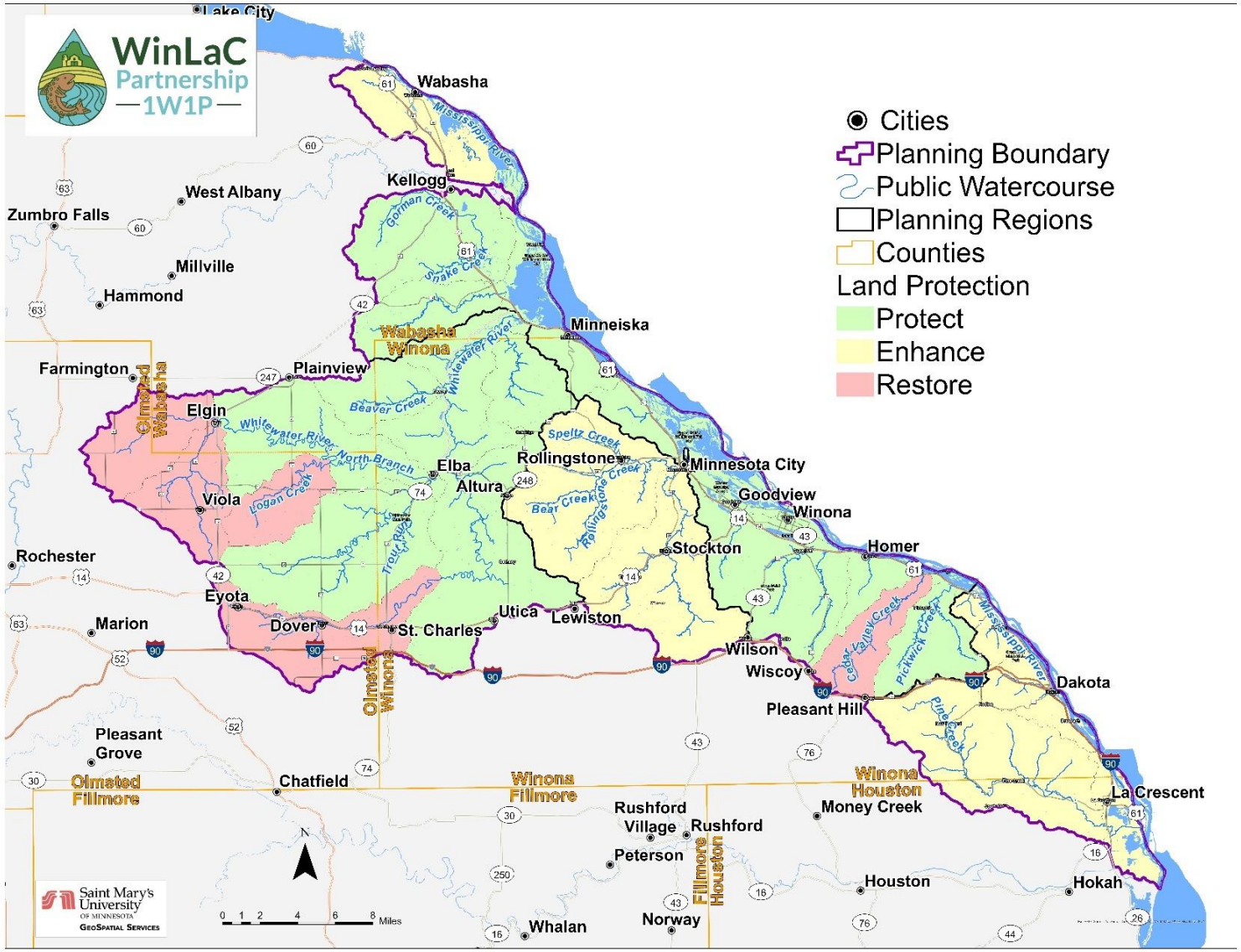
Geospatial Layers:

- Figure 12 in Mississippi River-Winona Watershed Landscape Stewardship Plan (Conservation Opportunity Areas)

Prioritization Methodology:

Using Figure 12 in the Landscape Stewardship Plan, Conservation Opportunity Areas or areas of vigilance were characterized as “Protect.” Areas defined as enhance or had no information were characterized as “Enhance.” Remaining areas were characterized as low, or “Restore.”

Priority Resources and Subwatersheds Map



Priority Issue(s)

Category	Issue Statement	Priority
	Loss of natural wetlands, in particular riparian and backwater floodplain wetlands (Mississippi River Floodplain) and its impact on water quality, flood damage reduction, and wildlife habitat	**B**

Criteria for Prioritizing Resources and Subwatersheds

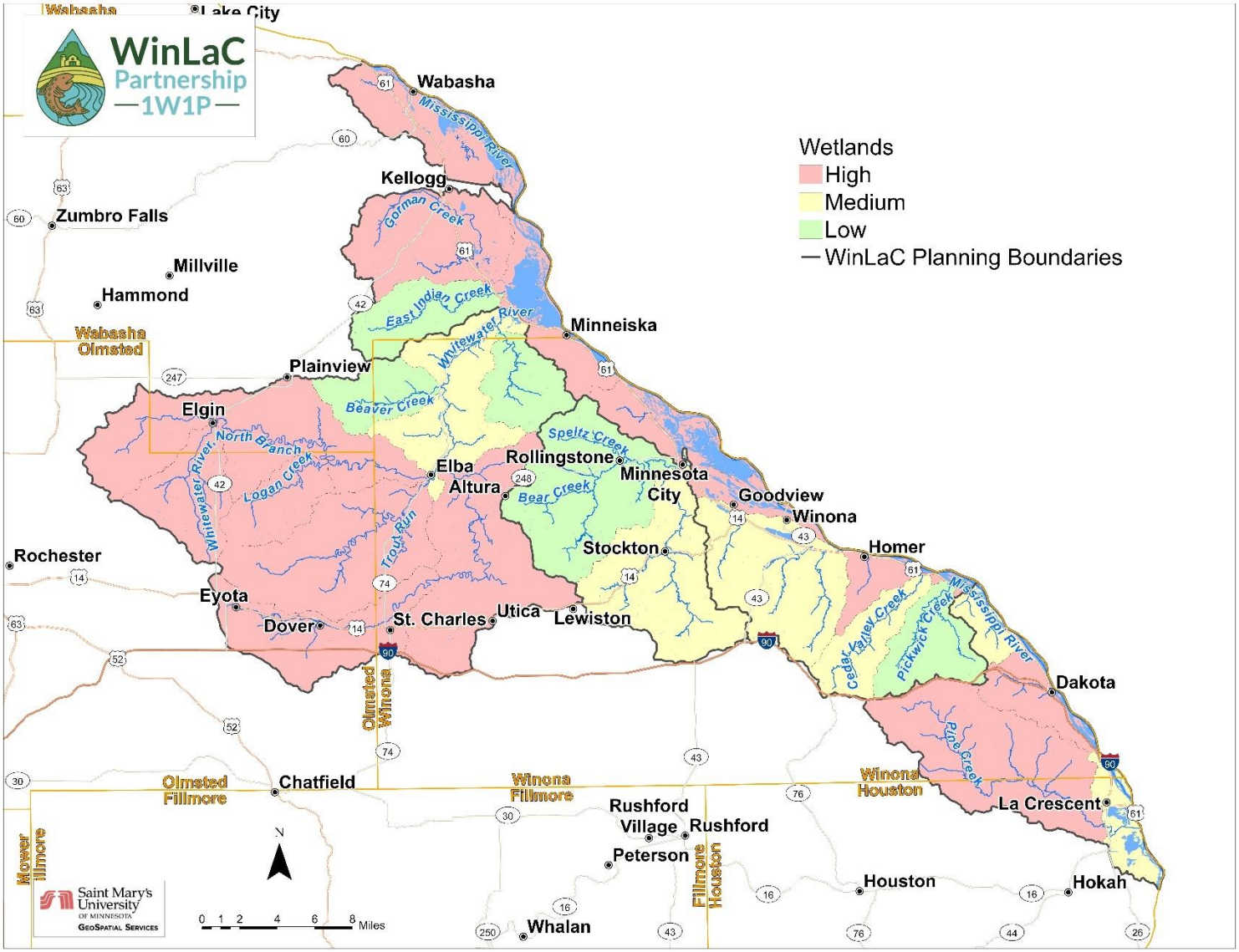
Geospatial Layers:

- NWI wetlands layer

Prioritization Methodology:

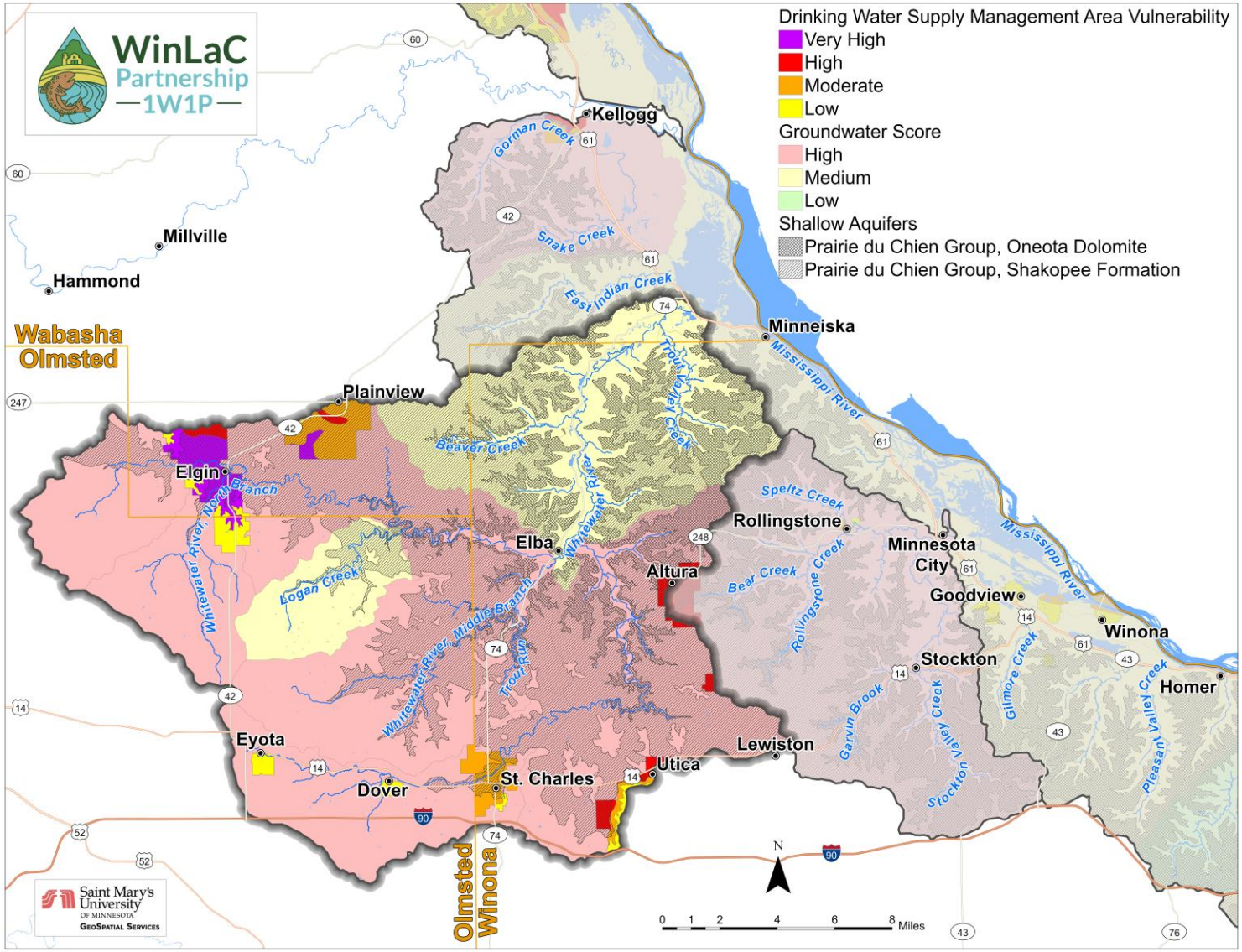
High priority subwatersheds in the upland area of the watershed feature a large prominence of altered watercourses. High priority subwatersheds adjacent to the Mississippi River feature a large prominence of riverine, floodplain wetlands that are a focus for protection and restoration efforts.

Priority Resources and Subwatersheds Map

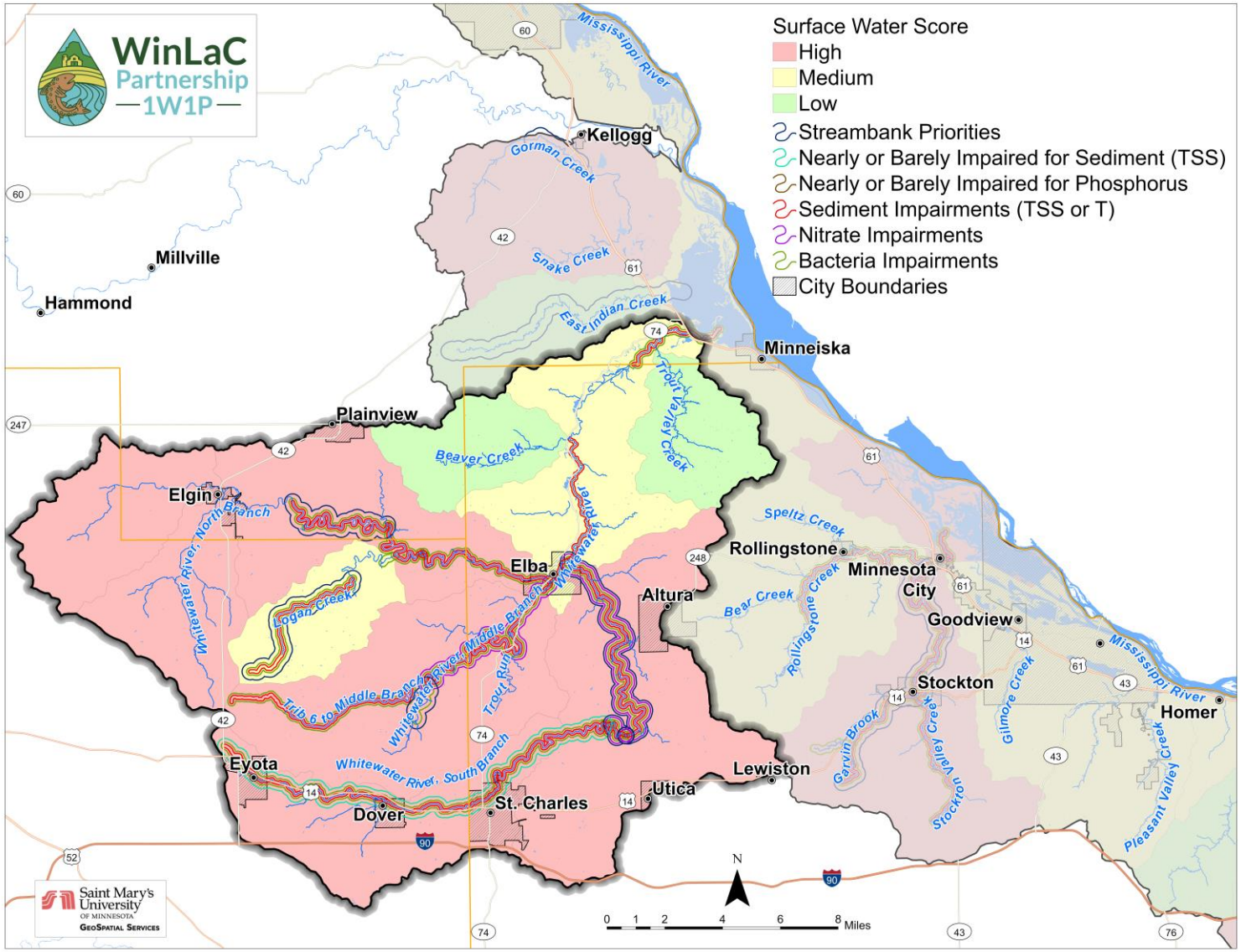


COMPREHENSIVE MAPS

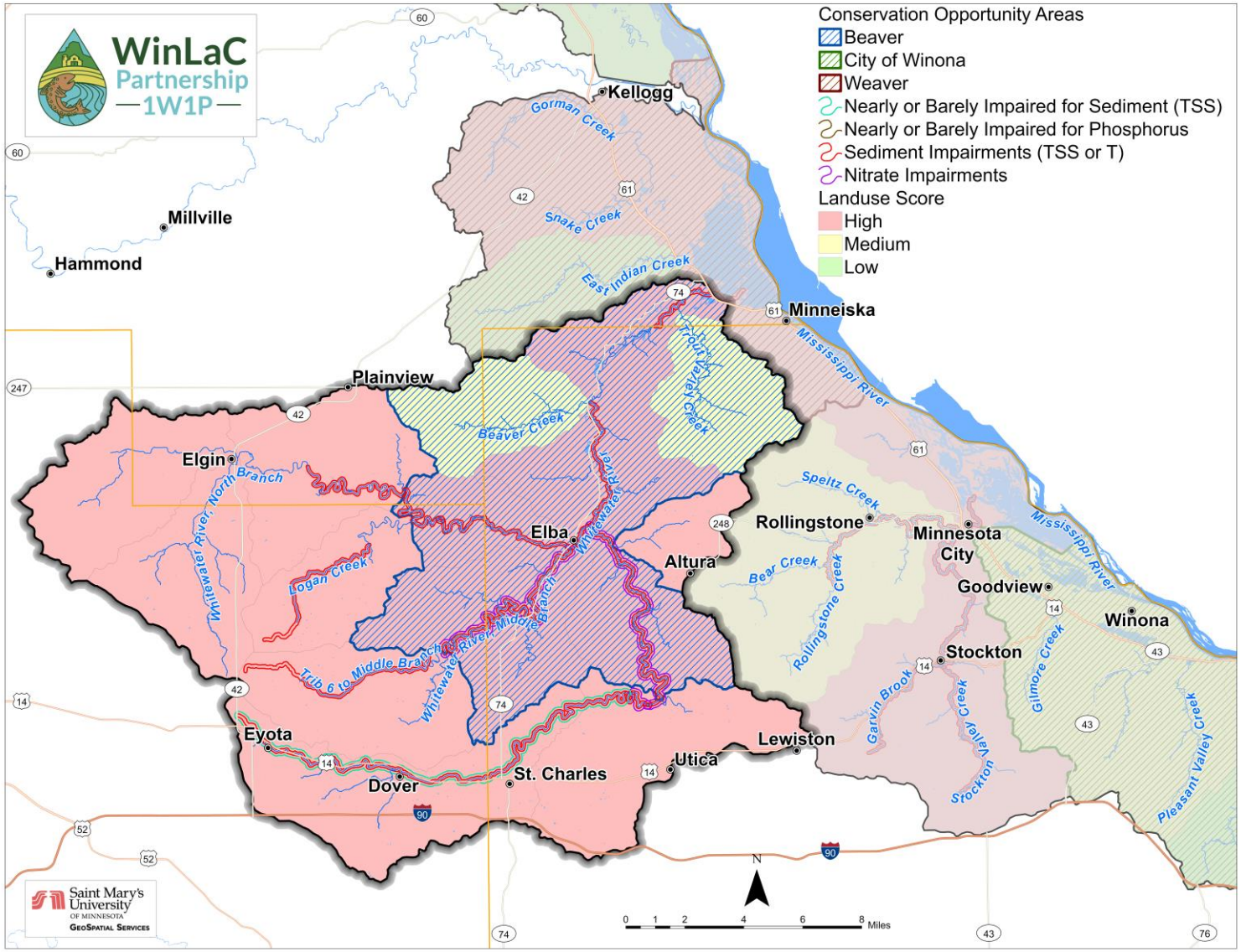
Whitewater River Planning Region – Groundwater (see pg. 5-6)



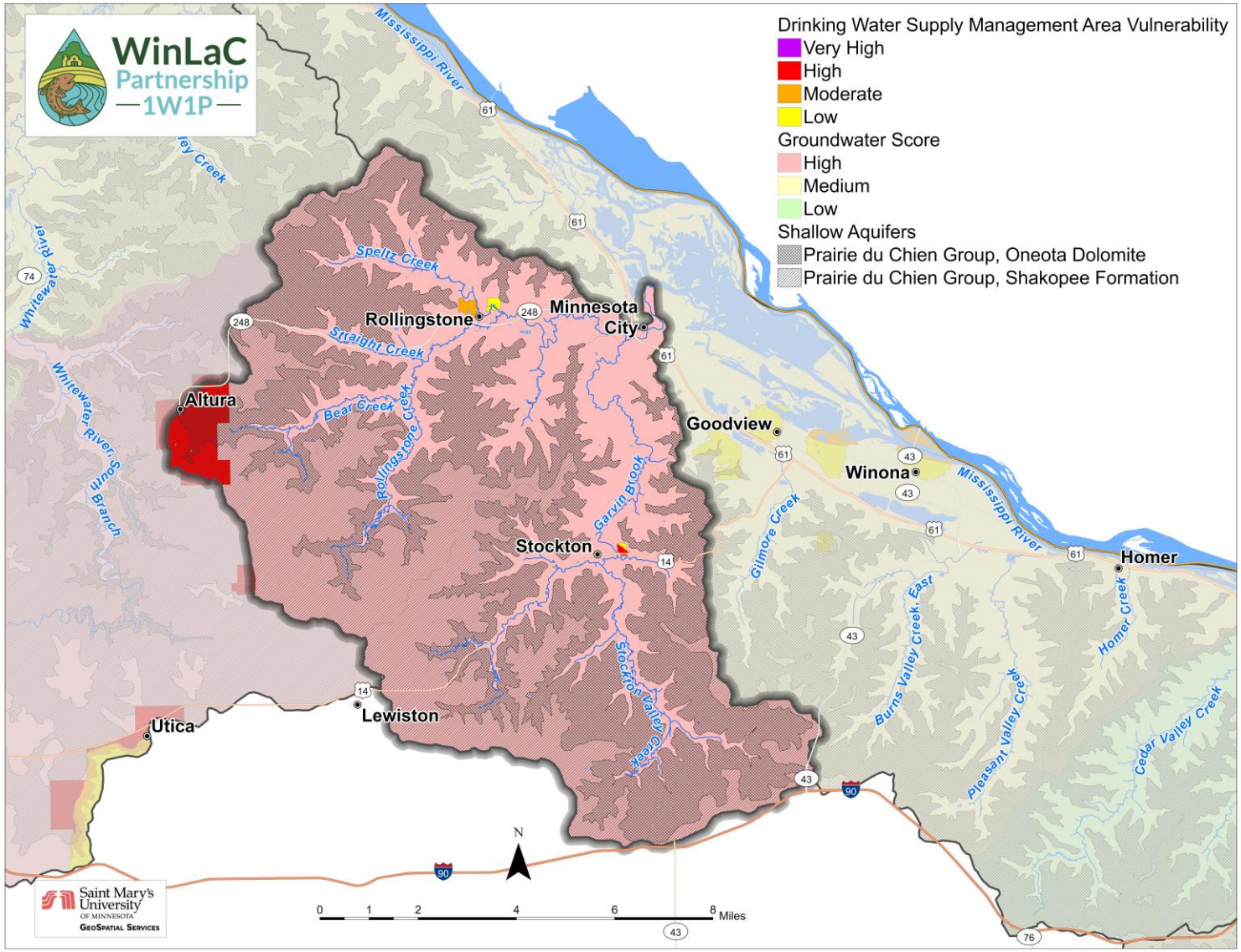
Whitewater River Planning Region – Surface Water (see pg. 5-7)



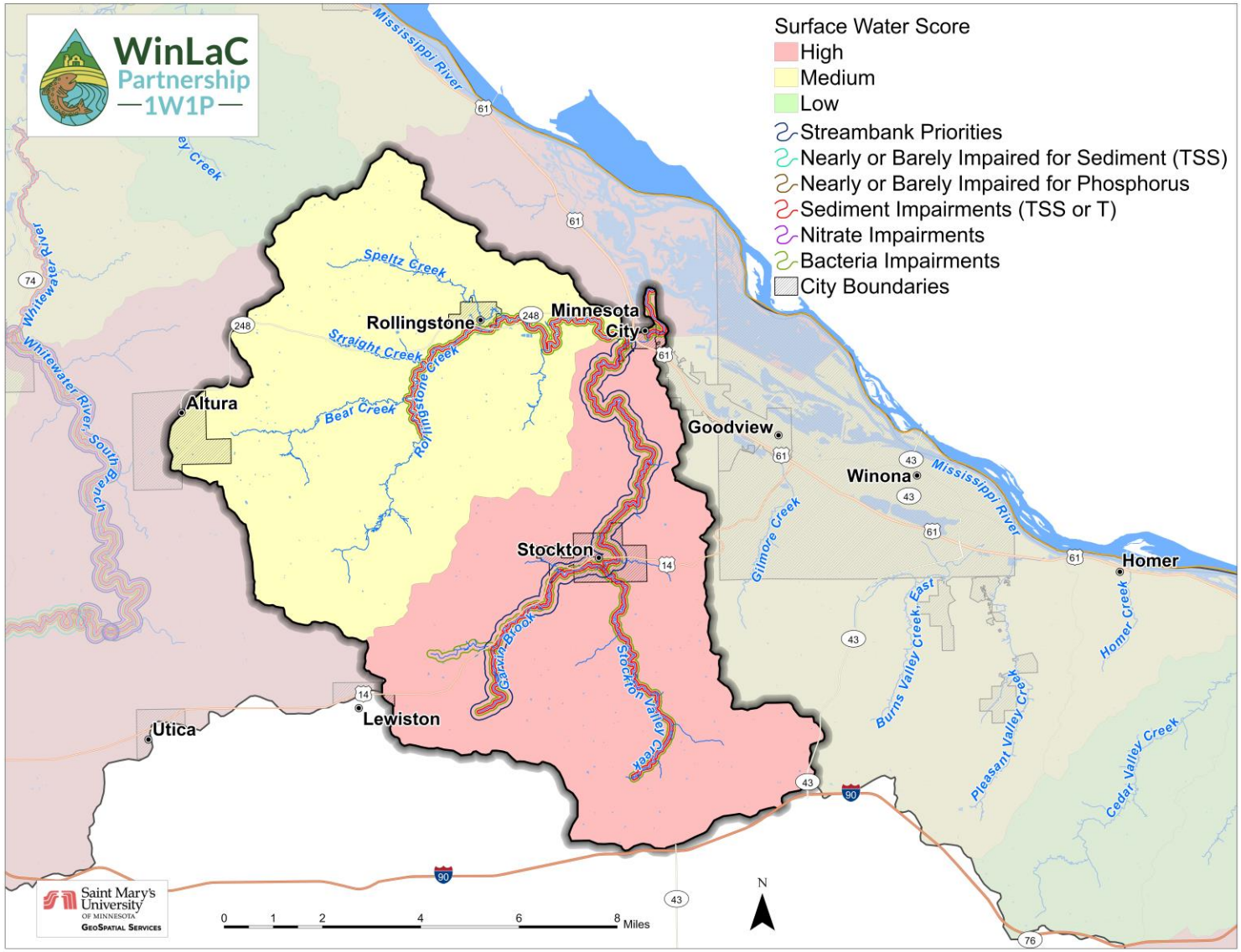
Whitewater River Planning Region –Land Use / Habitat (see pg. 5-8)



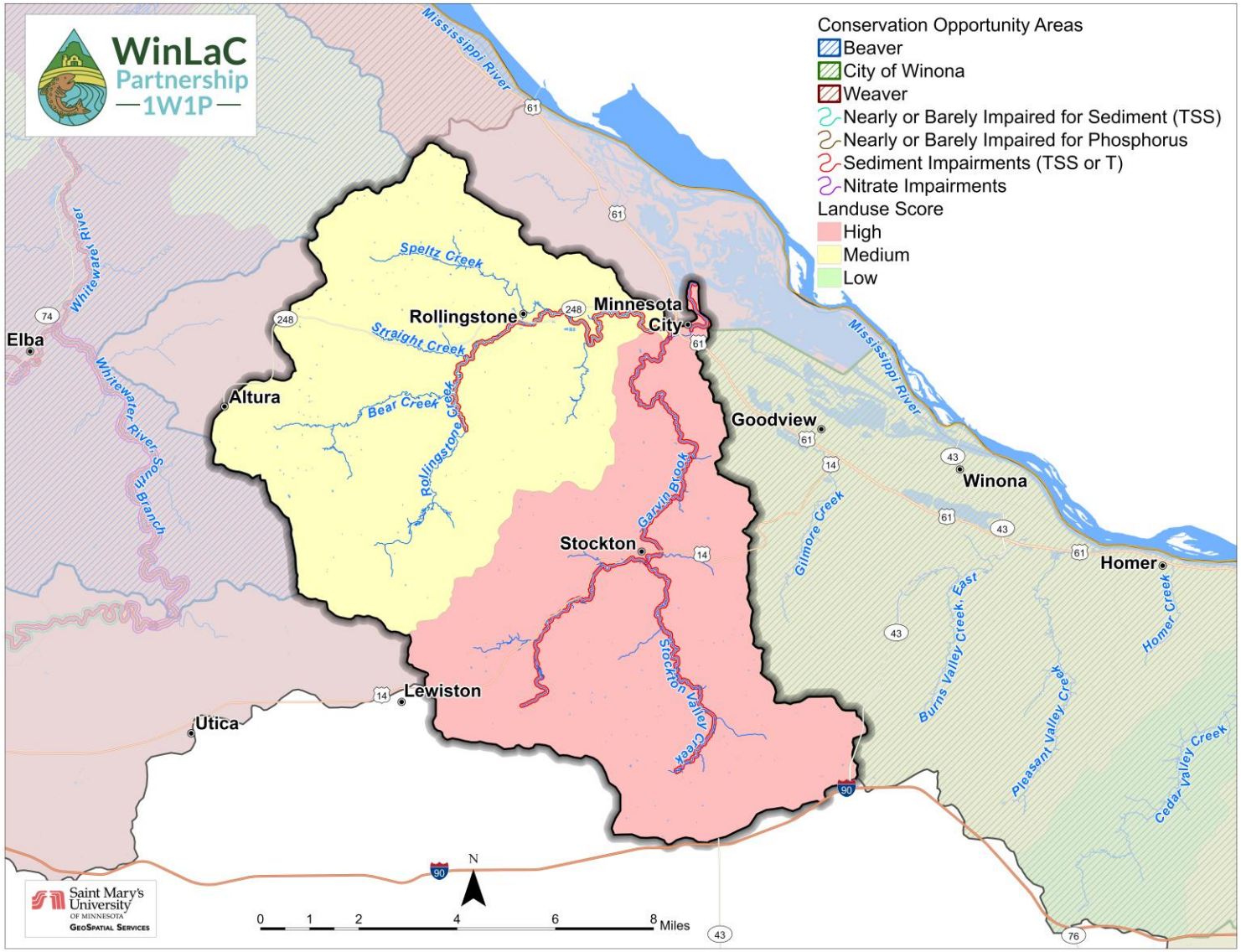
Garvin Brook Planning Region – Groundwater (see pg. 5-10)



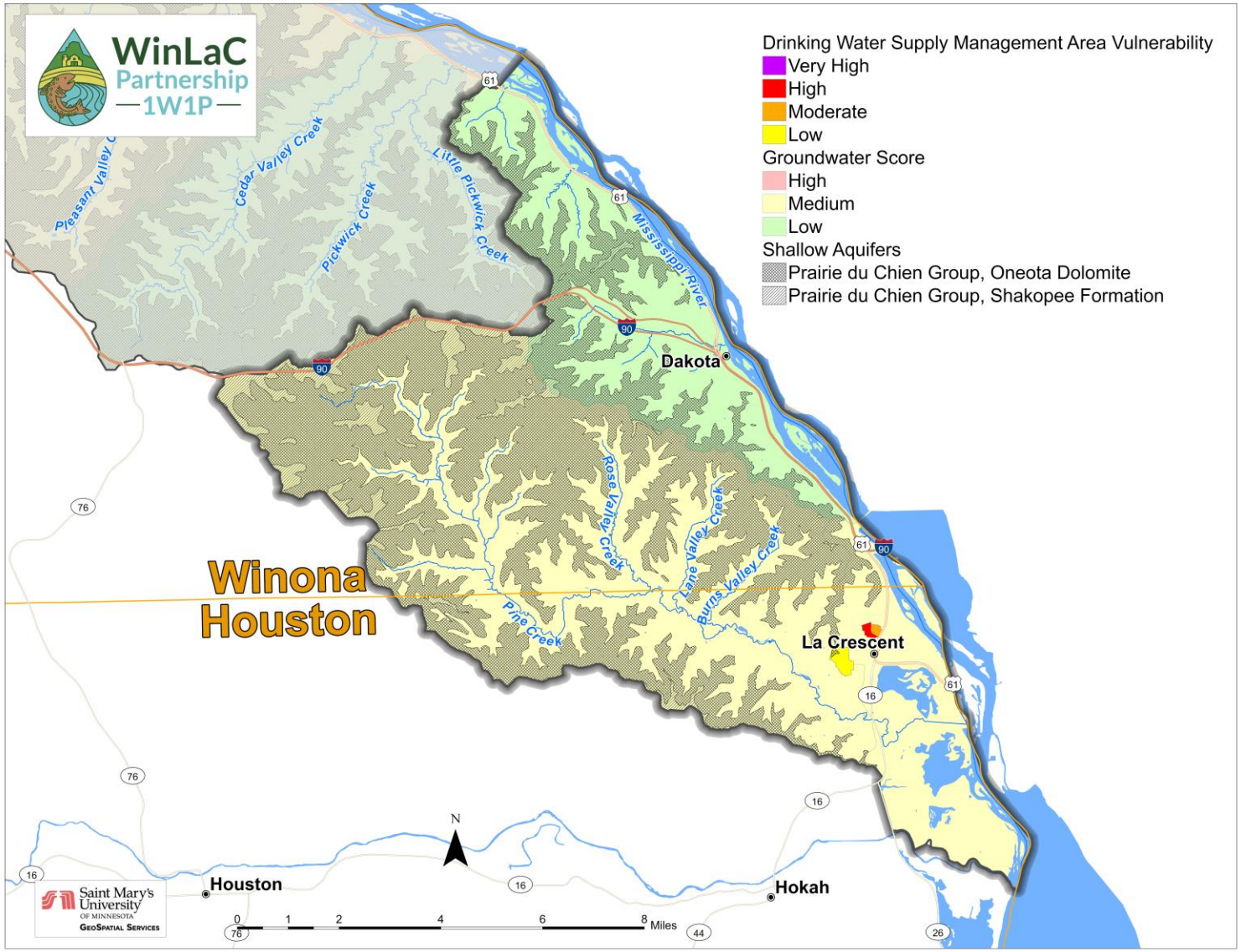
Garvin Brook Planning Region – Surface Water (see pg. 5-11)



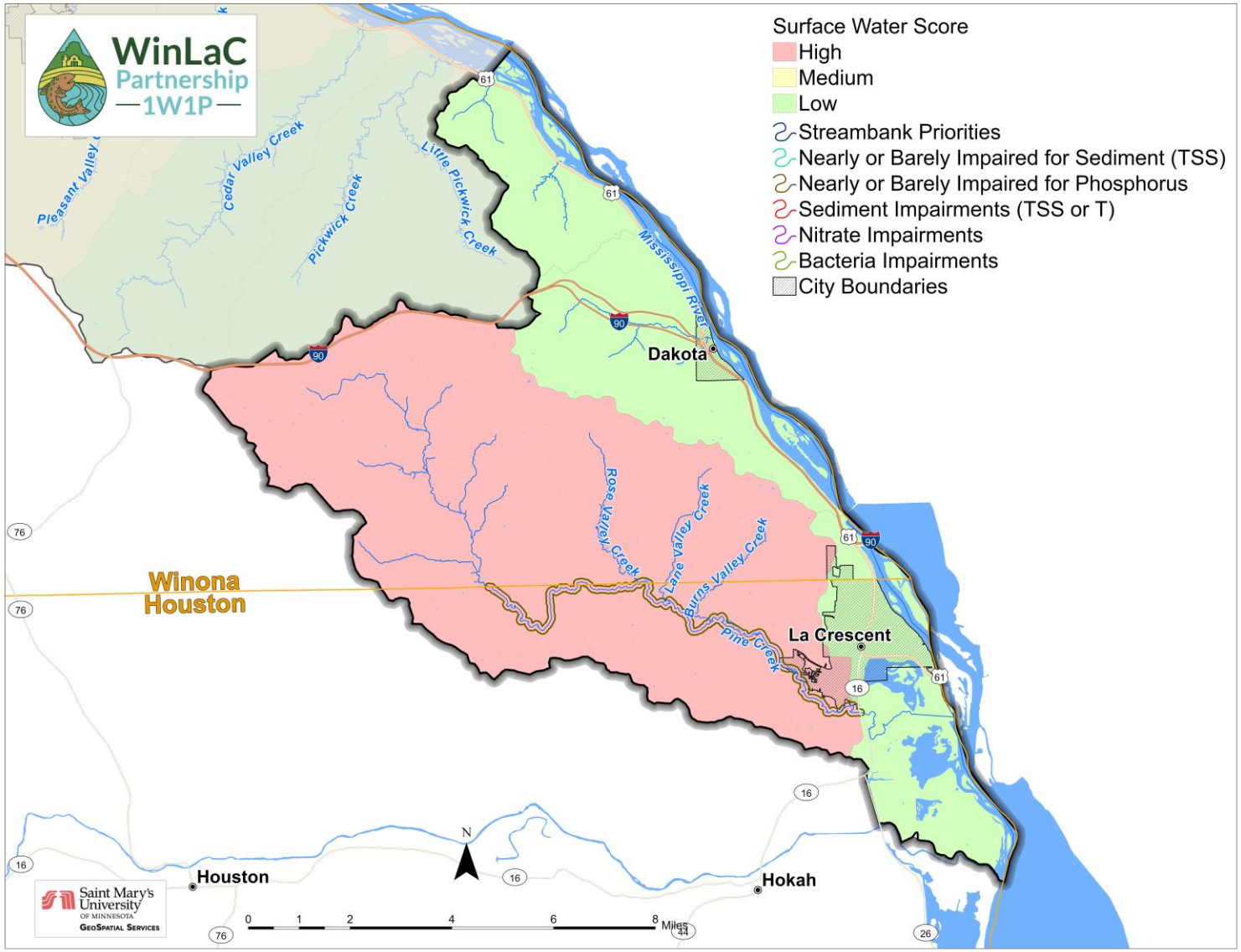
Garvin Brook Planning Region –Land Use / Habitat (see pg. 5-12)



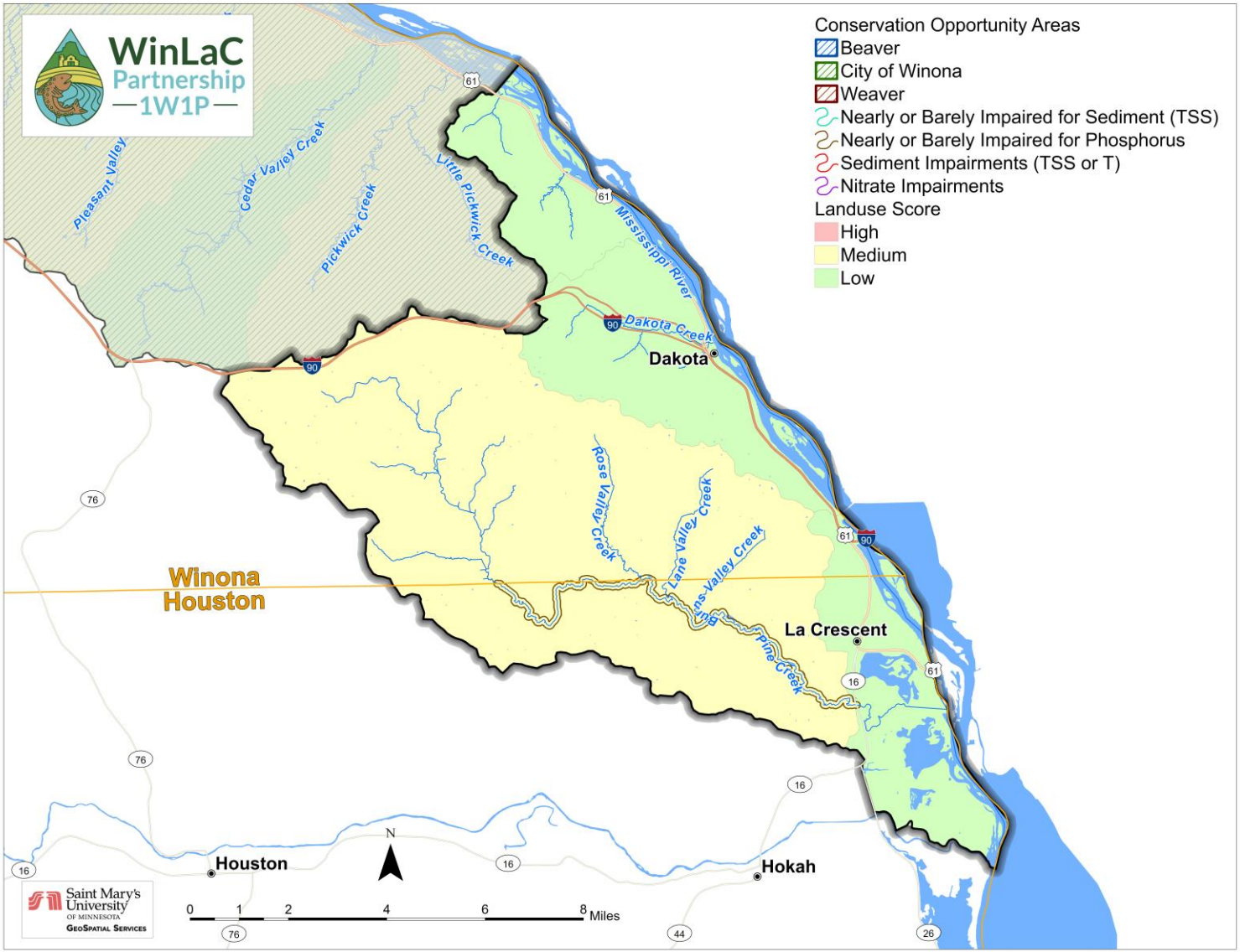
Mississippi River-La Crescent Planning Region – Groundwater (see pg. 5-14)



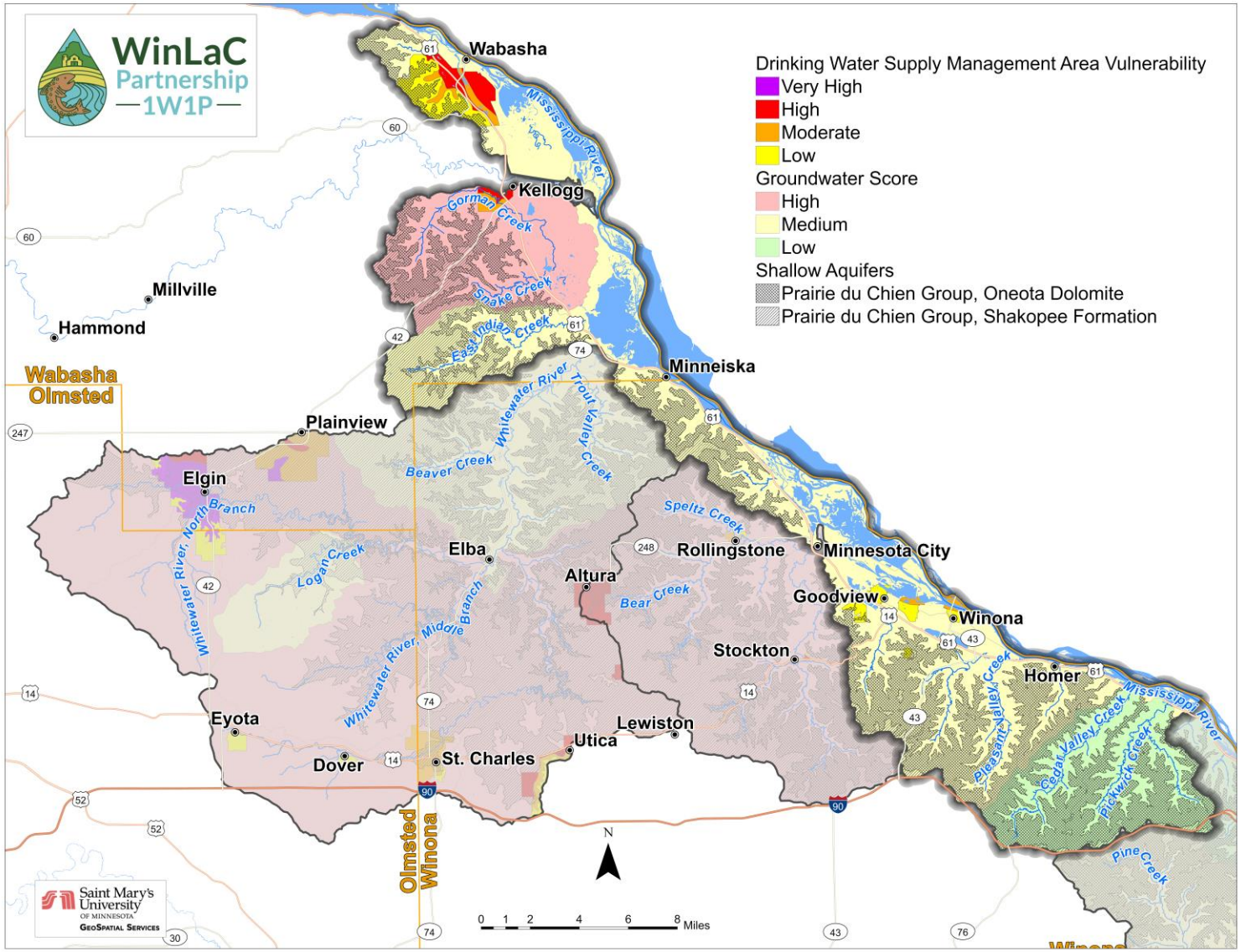
Mississippi River-La Crescent Planning Region – Surface Water (see pg. 5-15)



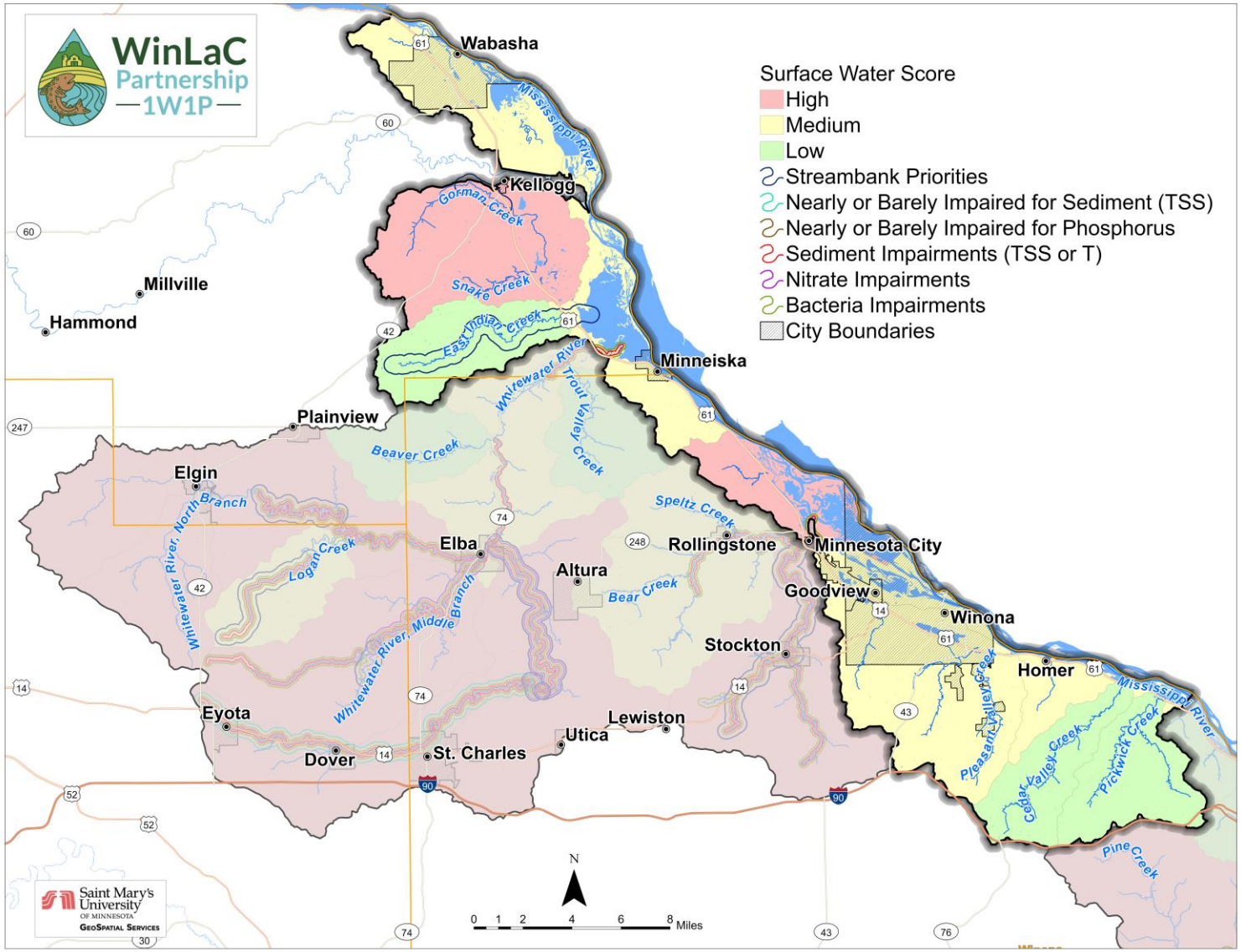
Mississippi River-La Crescent Planning Region –Land Use / Habitat (see pg. 5-16)



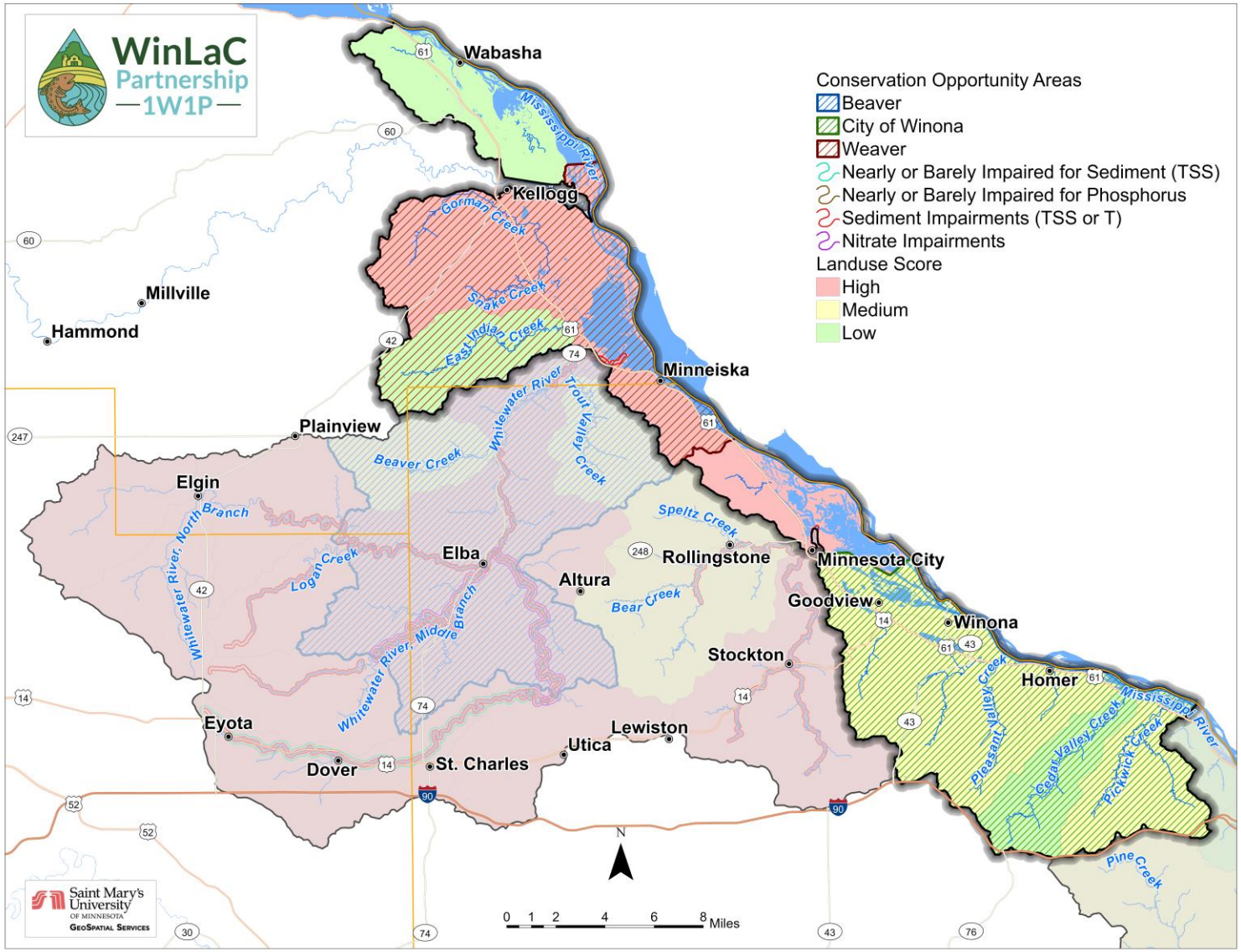
Small Tributaries Planning Region – Groundwater (see pg. 5-18)



Small Tributaries Planning Region – Surface Water (see pg. 5-19)



Small Tributaries Planning Region –Land Use / Habitat (see pg. 5-20)



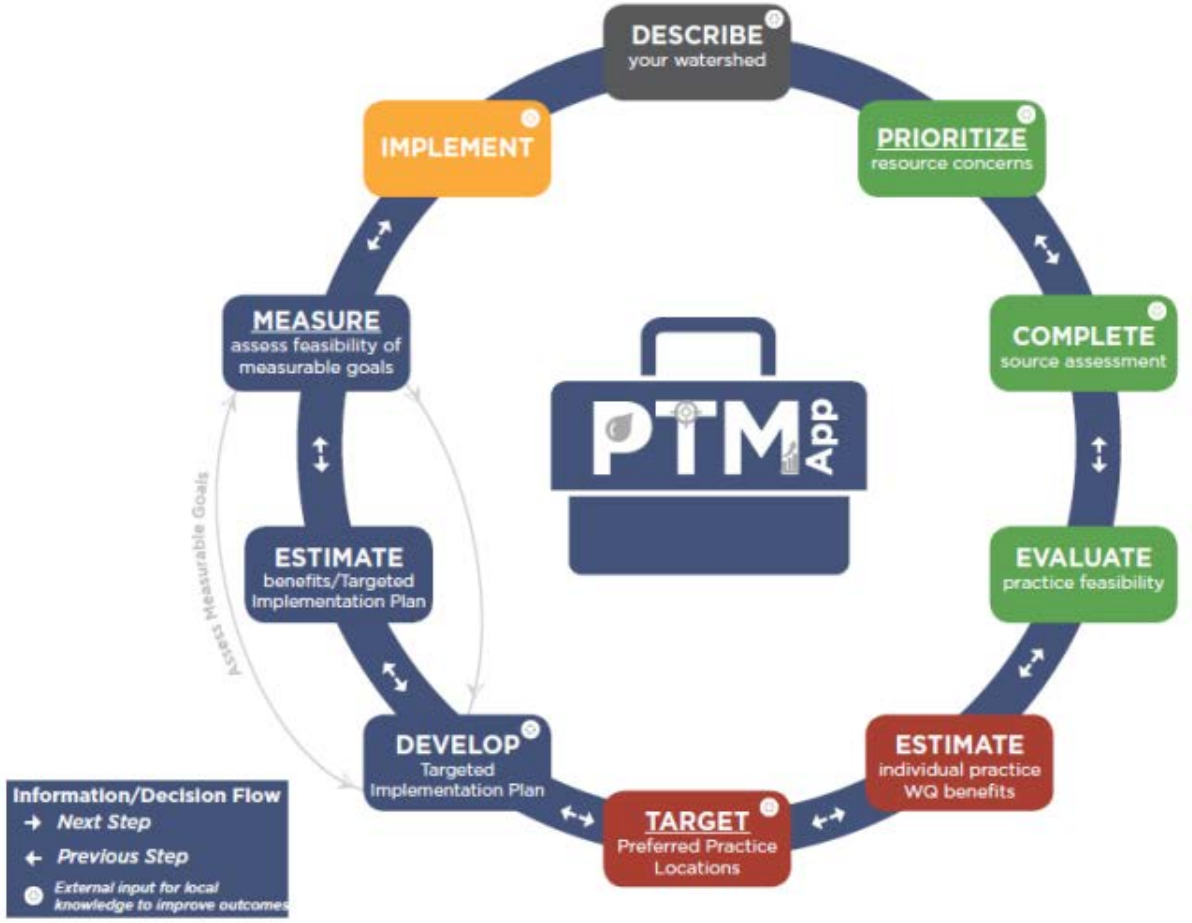
Appendix G. PTMApp Implementation Scenario

WinLaC Partnership —1W1P—

PTMApp Implementation Scenario

Actions in **Section 5. Targeted Implementation** of this plan are based on a PTMApp Implementation Scenario developed by the Planning Work Group during the WinLaC 1W1P 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.

WinLaC PTMApp Approach

The Planning Work Group discussed the PTMApp decisions at meetings in January and February of 2022. The decisions are detailed in **Table 1**.

Table 1. PTMApp decisions to support development of the WinLaC CWMP.

Decision	Implications	Local 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.
Costs	Costs can represent the "cost" share or total cost. For example, EQIP is the federal government cost share.	Double EQIP Costs to capture the full cost of the practice + 20% for technical assistance, with the exception of grade stabilization which was changed to $4,000 per practice based off local knowledge and expertise. Soil Health: $150/acre, based off local feedback on a realistic 3-year cost-share.
Planning Regions	Allocate funding and practices per planning region	Allocate based on sediment delivery to the edge of the field with adjustments based on local feedback.
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 will be selected based on the highest sediment load reduction at the edge of the field (spreads out practices within the planning region). Practices for the Projects and Support Implementation Program will be capped (initially) at $250,000 (rationale: anything over $250,000 is a Capital Improvement Project).
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 sediment 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.	Number of practices that can be afforded under the Funding Level 2 (Current Funding + Watershed-Based Implementation Funding).
Default Loading Values	"Loading coefficients" for sediment, total nitrogen, and total phosphorus for land uses in the watershed	Revised statewide default total phosphorus and total nitrogen yield values to match MDA Field to Stream Partnership data from southeast Minnesota.

Feasible PTMApp practice outputs were screened based on screening criteria agreed upon by the Planning Work Group (**Table 2**). Using the screening criteria, practices with low potential for water quality benefits were 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 criteria as a result.

Table 2: Screening Criteria Approved by Planning Work Group

Conservation Practice Name	PTMApp NRCS Practice Code	Remove BMPs with little runoff volume delivery or constituent removal efficiency				Remove BMPs with low removal magnitudes at the edge of field		
		Delivery and Reduction Efficiency Criteria (Value must be greater than)				Reduction Magnitude Selection Criteria (Value must be greater than)		
		Percent of 2-yr, 24-hr event treated	Sediment Reduction (%)	TP Reduction (%)	TN Reduction (%)	Sediment Reduction @ Catchment Outlet (tons/year)	TP Reduction @ Catchment Outlet (lbs/year)	TN Reduction @ Catchment Outlet (lbs/year)
Farm Pond/Wetland	378	50	10	10	10	0.25	0.25	0.5
Drainage Water Management	554	50	10	10	10	0.25	0.25	0.5
Water and Sediment Control Basin	638	50	10	10	10	0.25	0.25	0.5
Regional Wetland/Pond	656_1	50	10	10	10	0.25	0.25	0.5
Large Wetland Restoration	656_2	50	10	10	10	0.25	0.25	0.5
Riparian Buffer	390	50	10	10	10	0.25	0.25	0.5
Filtration Strip	393	50	10	10	10	0.25	0.25	0.5
Saturated Buffer	604	50	10	10	10	0.25	0.25	0.5
Denitrifying Bioreactor	605	50	10	10	10	0.25	0.25	0.5
Infiltration Trench/Small Infiltration Basin	350	50	10	10	10	0.25	0.25	0.5
Multi-stage Ditch (open channel)	582	50	10	10	10	0.25	0.25	0.5
Critical Area Planting	342	N/A				0.25	0.25	0.5
Grade Stabilization	410	N/A				0.25	0.25	0.5
Grassed Waterway	412	N/A				0.25	0.25	0.5
Lake and Wetland Shoreline Restoration	580	N/A				0.25	0.25	0.5
Perennial Crops	327	N/A				0.25	0.25	1

Table continued on next page

Conservation Practice Name	PTMApp NRCS Practice Code	Remove BMPs with little runoff volume delivery or constituent removal efficiency				Remove BMPs with low removal magnitudes at the edge of field		
		Delivery and Reduction Efficiency Criteria (Value must be greater than)				Reduction Magnitude Selection Criteria (Value must be greater than)		
		Percent of 2-yr, 24-hr event treated	Sediment Reduction (%)	TP Reduction (%)	TN Reduction (%)	Sediment Reduction @ Catchment Outlet (tons/year)	TP Reduction @ Catchment Outlet (lbs/year)	TN Reduction @ Catchment Outlet (lbs/year)
No till	329	N/A				0.25	0.25	1
Cover Crops	340	N/A				0.25	0.25	1
Reduced till	345	N/A				0.25	0.25	1
Forage / Biomass Planting	512	N/A				0.25	0.25	1
Prescribed Grazing	528	N/A				0.25	0.25	1
Nutrient Management Plan of Groundwater	590_1	N/A				0.25	0.25	1
Nutrient Management Plan for Phosphorus	590_2	N/A				0.25	0.25	
Nutrient Management Plan for Nitrogen	590_3	N/A				0.25		1

After practices were screened, the remainder were ranked by their total sediment reduction potential at the catchment outlet from highest to lowest. This ranking highlighted all practices with the potential to reduce the most sediment at the edge of the field where the practice would be located.

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 (most sediment reduction potential) until each practice funding limit was reached.

Table 3: NRCS conservation practices and their priority as high (H), medium (M), and low (L) in the planning regions

Conservation Practice Name	NRCS Practice Code	Whitewater	La Crescent	Small Tribs	Garvin Brook
Farm Pond/Wetland	378	M	L	L	H
Drainage Water Management	554	L	none	none	none
Water and Sediment Control Basin	638	H	H	H	H

Conservation Practice Name	NRCS Practice Code	Whitewater	La Crescent	Small Tribs	Garvin Brook
Large Wetland Restoration	656_1†	L	M	M	none
Regional Wetland/Pond	656_2†	L	none	none	none
Riparian Buffer	390	M	H	M	M
Filtration Strip	393	M	M	H	M
Saturated Buffer	604	L	L	L	L
Denitrifying Bioreactor	605	L	none	none	none
Infiltration Trench/Small Infiltration Basin	350	M	L	M	L
Multi-stage Ditch (open channel)	582	L	none	none	none
Critical Area Planting	342	H	H	H	H
Grade Stabilization	410	H	H	H	H
Grassed Waterway	412	H	H	H	H
Lake and Wetland Shoreline Restoration	580	H	H	H	M
Soil Management Practices (Conservation Cover, Conservation Crop Rotation, Perennial Crops, No till, Cover Crops, Reduced Till, Nutrient Management, Prescribed Grazing)		H	H	H	H
Forage / Biomass Planting	512	H	M	H	M

PTMApp Implementation Scenarios

Whitewater River Planning Region

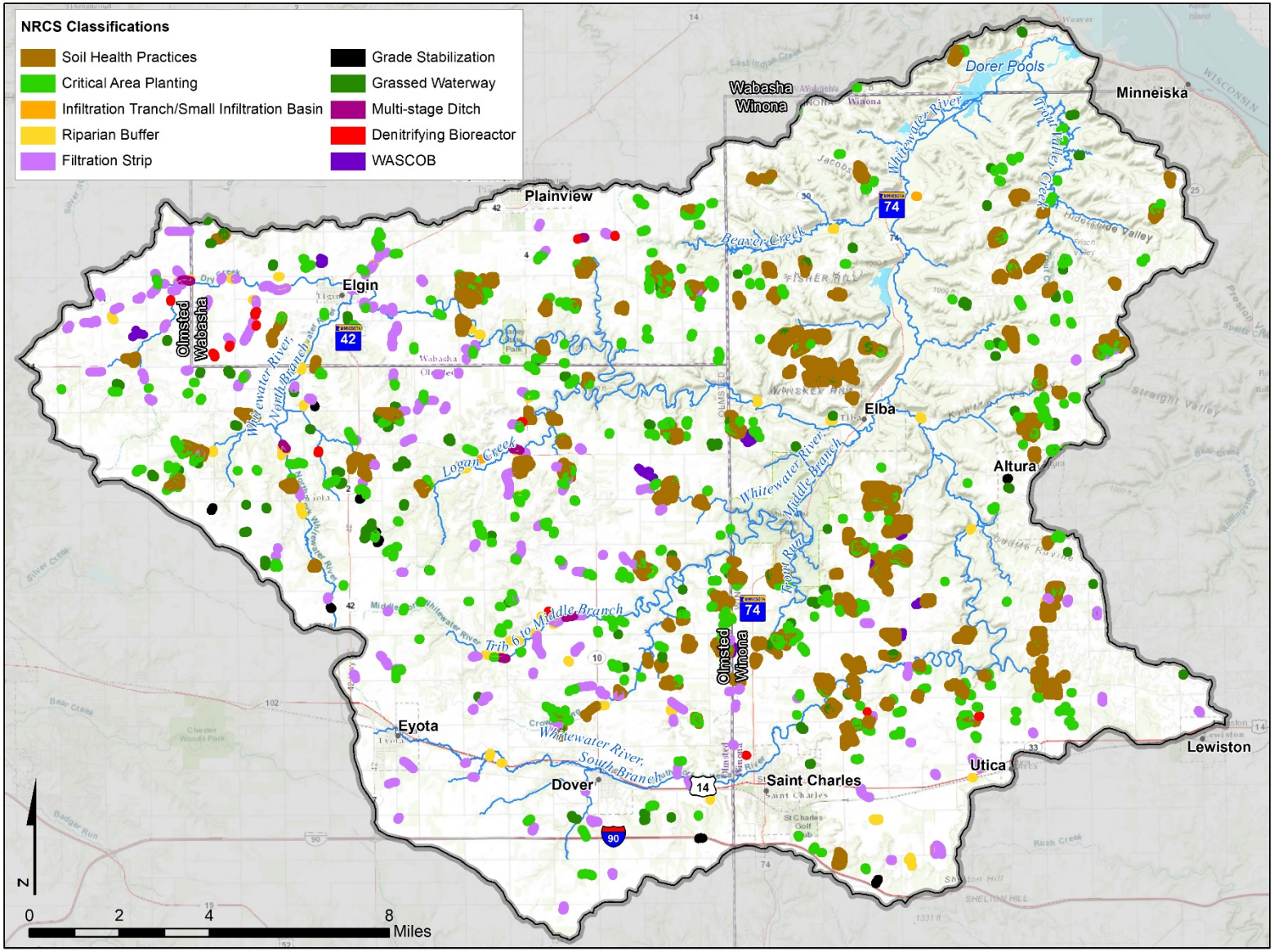
The Table below shows the PTMApp implementation scenario results for the **Whitewater River Planning Region**. The next page includes a map showing where practices are located based on Funding Scenario 2: Current local baseline funding + new Watershed-Based Implementation Funding (WBIF).

The WinLaC Partnership will operate at Scenario 2 Funding for the period of the 10-year plan.

Table 4. Whitewater River PTMApp outputs

BMP Treatment Group*	Number of Practices	Total 10-Year Cost ($)	Values at Catchment Outlet			Water storage (ac-ft)	Surface area (acres)
			Sediment Reduction (tons/yr)	TP Reduction (lbs/yr)	TN Reduction (lbs/yr)		
393 – Filtration Strip	180	125,563	396	324	8,729	0	127
638 - WASCOB	22	198,000	2,022	1,097	21,657	89	5
605 – Denitrifying Bioreactor	15	66,369	92	36	1,501	0	4
390 - Riparian Buffer	52	124,740	297	356	9,127	0	52
410 - Grade Stabilization	15	60,000	12	11	284	0	7
412 - Grassed Waterway	183	326723	539	223	5,912	0	135
340 - Cover Crops	314	674,172	13,773	6,343	135,616	0	4,494
350 – Small Infiltration Basin	2	125,550	3	3	58	0	0
582 – Multi-stage Ditch	7	37,830	90	16	1,158	2	5
342 - Critical Area Planting	326	200,155	1,132	608	16,160	0	341
Scenario Totals	**1,116**	**$1,939,102**	**18,356**	**9,017**	**200,202**	**91**	**5,170**

Figure 1: BMPs in the Whitewater River Planning Region.



PTMApp Implementation Scenarios

Garvin Brook Planning Region

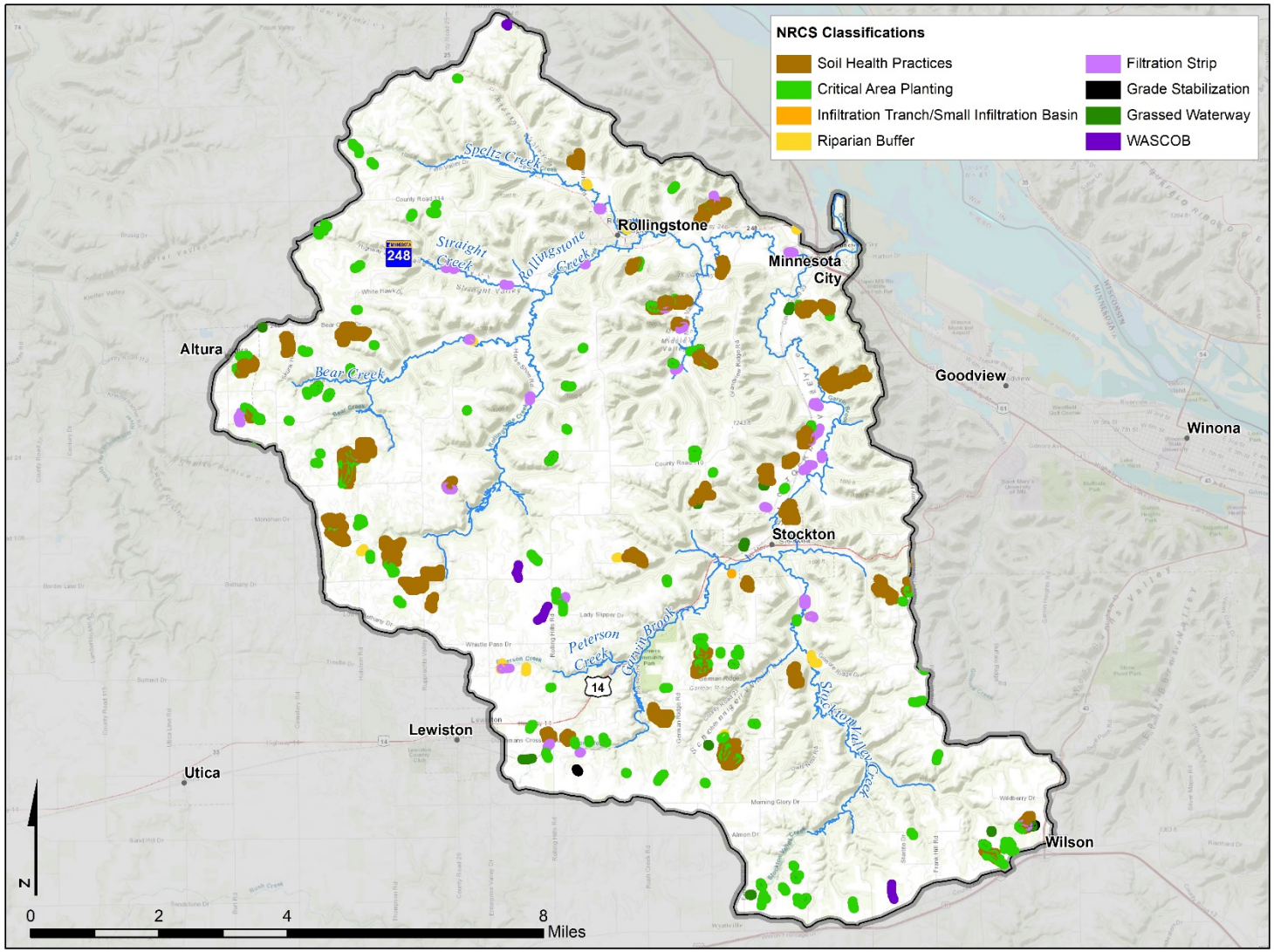
The Table below shows the PTMApp implementation scenario results for the **Garvin Brook Planning Region**. The next page includes a map showing where practices are located based on Funding Scenario 2: Current local baseline funding + new Watershed-Based Implementation Funding (WBIF).

The WinLaC Partnership will operate at Scenario 2 Funding for the period of the 10-year plan.

Table 5. Garvin Brook PTMApp outputs

BMP Treatment Group*	Number of Practices	Total 10-Year Cost ($)	Values at Catchment Outlet			Water storage (ac-ft)	Surface area (acres)
			Sediment Reduction (tons/yr)	TP Reduction (lbs/yr)	TN Reduction (lbs/yr)		
393 – Filtration Strip	37	31,039	78	50	1,316	0	31
390 - Riparian Buffer	13	23,089	48	43	1,095	0	8
410 - Grade Stabilization	3	12,000	5	3	69	0	1
412 - Grassed Waterway	39	67,034	141	46	1,220	0	29
340 - Cover Crops	132	208,900	5,163	1,878	39,704	0	1,393
350 – Small Infiltration Basin	1	14,124	240	100	2,399	0	0
342 - Critical Area Planting	103	64,248	384	191	5,066	0	109
Scenario Totals	**328**	**420,434**	**6,059**	**2,311**	**50,869**	**0**	**1,571**

Table 2: BMPs in the Garvin Brook Planning Region.



PTMApp Implementation Scenarios

Mississippi River - La Crescent Planning Region

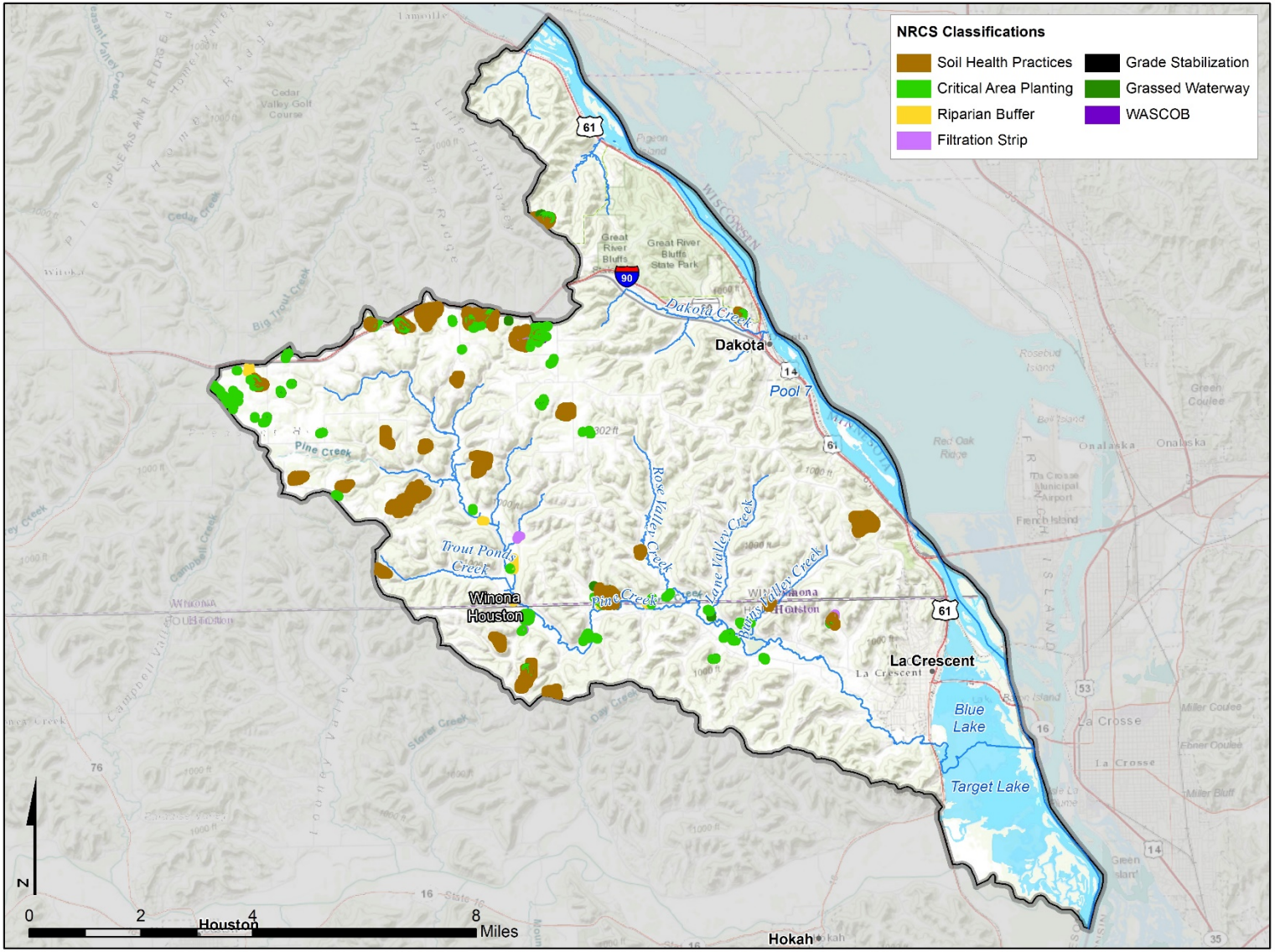
The Table below shows the PTMApp implementation scenario results for the **Mississippi River – La Crescent Planning Region**. The next page includes a map showing where practices are located based on Funding Scenario 2: Current local baseline funding + new Watershed-Based Implementation Funding (WBIF).

The WinLaC Partnership will operate at Scenario 2 Funding for the period of the 10-year plan.

Table 6. Mississippi River – La Crescent PTMApp outputs

BMP Treatment Group*	Number of Practices	Total 10-Year Cost ($)	Values at Catchment Outlet			Water storage (ac-ft)	Surface area (acres)
			Sediment Reduction (tons/yr)	TP Reduction (lbs/yr)	TN Reduction (lbs/yr)		
638 - WASCOB	5	45,000	325	220	4,270	21	1
393 – Filtration Strip	4	1,979	6	3	59	0	2
390 - Riparian Buffer	6	15,597	24	34	702	0	6
410 - Grade Stabilization	1	4,000	3	0	13	0	0
412 - Grassed Waterway	20	45650	67	30	784	0	19
340 - Cover Crops	89	170,393	3,169	1,513	33,951	0	1,136
342 - Critical Area Planting	50	41,498	178	125	3,319	0	71
Scenario Totals	**175**	**324,117**	**3,772**	**1,925**	**43,098**	**21**	**1,235**

Table 3: BMPs in the Mississippi River – La Crescent Planning Region.



PTMApp Implementation Scenarios

Small Tributaries Planning Region

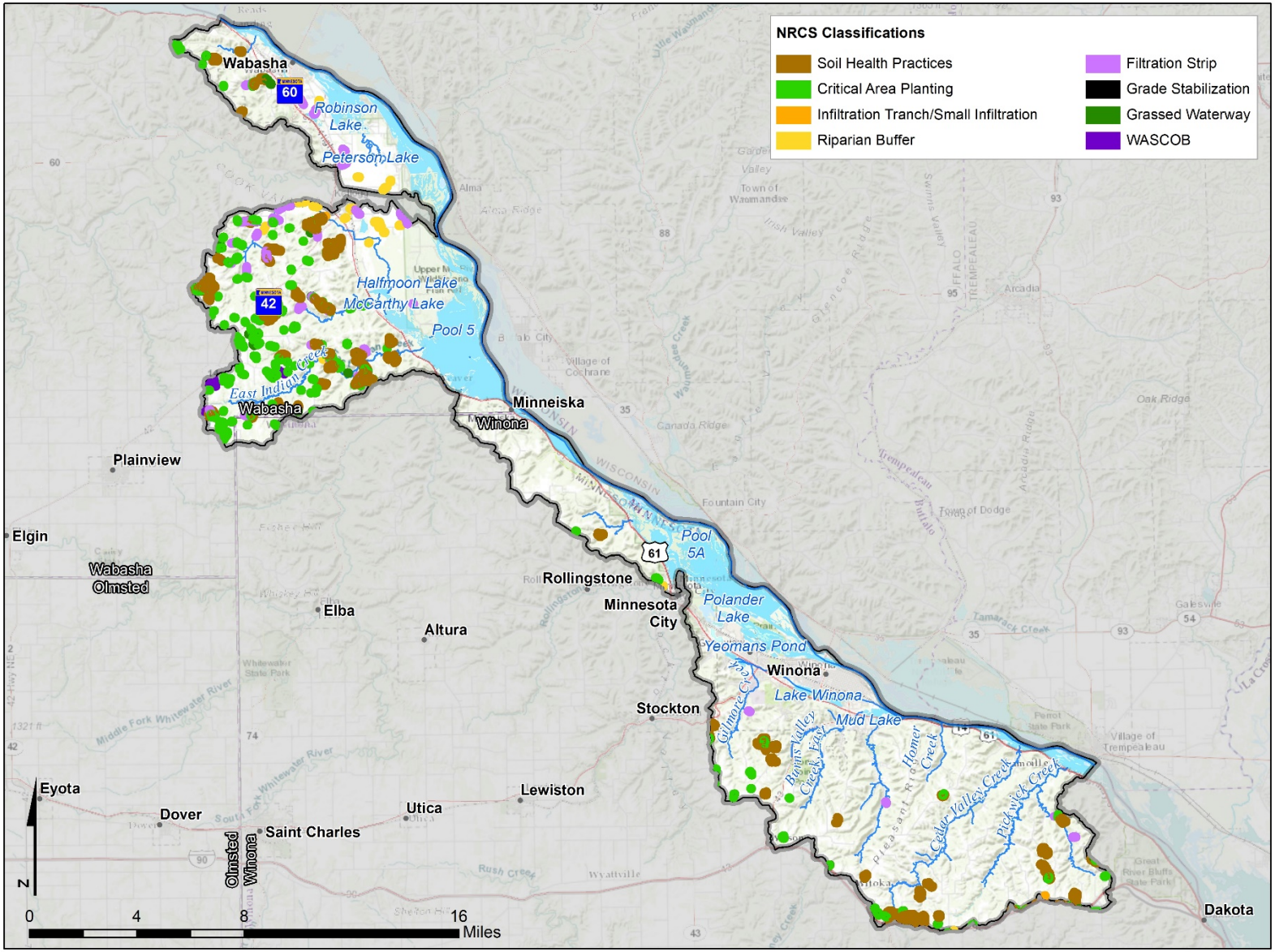
The Table below shows the PTMApp implementation scenario results for the **Small Tributaries Planning Region**. The next page includes a map showing where practices are located based on Funding Scenario 2: Current local baseline funding + new Watershed-Based Implementation Funding (WBIF).

The WinLaC Partnership will operate at Scenario 2 Funding for the period of the 10-year plan.

Table 7. Small Tributaries PTMApp outputs

BMP Treatment Group*	Number of Practices	Total 10-Year Cost ($)	Values at Catchment Outlet			Water storage (ac-ft)	Surface area (acres)
			Sediment Reduction (tons/yr)	TP Reduction (lbs/yr)	TN Reduction (lbs/yr)		
638 - WASCOB	12	108,000	788	508	9,908	55	3
393 – Filtration Strip	54	58,060	90	76	2,013	0	59
390 - Riparian Buffer	16	71,107	241	420	10,364	0	32
410 - Grade Stabilization	3	12,000	6	2	55	0	1
412 - Grassed Waterway	58	108,481	228	77	2,027	0	48
340 - Cover Crops	204	311,118	7,005	2,633	62,952	0	2,074
350 – Small Infiltration Basin	2	67,483	23	6	123	0	0
342 - Critical Area Planting	136	109,143	589	328	8,721	0	186
Scenario Totals	**482**	**845,392**	**8,970**	**4,051**	**96,163**	**55**	**2,403**

Table 4: BMPs in the Small Tributaries Planning Region.



Appendix H. Local Funding Authorities

WinLaC Partnership —1W1P—

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 I. Impaired Waters List

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Table 1: Impaired Waters List. Source: MPCA.

Water body name	Water body description	AUID	County	Watershed name	Affected designated use	Pollutant or stressor
Mississippi River	L & D #6 to Root R	07040006-515	Winona	Mississippi River - La Crescent	Aquatic Consumption	Mercury in fish tissue
Mississippi River	L & D #6 to Root R	07040006-515	Winona	Mississippi River - La Crescent	Aquatic Consumption	PCBs in fish tissue
Pine Creek	T104 R5W S4, north line to Hwy 16	07040006-576	Houston	Mississippi River - La Crescent	Aquatic Recreation	Escherichia coli (E. coli)
Bear Creek	Unnamed cr to Rollingstone Cr	07040003-581	Winona	Mississippi River - Winona	Aquatic Life	Benthic macroinvertebrates bioassessments
Bear Creek	Unnamed cr to Rollingstone Cr	07040003-581	Winona	Mississippi River - Winona	Aquatic Life	Fish bioassessments
Beaver Creek	T108 R11W S24, west line to Unnamed cr	07040003-566	Winona	Mississippi River - Winona	Aquatic Life	Benthic macroinvertebrates bioassessments
Big Trout Creek (Pickwick Creek)	Unnamed cr to Mississippi R	07040003-592	Winona	Mississippi River - Winona	Aquatic Life	Benthic macroinvertebrates bioassessments
Crow Spring (Middle Fork Whitewater River Tributary)	Unnamed cr to M Fk Whitewater R	07040003-611	Olmsted	Mississippi River - Winona	Aquatic Life	Benthic macroinvertebrates bioassessments
Crow Spring (Middle Fork Whitewater River Tributary)	Unnamed cr to M Fk Whitewater R	07040003-611	Olmsted	Mississippi River - Winona	Aquatic Recreation	Escherichia coli (E. coli)
Garvin Brook	T106 R8W S17, west line to Rollingstone Cr	07040003-542	Winona	Mississippi River - Winona	Aquatic Life	Turbidity

Garvin Brook	T106 R8W S17, west line to Rollingstone Cr	07040003-542	Winona	Mississippi River - Winona	Aquatic Recreation	Fecal coliform
Garvin Brook	T107 R8W S2, south line to Mississippi R (Burleigh Slough)	07040003-595	Winona	Mississippi River - Winona	Aquatic Life	Turbidity
Garvin Brook	T107 R8W S2, south line to Mississippi R (Burleigh Slough)	07040003-595	Winona	Mississippi River - Winona	Aquatic Recreation	Fecal coliform
Gorman Creek	T110 R10W S27, west line to Unnamed cr	07040003-569	Wabasha	Mississippi River - Winona	Aquatic Life	Benthic macroinvertebrates bioassessments
Logan Branch	Unnamed cr to N Fk Whitewater R	07040003-552	Olmsted	Mississippi River - Winona	Aquatic Recreation	Fecal coliform
Logan Branch	Headwaters to Unnamed cr	07040003-F30	Olmsted	Mississippi River - Winona	Aquatic Life	Turbidity
Logan Branch	Headwaters to Unnamed cr	07040003-F30	Olmsted	Mississippi River - Winona	Aquatic Recreation	Fecal coliform
Mississippi River	Chippewa R (WI) to L & D #6	07040003-627	Wabasha	Mississippi River - Winona	Aquatic Consumption	Mercury in fish tissue
Mississippi River	Chippewa R (WI) to L & D #6	07040003-627	Wabasha	Mississippi River - Winona	Aquatic Consumption	PCBs in fish tissue
Mississippi River	Chippewa R (WI) to L & D #6	07040003-627	Wabasha	Mississippi River - Winona	Aquatic Life	Aluminum
Mississippi River	Chippewa R (WI) to L & D #6	07040003-627	Wabasha	Mississippi River - Winona	Wild Rice Production	Sulfate
Peterson Creek	T106 R8W S7, west line to Garvin Bk	07040003-529	Winona	Mississippi River - Winona	Aquatic Recreation	Fecal coliform

Pleasant Valley Creek	T106 R7W S25, west line to T106 R7W S1, north line	07040003-588	Winona	Mississippi River - Winona	Aquatic Life	Fish bioassessments
Rollingstone Creek	Unnamed cr to Garvin Bk	07040003-533	Winona	Mississippi River - Winona	Aquatic Life	Turbidity
Rollingstone Creek	Unnamed cr to Garvin Bk	07040003-533	Winona	Mississippi River - Winona	Aquatic Recreation	Fecal coliform
Speltz Creek	Preston Valley Cr to Rollingstone Cr	07040003-555	Winona	Mississippi River - Winona	Aquatic Life	Fish bioassessments
Stockton Valley Creek	T106 R8W S23, south line to Garvin Bk	07040003-559	Winona	Mississippi River - Winona	Aquatic Life	Turbidity
Stockton Valley Creek	T106 R8W S23, south line to Garvin Bk	07040003-559	Winona	Mississippi River - Winona	Aquatic Recreation	Fecal coliform
Unnamed creek	Unnamed cr to Whitewater R	07040003-609	Winona	Mississippi River - Winona	Aquatic Life	Benthic macroinvertebrates bioassessments
Whitewater River	S Fk Whitewater R to Beaver Cr	07040003-537	Winona	Mississippi River - Winona	Aquatic Consumption	Mercury in fish tissue
Whitewater River	S Fk Whitewater R to Beaver Cr	07040003-537	Winona	Mississippi River - Winona	Aquatic Life	Turbidity
Whitewater River	Beaver Cr to T108 R10W S1, north line	07040003-538	Winona	Mississippi River - Winona	Aquatic Consumption	Mercury in fish tissue
Whitewater River	T109 R10W S36, south line to Mississippi R	07040003-539	Wabasha	Mississippi River - Winona	Aquatic Consumption	Mercury in fish tissue
Whitewater River	T109 R10W S36, south line to Mississippi R	07040003-539	Wabasha	Mississippi River - Winona	Aquatic Life	Turbidity

Whitewater River	T109 R10W S36, south line to Mississippi R	07040003-539	Wabasha	Mississippi River - Winona	Aquatic Recreation	Escherichia coli (E. coli)
Whitewater River, Middle Fork	Headwaters to T107 R11W S34, east line	07040003-515	Olmsted	Mississippi River - Winona	Aquatic Life	Benthic macroinvertebrates bioassessments
Whitewater River, Middle Fork	Headwaters to T107 R11W S34, east line	07040003-515	Olmsted	Mississippi River - Winona	Aquatic Life	Fish bioassessments
Whitewater River, Middle Fork	Headwaters to T107 R11W S34, east line	07040003-515	Olmsted	Mississippi River - Winona	Aquatic Life	Turbidity
Whitewater River, Middle Fork	Headwaters to T107 R11W S34, east line	07040003-515	Olmsted	Mississippi River - Winona	Aquatic Recreation	Escherichia coli (E. coli)
Whitewater River, Middle Fork	Crow Spring to N Fk Whitewater R	07040003-F19	Winona	Mississippi River - Winona	Aquatic Life	Benthic macroinvertebrates bioassessments
Whitewater River, Middle Fork	Crow Spring to N Fk Whitewater R	07040003-F19	Winona	Mississippi River - Winona	Aquatic Life	Turbidity
Whitewater River, Middle Fork	Crow Spring to N Fk Whitewater R	07040003-F19	Winona	Mississippi River - Winona	Aquatic Recreation	Fecal coliform
Whitewater River, Middle Fork	Crow Spring to N Fk Whitewater R	07040003-F19	Winona	Mississippi River - Winona	Drinking Water	Nitrate
Whitewater River, North Fork	M Fk Whitewater R to S Fk Whitewater R	07040003-523	Winona	Mississippi River - Winona	Aquatic Life	Turbidity
Whitewater River, North Fork	T108 R11W S30, west line to Unnamed cr	07040003-553	Wabasha	Mississippi River - Winona	Aquatic Life	Benthic macroinvertebrates bioassessments

Whitewater River, North Fork	T108 R11W S30, west line to Unnamed cr	07040003-553	Wabasha	Mississippi River - Winona	Aquatic Life	Fish bioassessments
Whitewater River, North Fork	T108 R11W S30, west line to Unnamed cr	07040003-553	Wabasha	Mississippi River - Winona	Aquatic Life	Turbidity
Whitewater River, North Fork	T108 R11W S30, west line to Unnamed cr	07040003-553	Wabasha	Mississippi River - Winona	Aquatic Recreation	Fecal coliform
Whitewater River, North Fork	Unnamed cr to M Fk Whitewater R	07040003-554	Olmsted	Mississippi River - Winona	Aquatic Life	Turbidity
Whitewater River, North Fork	Unnamed cr to M Fk Whitewater R	07040003-554	Olmsted	Mississippi River - Winona	Aquatic Recreation	Fecal coliform
Whitewater River, South Fork	T106 R10W S1, west line to N Fk Whitewater R	07040003-512	Winona	Mississippi River - Winona	Aquatic Life	Benthic macroinvertebrates bioassessments
Whitewater River, South Fork	T106 R10W S1, west line to N Fk Whitewater R	07040003-512	Winona	Mississippi River - Winona	Aquatic Life	Turbidity
Whitewater River, South Fork	T106 R10W S1, west line to N Fk Whitewater R	07040003-512	Winona	Mississippi River - Winona	Aquatic Recreation	Fecal coliform
Whitewater River, South Fork	T106 R10W S1, west line to N Fk Whitewater R	07040003-512	Winona	Mississippi River - Winona	Drinking Water	Nitrate
Whitewater River, South Fork	Headwaters to St Charles Twp Rd 7	07040003-F16	Olmsted	Mississippi River - Winona	Aquatic Life	Benthic macroinvertebrates bioassessments
Whitewater River, South Fork	Headwaters to St Charles Twp Rd 7	07040003-F16	Olmsted	Mississippi River - Winona	Aquatic Life	Fish bioassessments
Whitewater River, South Fork	Headwaters to St Charles Twp Rd 7	07040003-F16	Olmsted	Mississippi River - Winona	Aquatic Life	Turbidity

Whitewater River, South Fork	Headwaters to St Charles Twp Rd 7	07040003-F16	Olmsted	Mississippi River - Winona	Aquatic Recreation	Fecal coliform
Whitewater River, South Fork	St Charles Twp Rd 7 to T106 R10W S2, east line	07040003-F17	Winona	Mississippi River - Winona	Aquatic Life	Benthic macroinvertebrates bioassessments
Whitewater River, South Fork	St Charles Twp Rd 7 to T106 R10W S2, east line	07040003-F17	Winona	Mississippi River - Winona	Aquatic Life	Turbidity
Whitewater River, South Fork	St Charles Twp Rd 7 to T106 R10W S2, east line	07040003-F17	Winona	Mississippi River - Winona	Aquatic Recreation	Fecal coliform
Whitewater River, South Fork	St Charles Twp Rd 7 to T106 R10W S2, east line	07040003-F17	Winona	Mississippi River - Winona	Drinking Water	Nitrate

Appendix J. Full Size Maps

WinLaC Partnership —1W1P—

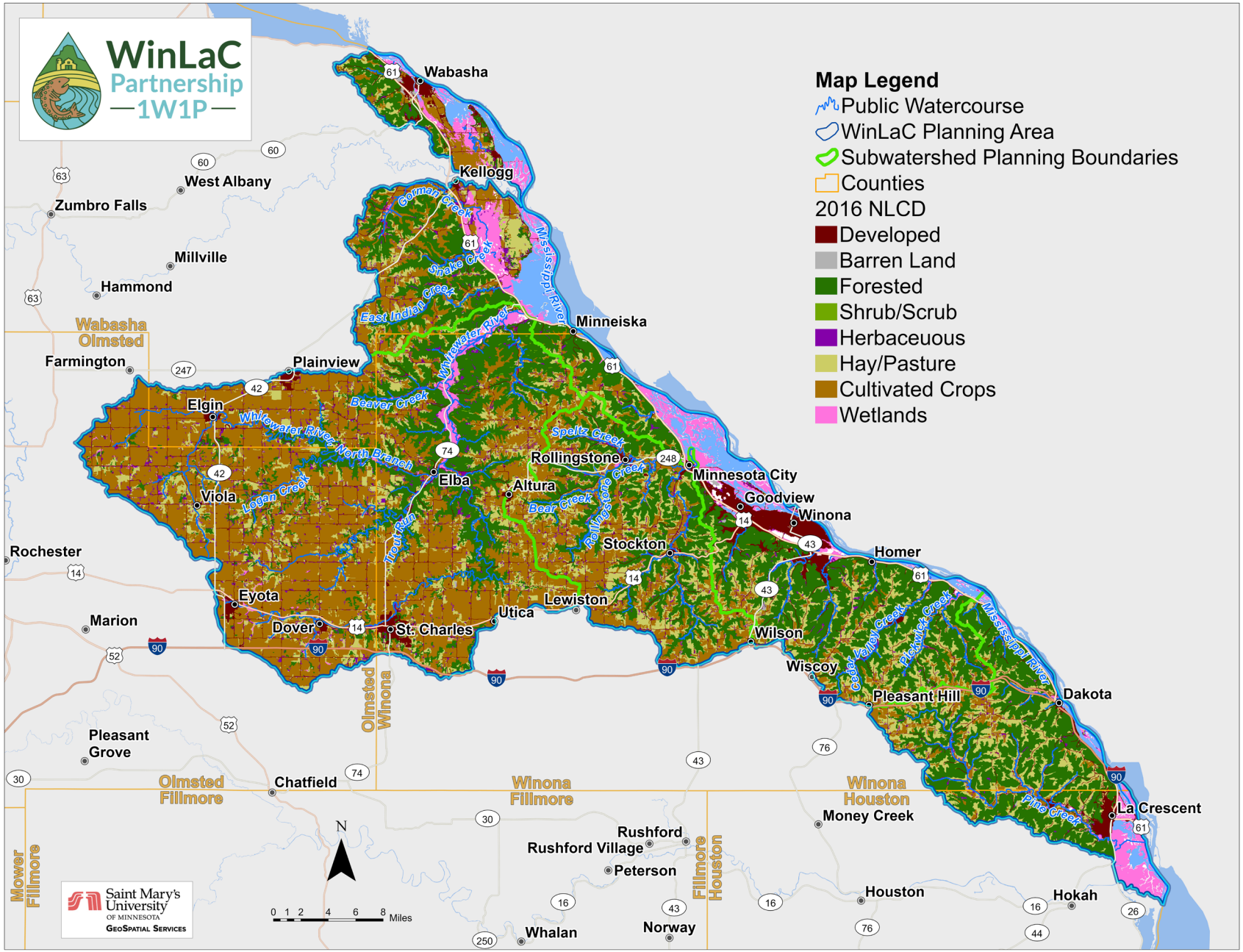

Figure 1. Current land use in the WinLaC. On page 2-3.

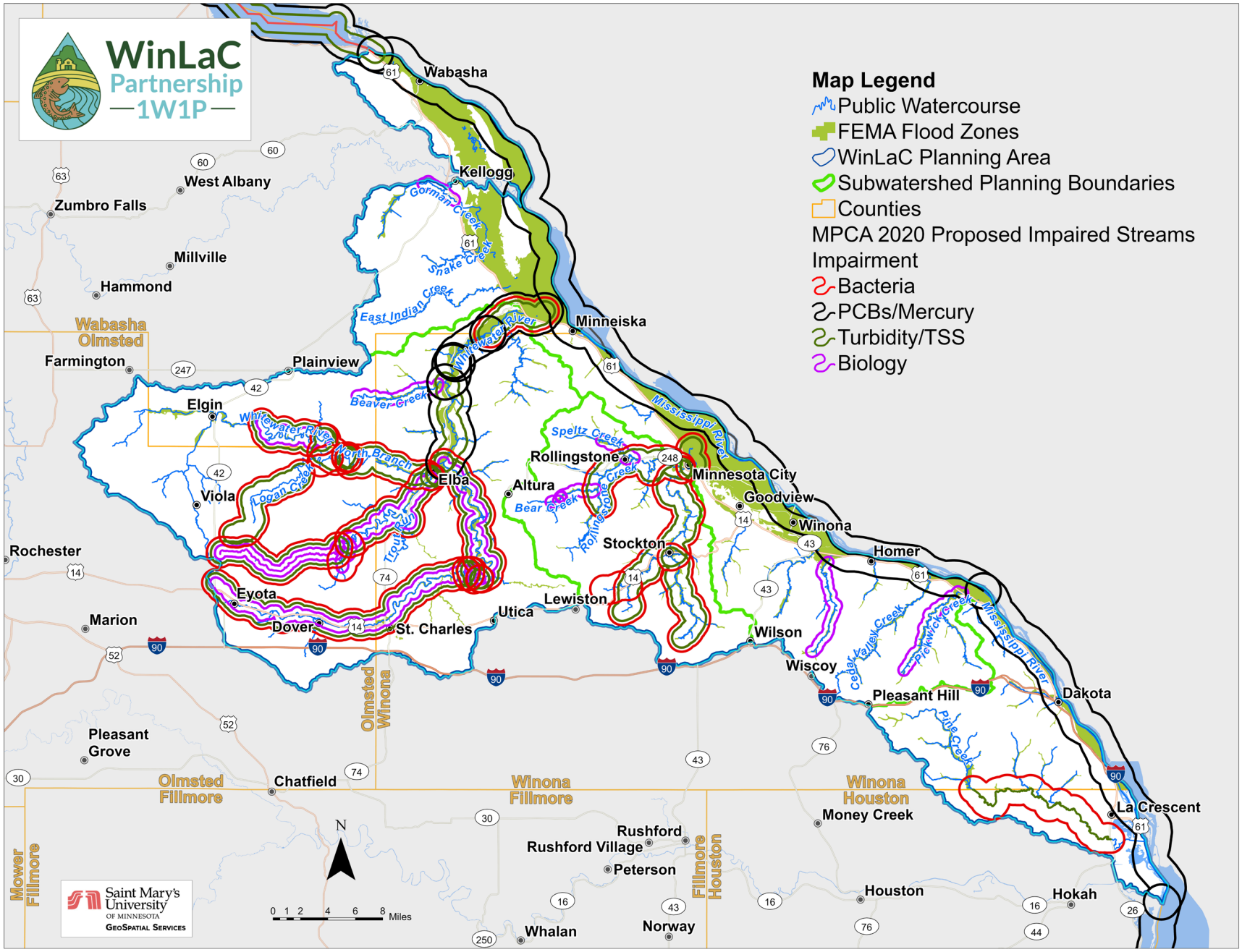

Figure 2. Stream impairments within the WinLaC. On page 2-5.

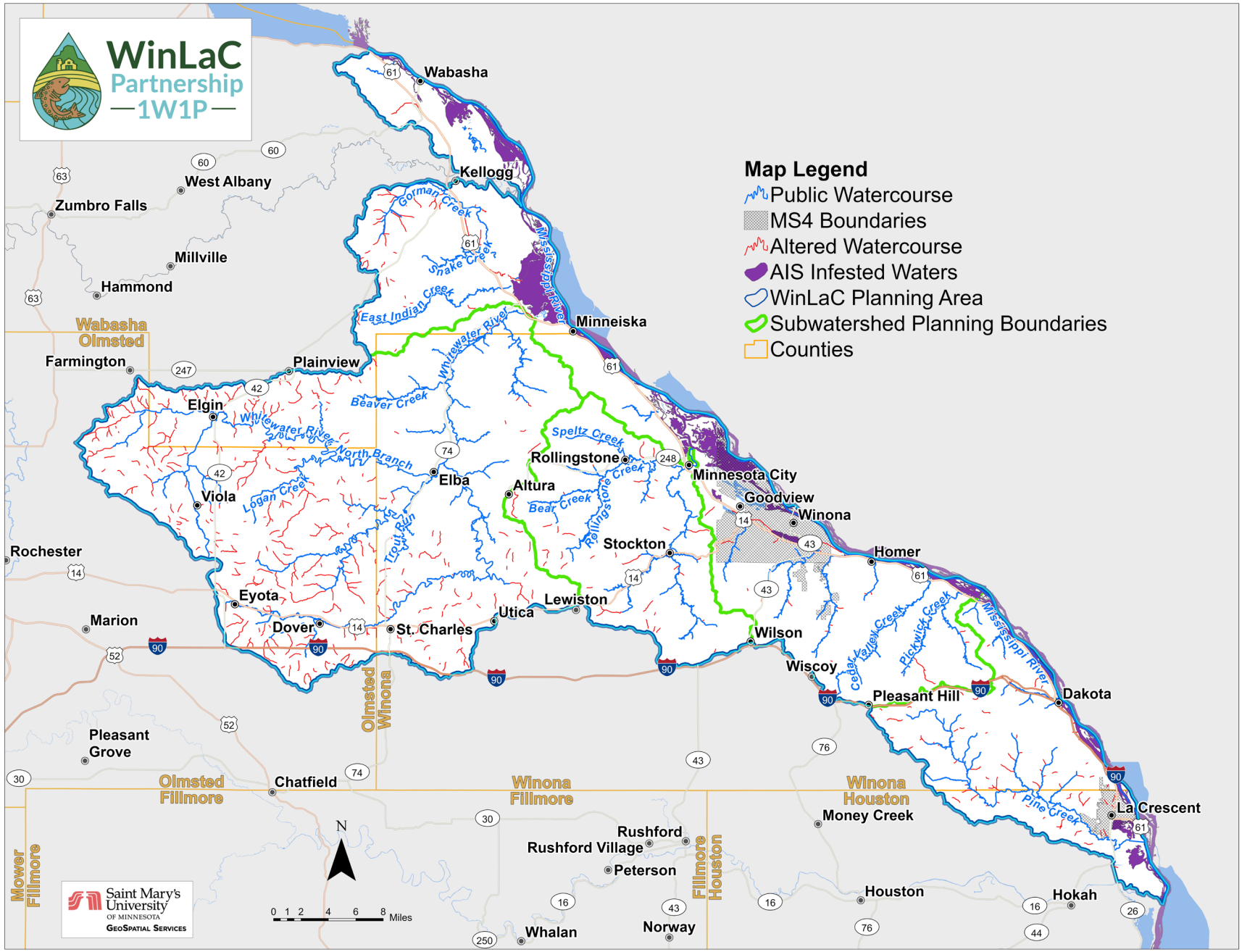

Figure 3. Aquatic invasive species and altered watercourses within the WinLaC. On page 2-6.

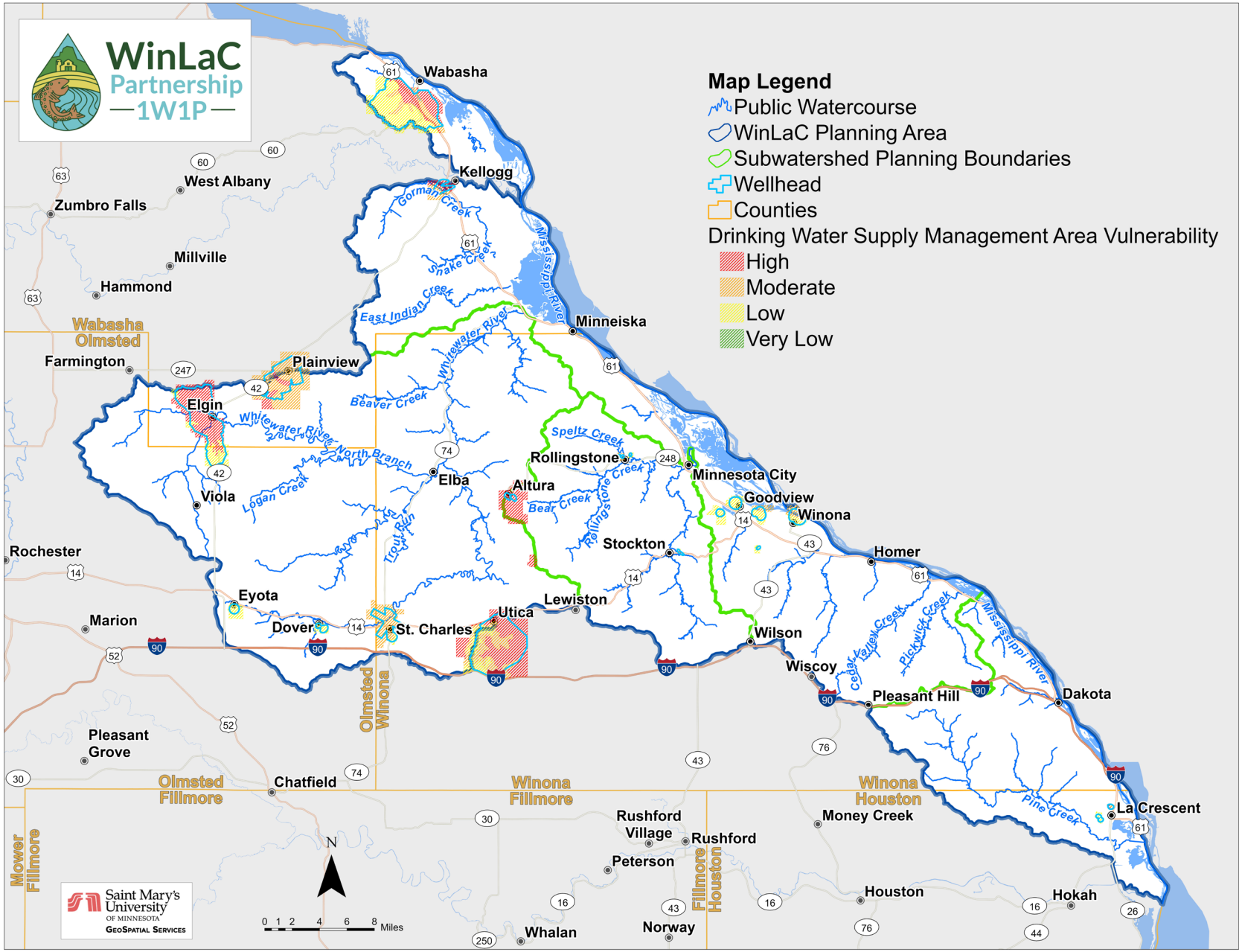

Figure 4. Drinking Water Supply Management Areas within the WinLaC. On page 2-8.

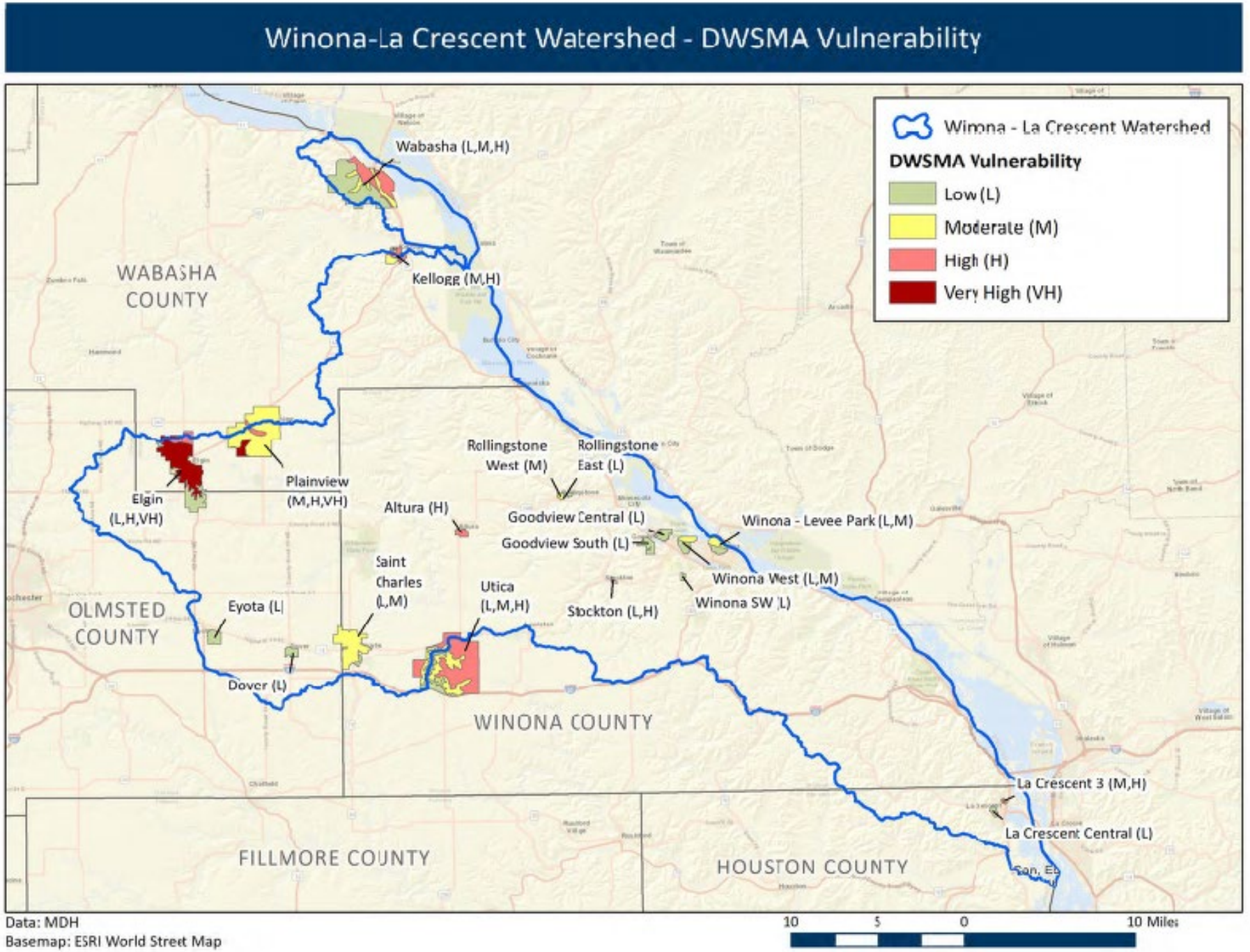

Figure 5. Labeled DWSMAs in WinLaC; map provided by MDH.

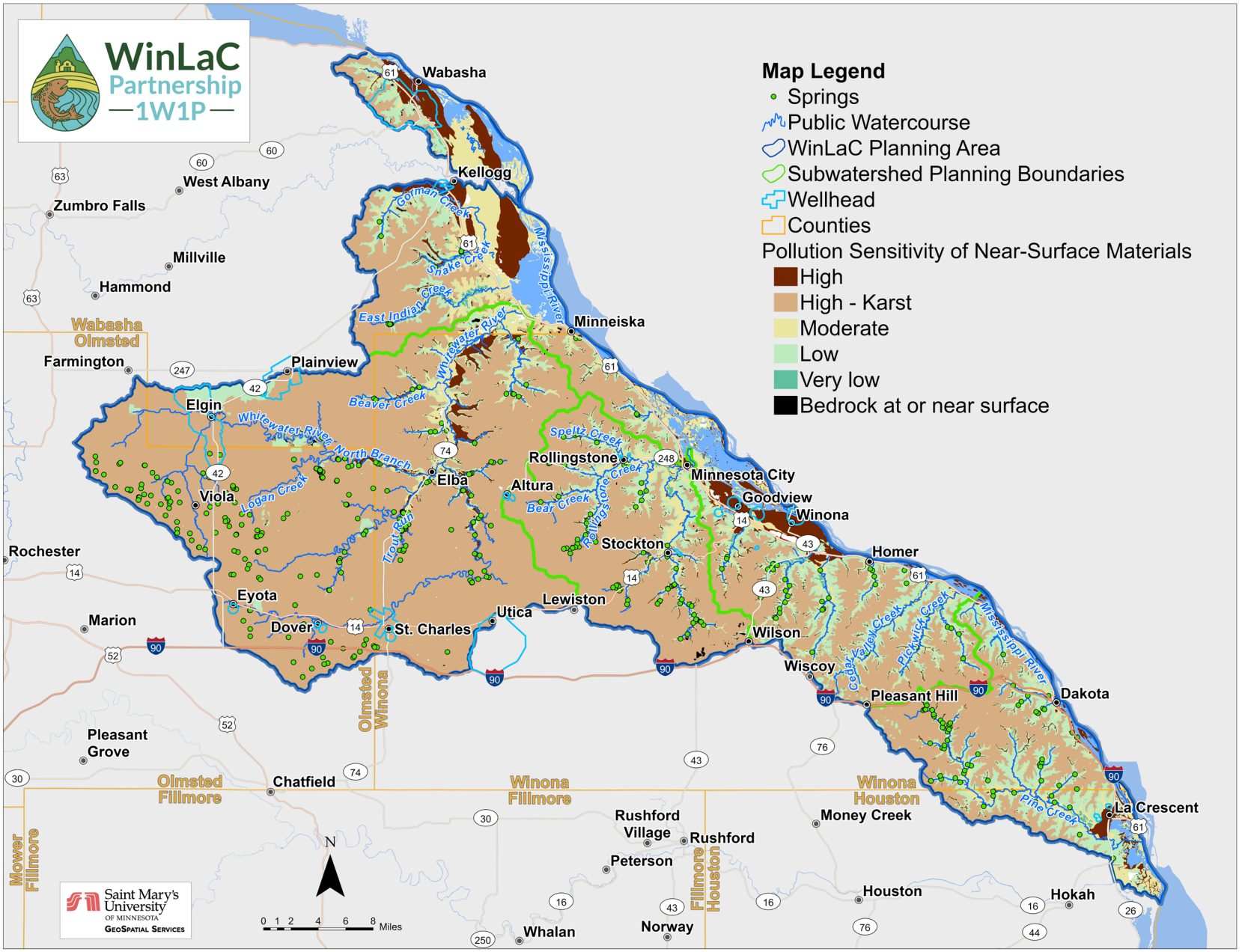

Figure 6. Pollution sensitivity of Near-Surface Materials within the WinLaC. On page 2-9.

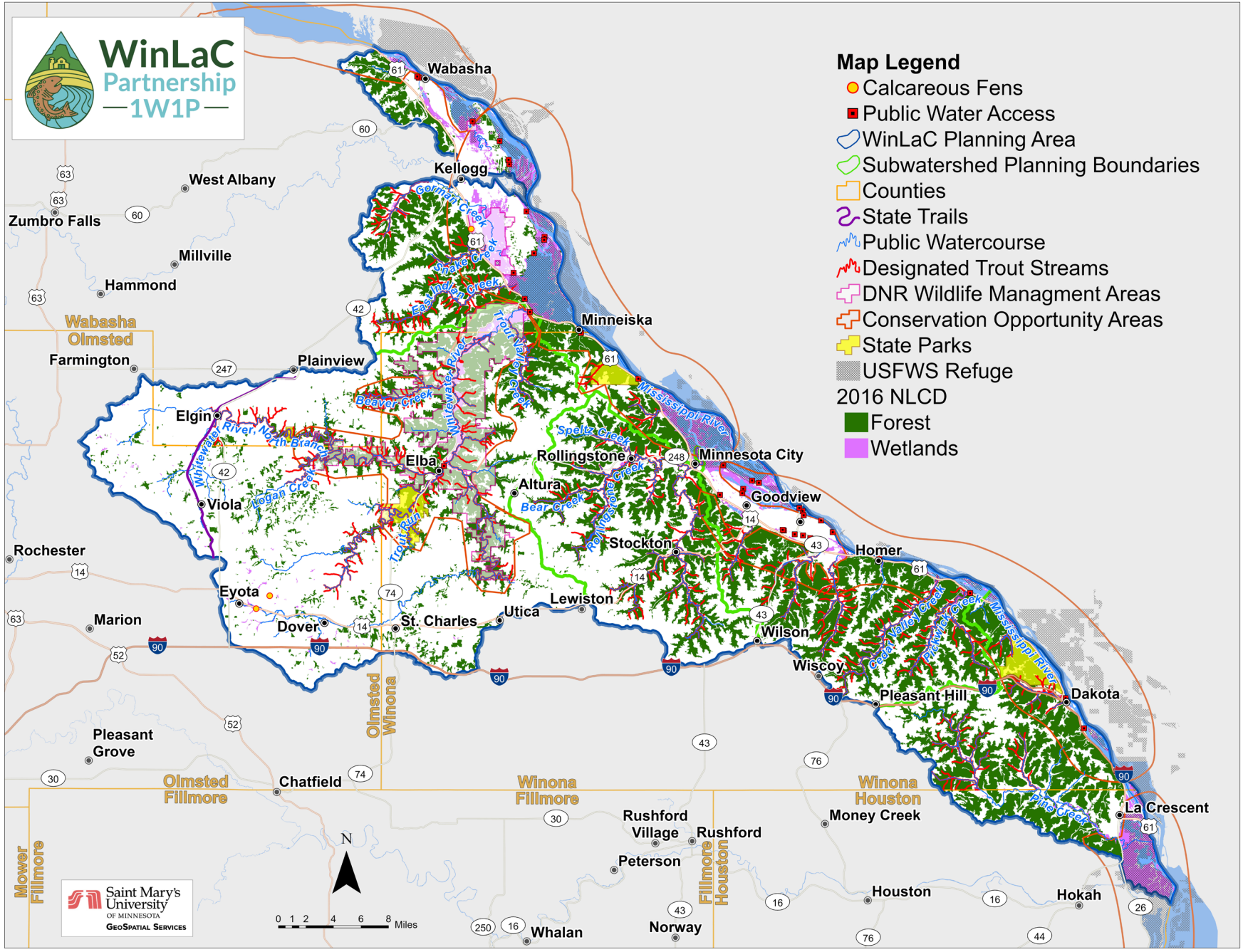

Figure 7. Habitat resources within the WinLaC. On page 2-12.

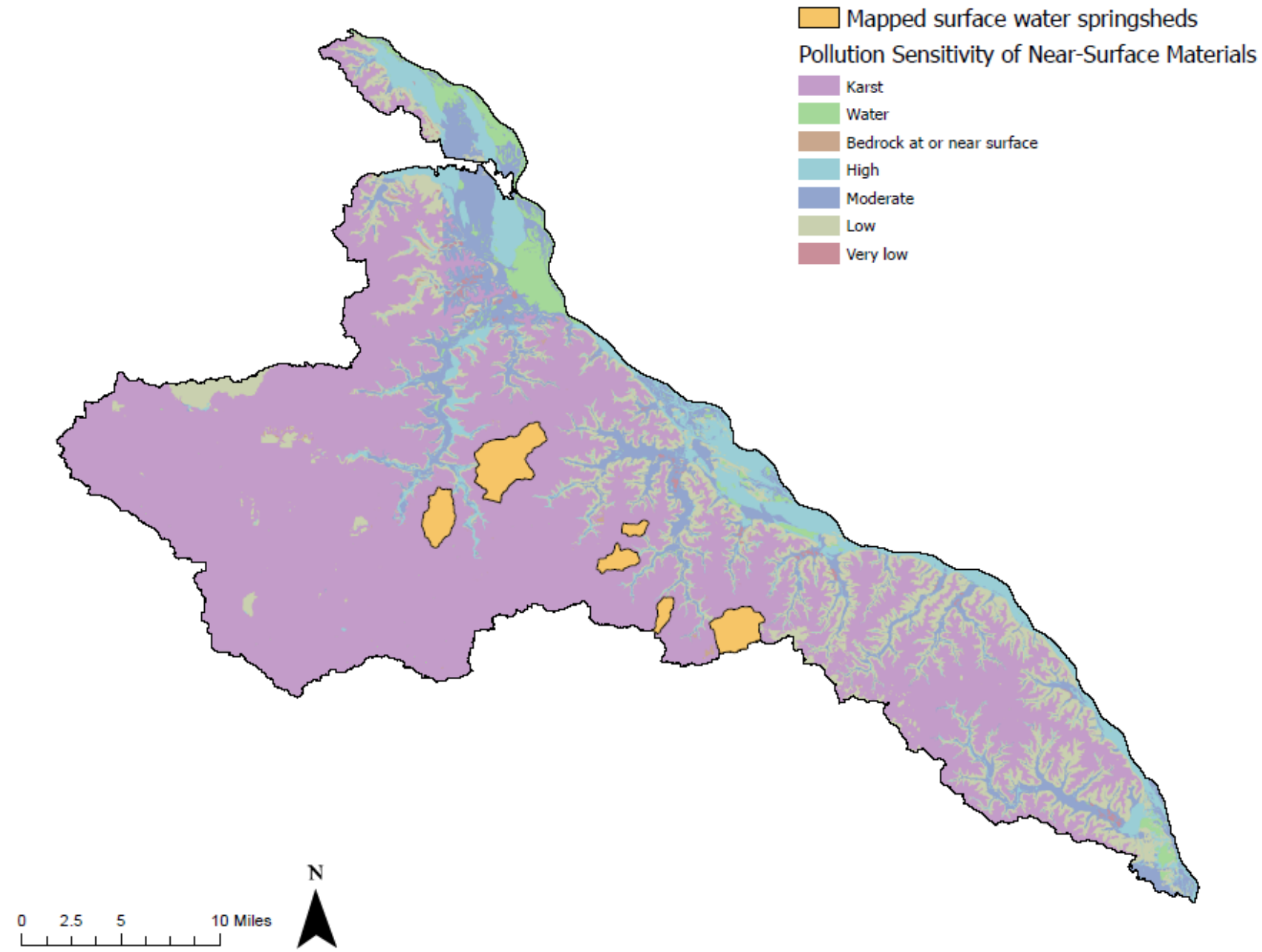

Figure 8. DNR mapped springsheds within the WinLaC. GIS files from MNDNR.

Appendix K. References

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Appendix L: Formal Review Comment and Response Table

WinLaC Partnership —1W1P—

WinLaC 1W1P

Formal Review and Public Hearing: Response to Comments

KEY

Material Comments represent changes in material and content of the plan.
Editorial Comments represent spelling, grammatical, clarification, or visual issues.
Note Generally consist of a statement expressing a perspective.

Commenter	Comment #	Section	Page/ Figure	Comment	Material	Editorial	Note	Plan Change Made (Yes/No)	Comment Response / Action
BWSR	1	4		Page 4-2: BWSR recommends additional narrative describing the short-term goal to recognize the lack of available tools or models that can estimate nitrogen loading to groundwater through leaching. The narrative should also clarify that PTMApp is being used as a surrogate for this issue, since it measures overland nitrogen loading.	x			Y	Language will be added to the plan to address PTMApp's limitations and use as a surrogate for vertical leaching. See response to MPCA Comment #2.
BWSR	2	4		Pages 4-6 and 4-7: "Number of incentives" is listed as the indicator for the short-term goal on the karst issue, but no specific value is provided on the number of incentives to make this a measurable goal.	x			Y	Metric revised to match output numbers in Action Table (one workshop per year)
BWSR	3	4		Page 4-10: Our previous comment asking for the Lake Winona phosphorus reduction goal to be provided as a load was addressed. However, the value entered (94 pounds per year) does not match the goal provided on page 23 of the Lake Winona Water Quality Improvement Plan. That plan utilized updated monitoring and modeling after the 2016 TMDL was completed for Lake Winona. To meet state water quality standards, that plan found that total phosphorus must be reduced by 210 pounds (15% reduction) from the watershed entering the Northwest Bay, followed by an in-lake alum treatment and 46-pound reduction in total phosphorus from the direct watershed for the Southeast Bay.	x			Y	Load goal revised to mirror the Lake Winona Water Quality Improvement Plan. Language about alum treatment added to 4-10 narrative.
BWSR	4	5		Page 5-23: For Action #8 (well water system upgrades), the output was changed to "number of systems upgraded" but a specific value is not provided which does not fully address our previous comment that a measurable output is needed.	x			Y	Revised language to "water treatment systems" instead of water softeners , with an output of 7 / year
BWSR	5	5		Page 5-24: For Action #11 (drainage management), our previous comment has not been addressed regarding a measurable output. A specific number of drainage management projects, field days, and/or communications should be provided to address this.	x			Y	Revised to: Output: one written communication over 10-year plan Cost: $2,000 Timeline: 2025-26
BWSR	6	5		Page 5-25: For Action #6 (cover crop benefits), the output was changed to "number of farmers engaged with for soil testing" but a specific value is not provided which does not fully address our previous comment that a measurable output is needed.	x			Y	Output revised to combine with previous action items: 2 educational and outreach events per year to promote and evaluate soil health practices
BWSR	7	5		Action Tables in Section 5: The footnote explanation for the estimated cost of each action is confusing. Since the asterisks only appear next to PTMApp cost estimates, it could be interpreted from the explanation that those estimates include both PTMApp costs and other costs. We recommend considering a different method of differentiating between PTMApp estimates and other estimates, such as a "P" symbol next to the PTMApp estimates.		x		Y	Footnote revised as suggested
BWSR	8	5		Page 5-17: For Action #6 (water storage), the output is listed as "1 flood control structure" but the timeline has 2 structures over the 10-year period.		x		Y	Timeline revised to match 1 flood control structure
BWSR	9	6		Page 6-5: The BWSR Drinking Water Protection Grant should be removed from the list of programs currently available for groundwater monitoring efforts.		x		Y	Program removed as suggested
BWSR	10	Acronyms		Acronyms section: There are two "CWMP" acronyms listed. The first one is a typo and should be "CWMA" for Cooperative Weed Management Area.		x		Y	Acronym revised as suggested
MDA	1	General		The comments and suggestions provided by the MDA as a part of the advisory committee have been effectively addressed. As written, we believe this plan sufficiently addresses the priority concerns for groundwater that were indicated in our initial comment letter for this plan. Nitrate in groundwater is a high priority resource concern for the MDA and the plan contains several items that address this concern. As we reviewed this plan, the MDA appreciates how Drinking Water Source Water Management Areas (DWSMAs) were targeted for groundwater protection and the inclusion of the Township Testing Program results. Thank you for including reference to a few of the MDA programs in this plan including, Minnesota Ag Water Quality Certification Program, Ag BMP Loan program and the Nutrient Management Initiative. We look forward to working together on these programs.			x	N	Comment noted, with thanks
MPCA	1	General		The Plan adequately addresses the following priority concerns submitted by the MPCA staff dated April 20, 2021. [Please see comment letter for detailed list]			x	N	Comment noted, with thanks

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MPCA	2	4		The MPCA acknowledges that the PTMApp tool was used to estimate nutrient reductions of various best management practices (BMPs) for the Plan. While the MPCA supports the use of this tool, it is known that PTMApp does not target the primary transport mode of N for karst areas like the WinLaC Watershed nor does it offer reductions for the most appropriate N reduction BMP (nutrient management/source control). Structural BMPs (water and sediment control basins (WASCOBs, filtration strips and several others listed in Appendix G) are not effective in reducing vertical leaching loss of N to groundwater. It is recommended that the Groundwater Contamination and Nitrates factsheets (Page 4-2 and 4-3) acknowledge these two shortcomings of PTMApp, while also acknowledging that the activities in Section 5 of this Plan will aim to address N leaching. And, that the overland reduction goals should be considered a surrogate for a vertical leaching reduction goal. Example narrative could include: a. Page 4-2 paragraph 4: Replace "structural field practices, alternative cropping systems, perennial cover, and nutrient management plans," to read: "alternative cropping systems, perennial cover and nutrient management (source control). b. Page 4-2 under Short-Term Goal: Include an asterisk in the indicator bullet narrative and add footnote: "PTMApp estimates N reduction from overland transport, which is not the primary mode of N transport in the WinLaC. While this deficiency exists, PTMApp is the best available tool for developing numeric N reduction goals at this time. The overland reduction goal is considered a surrogate for a vertical leaching reduction goal. Activities listed in Section 5 will aim to address N leaching into groundwater."	x			Y	Plan revised with language as suggested. Action revised to include "nutrient and manure management."
MPCA	3	4		In the Streams factsheet on Page 4-17, the map shows priority restoration and protection surface waters for habitat improvement projects. The South Branch Whitewater River section identified as a restoration priority appears to be a lot longer than the recommended area submitted by the habitat improvement sub-group. The subgroup recommended targeting an area of the South Branch Whitewater above and below Crystal Springs. It appears the map on Page 4-3 has a more extended area than the targeted area near Crystal Springs. The area that this extension highlights is in the WMA with little road crossings and difficult access. It may not be capturing the intent of the habitat improvement sub-group's recommendation. It's encouraged that this map be reviewed and revised.	x			Y	Map revised to reflect comment
MPCA	4	General		Adding a list of tables and figures to the Plan as well as numbering corresponding tables and figures.		x		Y	List added
MPCA	5	2		Caption of Figure 2-3 (Page 2-5): recommend replacing "PCBs/metals" with "PCBs/Mercury."		x		Y	Caption revised accordingly
MPCA	6	4		On Page 4-2, consider adding the following additional secondary outcomes: • Addressing N stressors to aquatic life; • Meeting Minnesota Nutrient Reduction Strategy goals • Meeting trout stream goals		x		Y	Outcomes added as suggested
MPCA	7	4		On Page 4-3, consider referencing the map on Page 5-6 to specify that targeted N reduction will be focused on the headwater areas of the Whitewater River planning area where there is a higher density of agricultural land compared to middle and lower areas of the watershed.		x		N	Map is intended to only reflect groundwater nutrient issues
MPCA	8	4		Page 4-8 (Nutrients Factsheet): While mentioning the two N impaired streams in the WinLaC watersheds, it's also recommended to include the streams identified as have N as a stressor to aquatic life: North Branch Whitewater, Middle Branch Whitewater, South Branch Whitewater, and Bear Creek		x		Y	Language added to include streams with nitrate as a stressor
MPCA	9	4		Recommend including citation for Lake Winona water quality improvement plan referring to on Page 4-10; and add citation to list of References in Appendix K.		x		Y	Citation added and goal revised per BWSR Comment #3

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MPCA	10	5		Due to do the historic fish kills in the WinLaC Watershed (South Branch Whitewater (2015), Garvin Brook (2019), Trout Valley Creek (2021), the MPCA finds it appropriate to acknowledge how the existing goals identified in the Plan work to reduce the likelihood of future fish kills. The MPCA recommends that the Plan acknowledge that fish kills have occurred in the past (consider adding narrative to the Trout Streams factsheet (4-22) and that the Plan, while voluntary in nature, will work to reduce future risk if goals are achieved. Continuing to coordinate and develop tools for identifying and targeting high risk areas prone to contributing to fish kills when conditions occur is one thing this Plan could list as a goal. An example of a tool would be MDA's Runoff Risk Advisory tool which all partners in the WinLaC could share on their websites. Other tools could be developed by Local and State partners and would take a coordinated effort. Because of this, the Partnership is encouraged to add the following task to the Action Table on Page 5-23 (could be categorized as Water Quality): a. Continue to develop and discuss tools and information needed to reduce the risk of future fish kills. • Output: 2 meetings/year • Focus area: watershed-wide • Lead and Partners: SWCD, County, MPCA, DNR, MDA, MDH • Timeline: All years • Funding level: 2 or 3 • Estimated cost: ??	x			Y	Fish kill language added to trout factsheet as recommended. Action item added to 5-24 as specified below, with resource defined as "Streams". Action added: Continue to develop and discuss tools and information needed to reduce the risk of future fish kills. • Output: At least 1 regional meeting/year • Focus area: Trout Stream Priority Subwatersheds • Lead and Partners: **MPCA**, DNR, MDA, MDH, County (Emergency Management), SWCDs • Timeline: All years • Funding level: 3
MPCA	11	4		Water storage is an important goal in the Plan (10,000 acre-feet). PTMApp scenarios ran estimate 167 acre-feet of storage, and the Plan indicates that the remaining 9,833 acre-feet of storage will come through capital improvement projects (CIPs). For ease of tracking, it is recommended that the Plan capture this storage goal for CIPs somewhere in the Plan (perhaps within the CIP table on Page 5-27 or under the short-term goal on Page 4-14 adding under "Indicator: Acre-feet of storage added": a. Approximately 167 acre-feet of targeted practices b. Approximately 9,833 acre-feet from CIPs	x			Y	Revised as suggested, and also included "flood control structures"
MPCA	12	5		The groundwater and surface water reduction goals listed for Garvin Brook Planning Region (Page 5-10 and 5-11, respectively) do no match the PTMApp outputs listed on Page 8 of Appendix G (Plan TN reduction: 58,869 lbs/yr v. PTMApp TN reduction: 50,548 lbs/yr, Plan TP reduction: 2,311 lbs/yr v. PTMApp output: 2,304 lbs/yr, Plan Sediment reduction: 6,059 T/yr v. PTMApp: 6,029 T/yr). Should these values be identical? a. Also, double check the reduction goal values listed for Whitewater and La Crescent planning areas (appear to be off from PTMApp values by one digit).		x		Y	Numbers revised for consistency
MPCA	13	5		It was discussed during the Plan's internal review that Gorman Creek (Small Tributaries Planning Regions) would be changed in priority from medium to high. The map on Page 5-19 has yet to be updated to show this change in priority.		x		Y	Map revised as suggested
DNR	1	General		Issue: Excessive Sediment Loading The implementation table includes an action to identify problem stream erosion sites. We believe this action could be expanded to include an evaluation of sediment sources. Sediment sources in the WinLaC planning area have not been studied, except in the Whitewater River system. A DNR study there found that on average, in-channel sources are contributing 72% of the sediment in the Whitewater system. The DNR could work with partners to conduct similar evaluations elsewhere in the planning area to identify areas to target for sediment load reductions. Consider adding the following to the implementation table: Work with DNR Central Region clean water staff to conduct subwatershed sediment sourcing studies and implement projects to address in-channel sediment loading.	x			Y	Language added to 4-16 about in-channel sources from WARSSS Add action as recommended on Page 5-24 with: Action: Work with DNR Central Region clean water staff to conduct subwatershed sediment sourcing studies and implement projects to address in-channel sediment loading. Resource: Streams Output: Annual meeting Lead: DNR Funding Level 2
DNR	2	General		Issue: Streams We believe the goal of restoring two miles of channel is too low and recommend increasing the goal. There are many opportunities to collaborate on channel and habitat restoration projects that would greatly benefit both water quality and flood reduction. DNR staff and Trout Unlimited can help partners prioritize and target projects and guide their implementation. We understand that projects of this type are expensive and would likely not be funded by Watershed Based Implementation Funding. Additionally, there are many Aquatic Management Areas on trout streams in the planning area that provide angler access and allow for habitat improvements to be considered. Consider adding the following to the implementation table: Work with DNR staff and Trout Unlimited to complete channel and habitat restoration projects on five miles or more of stream in locations most beneficial to achieving water quality and habitat goals.	x			N	Local partners recognize the value in partnering with entities such as DNR and Trout Unlimited in streambank restoration projects. Goal is designed to be attainable in the 10-year plan. Action item "Provide support to landowners to maintain and/or enhance shorelines and streambanks; enhancement or repair of buffers (e.g., enhanced buffers; willow staking)" lists DNR and Trout Unlimited as partners, with streambanks prioritized during the planning process with local and agency knowledge.

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DNR	3	General		Issue: Water Storage There has been a recent statewide emphasis on increasing water storage to reduce flooding. The plan offers multiple potential actions that will support the goal of adding 10,000 acre-feet of water storage. We suggest adding more clarity regarding how capital improvement projects would help achieve this goal. The DNR supports the use of wetlands and floodplain reconnection for reducing peak flows, but we are concerned about the potential use of on-channel flood retention structures. We also suggest adopting minimal impact design standards for water storage in new land development projects. The Capital Region Watershed District provides an excellent design standard example. Additional information is also available from the DNR's minimum impact design standards website. Consider adding the following to the implementation table: Adopt minimal impact design standards for water storage in new land development projects.	x			Y	See response to MPCA Comment #11
DNR	4	General		Issue: Nitrogen Nitrates are a major concern for drinking water protection and an increasing concern for surface water resources in the planning area. The Root River Field to Stream Partnership determined that up to 85% of nitrogen loss occurs by leaching. The plan's short-term goal for overland nitrogen loss is a 4% annual reduction (pages 4-2 and 4-8) but reducing nitrogen leaching would appear to be more effective in addressing nitrogen loss and resulting contamination. We believe the plan would be improved with the addition of a nitrogen reduction goal for leaching loss since this is the largest contributor of nitrogen to surface and groundwater. A goal for leaching loss could be established by applying the above-mentioned 85% leaching loss estimate to the overall goal of reducing nitrogen loss by 4% (390,300 lbs/yr). Consider adding the following to the implementation table: Reduce leaching loss of total nitrogen by 331,755 lbs. annually by implementing cover crops, converting marginal agricultural land to perennial cover, and nutrient management planning.	x			N	See response to MPCA Comment #2. Actions are already included in the plan for cover crops, perennial cover, and nutrient management planning, which will accrue multiple benefits toward multiple issues and goals.
DNR	5	General		Issue: Fish Kills Three major fish kills have occurred in the planning area since 2015. Another significant kill occurred on Rush Creek in 2022, which was just outside the boundary of the planning area. These kills are most often caused by runoff of land applied manure or agricultural chemicals. The MDA Runoff Risk Advisory Forecast is a tool developed to help farmers determine when it is safe to apply manure. This tool is easily accessible and simple to use. The plan should promote the use of this tool and illustrate how goals related to manure management and runoff reduction will help reduce the occurrence of fish kills. We recommend adding the following action to the implementation table: Promote the use of the MDA Runoff Risk Advisory Forecast as a tool to reduce the risk of fish kills.	x			Y	See response to MPCA Comment #10.
MDH	1	General		MDH commends the plan partners for including drinking water as a priority concern.			x	N	Comment noted, with thanks
MDH	2	General		Comments below are in addition to those made during the plan development process. MDH staff shortages at the time the plan was being finalized resulted in our need to submit additional technical comments related to groundwater during this 60 day review period.			x	N	Comment noted, with thanks
MDH	3	General		Most flow in streams is the result of baseflow- both via seepage and focused (spring) discharge - surface water and groundwater are closely linked minimal overland flow is not sustained. Surface water bodies are largely limited to streams in valley bottoms			x	N	Comment noted for implementation
MDH	4	General		Layered (stacked) aquifer system produces baseflow with longer residence times moving west to east - to the east, response time in stream water quality to changes in land use practices on the bluffs will be typically longer (many decades) than the plans lifespan of ten years - conversely, uppermost aquifers will have a more rapid response, reflected in upper spring and seepage water quality			X	N	Comment noted for implementation
MDH	5	General		Much of the region is characterized by rapid infiltration due to thin sediment cover (typically less than 50 feet) over permeable bedrock. The majority of water entering the uppermost aquifers is via infiltration rather than overland flow to sinkholes			X	N	Comment noted for implementation
MDH	6	General		Although groundwater travel times in portions of uppermost, vulnerable aquifers can be as shoret as hours to days, average residence times in these same aquifers are ten years or longer, and average residence times in deeper aquifers are many decades longer still. Given the ten year lifespan of this plan, aquifer-specific groundwater reduce management goals are recommended.	X			N	Comment noted for implementation. For purposes of this plan, groundwater management activities are prioritized in locations that overlay shallow aquifer resources.
MDH	7	ES	ES-7	The bullet points under Monitoring and Studies raises questions expected to be answered in the report. For water quality monitoring will this include streams, wells, springs, etc.? For groundwater trend analysis will this apply to both quality and quantity and how close are those trends measured?		x		Y	These are example actions. Text prior to figure and figure caption revised to clarify that specific actions are included in Section 5 action tables.
MDH	8	2	2 and 3	Consider including a timeline of agricultural production (output per some spatial metric): dairy, livestock, crop type from 1950 to present, and covers residence time for upper aquifers (1990 too present for upper-most vulnerable aquifers). This could be helpful in understanding the changes in water quality to both upper and lower aquifers over time.	X			N	Comment noted but text unchanged

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MDH	9	2	4	As a general comment mentioned above, streamflow is primarily from sustained seepage (baseflow) and focused (spring) discharge, rather than overland flow. - edit 4th paragraph, last sentence, to: " The upper reaches of these creeks and their confluences with the Mississippi River are not designated trout streams; however, the main creek stems are all either trout streams or trout stream tributary designations *due to baseflow contributions from lower aquifers* - edit 6th paragraph, first sentence, to: "Due to *shallow depth-to-bedrock conditions, significant relief, and highly permeable (karsted) bedrock geology* , there are very few lakes within the WinLaC watershed." In shallow bedrock conditions, water entering the subsurface through rapid infiltration below the root zone predominates over the landscape and greatly exceeds overland flow through sinkholes.		X		Y	Text revised as suggested
MDH	10	2	7	Edit last sentence, in reference to DWSMAs - "These boundaries provide an opportunity to prioritize specific geographic areas for *public* drinking water.."		X		Y	Text revised as suggested
MDH	11	2,4	-7,2-8, 4-	MDH recommends language be added that "No water supply is ever completely free of contaminants. Drinking water standards protect Minnesotans from substances that may be harmful to their health. Some contaminants, such as arsenic and manganese, occur naturally in our environment. Other contaminants enter our water supplies as a result of our own behaviors. Fertilizer and pesticides in run off from lawns and farm fields, cleaners and personal care products that go down household drains, and industrial leaks or improper waste disposal can all lead to water contamination." Source: https://www.health.state.mn.us/communities/environment/risk/guidance/gw/index.html	X			Y	Paragraph added to Page 2-8
MDH	12	2,4	-7,2-8, 4-	MDH also recommends adding language about human health impacts from nitrate and groundwater contamination. Suggested language includes: "Consuming too much nitrate can affect how blood carries oxygen and can cause methemoglobinemia (also known as blue baby syndrome). Only recently has scientific evidence emerged to assess the health impacts of drinking water with high nitrate on adults. A growing body of literature indicates potential associations between nitrate/nitrite exposure and other health effects such as increased heart rate, nausea, headaches, and abdominal cramps." Source: https://www.health.state.mn.us/communities/environment/water/contaminants/nitrate.htmlhttps://www.health.state.mn.us/communities/environment/water/contaminants/nitrate.html	X			Y	Paragraph added to paragraph one on Page 4-2 and LWRN to include language about ESRI hub from Olmsted for nitrate remediations, Drinking Water Standard, and public health impacts.
MDH	13	2	8	Edit text to "It shows the areas on the landscape most sensitive to potential groundwater pollution ~~based on water table depths and soil textures~~. Karst ~~features~~ *areas* have the highest ranking for pollution sensitivity *due to shallow depth-to-bedrock conditions* . ~~with bedrock being the lowest ranking due to relative impermeability.~~" As a comment, the statement as written in the plan may be true for most of the state, but not in Southeastern Minnesota, where the water table is generally deep and soil textures are more permeable. Shallow depth-to-bedrock conditions and karsted bedrock are the primary reasons for sensitive map unit assignment.		X		Y	Text revised as suggested
MDH	14	2	2-8, J--4	Update Altura Drinking Water Supply Management Area (DWSMA) to match the other maps in the plan that contain the updated DWSMA.		X		Y	Map revised as suggested
MDH	15	2,4	2-8, 4-3	The plan references the vulnerability of the public water supply DWSMAs. It would also be useful if the plan references which public water suppliers have increasing nitrate levels under the Groundwater Protection Rule. The Minnesota Department of Agriculture determines the mitigation levels for community water supply wells and their DWSMAs that have MCL midpoint and increasing levels of nitrate-nitrogen. Consider including information from this website in the plan: https://www.mda.state.mn.us/mitigation-level-determination	X			Y	The website will be included as a reference in the plan.
MDH	16	4	2	MDH would like to echo comments made by the Minnesota Pollution Control Agency and Board of Water and Soil Resources regarding PTMApp estimates for nitrate reduction in groundwater. The MDH initial priority concerns letter also referenced the limitation of PTMApp for groundwater. In the plan targets are evaluated using PTMApp (model predictions). In regard to the application of PTMApp to layered aquifer systems they are catchment-based. Lower aquifers, in particular, do not correspond with watershed boundaries which could result in the model producing flux estimate errors. As an example, model-predicted results from bluffland land use changes in eastern Winona County will not be consistent with water quality in valley-bottom streams, where baseflow contributions come from lower aquifers with longer residence times. Alternatively, springs at different layers (shallow and deeper stratigraphic intervals) are ideal monitoring spots because they integrate flow and water quality over springshed extent, providing comprehensive and continuous monitoring potential from short term response to precipitation events, to longer term response to land use and climate change	x			Y	Language will be added to the plan to address PTMApp's limitations and use as a surrogate for vertical leaching. See response to MPCA Comment #2.

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MDH	17	4	2	The desired future condition is "Decreasing nitrate trends for all tested public drinking water supplies and private wells above 3 parts per million (ppm)." MDH would like to emphasize that understanding the residence times of shallow and deep aquifers in this watershed, along with historic land use, helps frame expectations for reaching this desired condition. The uppermost aquifers (Galena and Prairie du Chien) have widespread nitrate concentrations greater than 10 ppm. This condition has been decades in the making and will take longer than this ten-year plan lifespan to reverse. Many of the public water supplies completed in deeper aquifers and that are showing a slow steady increase in nitrate concentrations will take even longer to reverse.			X	N	Comment noted. The Desired Future Condition goal describes the desired future condition of a resource that planning partners would like to see, without a given time constraint.
MDH	18	4	6	Edit third paragraph to "Because the surface/groundwater interaction is difficult to predict, and groundwater can be impacted readily by surface contamination, it is very important to address and minimize contamination ~~around sinkholes and springs that have direct connections between the surface and groundwater systems~~ *in shallow depth-to-bedrock areas. Much of the area is less than 50 feet to bedrock. Therefore priority areas are widespread and are shown on Figure 2-6, Pollution Sensitivity of Near-Surface Materials within the WinLaC as High- Karst."* MDH would like to emphasize that while it is important to minimize contamination everywhere, springs are groundwater discharge features so they may be less impactful to groundwater quality than recharge areas.		X		Y	Text revised as suggested
MDH	19	4	22	The short term goal is that five additional springsheds are mapped. MDH recommends including DNR Groundwater Atlas program to Table 7-4 Implementation programs and related funding sources for the WinLaC watershed. Also please note that the Groundwater Technical Analysis Workgroup can be a partner in the springshed mapping efforts. Groundwater Technical Analysis Work Group | Minnesota DNR (state.mn.us)	X			Y	Program added to Table 7-4 and workgroup noted for implementation efforts
MDH	20	4	23	Work to be done includes "Improve understanding of groundwater connectivity to streams." MDH would like to note that the Department of Natural Resources Fisheries and the University of Minnesota have data on cold water reaches that correspond well with County Geologic Atlas bedrock maps – showing geologic contacts where preferential baseflow is known to occur. Baseflow is the dominant contributor to streamflow; as streams incise deeper into bedrock valleys they access baseflow with longer residence times. This impacts the response time of stream water quantity and quality to changes in land use and climate.			X	N	Comment noted for implementation with thanks
MDH	21	5	23	Consider edits to the first action to "Provide ~~annual well testing workshops or~~ outreach opportunities to all communities with MDH approved Wellhead Protection Plans (WPPs). BMP technical assistance for all public water suppliers (PWS) in moderate and highly vulnerable DWSMAs." Private well testing workshops are covered in the next action. MDH greatly appreciates the plan partners willingness to work closely with the public water suppliers on implementation of the Wellhead Protection Plans.	X			Y	Action revised as suggested
MDH	22	5	23	For the action related to water conservation in peoples' homes and businesses the primary goal is related to ensuring sustainable groundwater supplies. In terms of the action lead the counties and cities should be lead and MDH and DNR can be partners.	X			Y	Lead roles revised as suggested
MDH	23	5	23	Consider edits to the action "Promote and where possible, fund private well water upgrades and improvements that impact health, including well softener systems *or home water treatment* for contaminants of emerging concerns (e.g., radium, arsenic)." Water softeners may be an option, but they also have drawbacks (e.g., chlorides); additionally, softeners by themselves are not an effective treatment approach for arsenic.	X			Y	See BWSR Comment #4. Revised language to "water treatment systems" instead of water softeners , with an output of 7 / year
MDH	24	Appendix K		Please consider adding the following references to Appendix K. References. o Department of Natural Resources (DNR), 2021: Groundwater Atlas of Winona County, County Atlas Series C-34, part B – Hydrogeology: https://files.dnr.state.mn.us/waters/groundwater_section/mapping/cga/c34_winona/w inona_report.pdf o Minnesota Department of Agriculture (MDA), 2021: Southeast Minnesota Groundwater Resources – text and videos. https://www.mda.state.mn.us/segwresources. o Runkel, A.C., Steenberg J.R., Tipping, R.G., and Retzler, A.J., 2014a, Geologic controls on groundwater and surface water flow in southeastern Minnesota and its impact on nitrate concentrations in streams. Minnesota Geological Survey, Open-File Report 14- 02, 154 p. https://conservancy.umn.edu/handle/11299/162612 o Wall, D.B., Evenson, M.G., Regan, C.P., Magner, J.A., and Anderson W.P. Understanding the Groundwater System: the Garvin Brook Experience, Minnesota Pollution Control Agency – Water Quality Division, Proceedings of National RCWP Symposium, 1992, p. 59-70. https://books.google.com/books?hl=en&lr=&id=_mB3kkgNdYYC&oi=fnd&pg=PA59&dq =Garvin+Brook&ots=_ZIocOKK42&sig=obo-uJP5IMsF8M6O-hXWeecd4oU#v=onepage&q=Garvin%20Brook&f=false	x			Y	Added under title: Additional Resources
MCEA		The 1W1P Should More Comprehensively Address Public Health Concerns Over Nitrate Groundwater Contamination and Goals Set Forth by							

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MCEA	1			A. The draft plan should give more explicit guidance to the local government units for how to account for public health concerns in the implementation of this plan. To achieve this, we recommend the plan provide a more explicit framework for how local government units tasked with implementation of this plan can coordinate with MDH and MDA to evaluate success towards goals and desired future conditions related to public health. - The Draft Plan should therefore provide a framework for how MDH, MDA, and BWSR can work together with local government units and public water systems to address urgent public health concerns around the contamination of drinking water supplies from nitrate, pesticides, and other chemical contaminants.	X			N	Additional language about health impacts of nitrate contamination added to Page 4-2 per MDH Comment #12. Actions are included in Plan Section 5 that include MDA, MDH, and BWSR as lead and partners in order to address contamination of drinking water supplies from nitrate, pesticides, and other chemical contaminants. Local collaboration with these entities will continue in plan implementation as summarized on Page 7-2.
MCEA				B. The Draft Plan should further address the problems caused by agricultural tile drainage as well as the need to include more water treatment and water storage in drainage improvement projects in this highly vulnerable area. - The Draft Plan should address drainage projects as part of the work for BWSR and the Technical Advisory teams to take into consideration in efforts to remediate current and future pollution.	X			N	See Action #11 on Page 5-24: Where applicable, promote drainage management and multipurpose drainage management projects through existing programs. For storage, see Action #5 in planning region tables: Implement projects to increase headwater storage and/or reduce peak flow rates and sediment loading at priority locations (e.g., WASCOBS)
MCEA				C. We recommend that the Draft Plan consider higher percent reductions in nitrogen to fully comply with state nutrient reduction strategies. Specified evaluation benchmarks, greater nutrient reductions, and detailed mechanisms for both edge-of-field and in-field practices, such as rates of manure and fertilizer applications under nutrient management plans, will help ensure the achievement of short-term goals and maximize the effectiveness of implementation funds secured under the plan.	X			N	Goals are drafted to be achievable in the next ten years based on the funding available. If additional funds and resources are available, implementation activities and benefits of them would increase. MPCA is the lead agency involved in the state nutrient reduction strategy, and will be engaged in summarizing progress toward that strategy during implementation.
MCEA				D. We recommend that the Draft Plan promote a risk management approach instead of the current reactive approach to concerns with public health. - The Minnesota Runoff Risk Advisory Forecast model from MDA is an example of a proactive model that MPCA could follow to provide information about risky conditions before fish kills occur, rather than simply investigating afterward	X			Y	See response to MPCA Comment #10.
MCEA	2	**The 1W1P Should Protect DWSMAs Boundaries and Leverage the Groundwater Protection Rule More Explicitly**							
MCEA				A. The Draft Plan should include clear direction to maintain current DWSMA boundaries in this watershed as a critical spatial unit in drinking water protection efforts. - As pollution or drought threatens water supplies, communities may decide to dig deeper wells. As this occurs, the Draft Plan should make clear that the respective DWSMAs must not shrink within the 10-year implementation period of the plan, unless there has also been a corresponding change to the Source Water Protection Plan. - The Draft Plan should encourage public water suppliers in the planning area, especially those located within DWSMAs, to develop localized source to-tap risk assessment and water safety plans that include emergency response plans (Minnesota Groundwater Association White Paper 2022). - For private well owners who often fall outside of DWSMA boundaries, the Draft Plan should consider targeted efforts to protect source water quality for recharge areas to aquifers that supply water to broad areas of private drinking water wells (Minnesota Groundwater Association White Paper 2022).	X			N	DWSMA boundaries are established and maintained by MDH, as is source water planning efforts.

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MCEA				B. Rather than rely solely on the voluntary adoption of BMPs by landowners within the watershed area, the Draft Plan should leverage the mandatory enforcement actions available under the Groundwater Protection Rule, currently in place in Minnesota under the authority of the Minnesota Department of Agriculture. - PTMApp ... may not be able to adequately assess impacts to groundwater given the vulnerable karst geology of the region. Therefore, we recommend that the Draft Plan allow for the sharing of DWSMA-scale data, such as land conservation information, between state agencies and local government units involved in drinking water protection in the planning area - Furthermore, the Draft Plan should cite both the voluntary and regulatory actions available under the Groundwater Protection Rule to ensure compliance with rule's prohibition against nitrogen fertilizer application in the fall and on frozen soils for farms within DWSMAs with vulnerable groundwater and high nitrate—categories which apply to many DWSMAs within this watershed area.	X			N	Local staff are partners in outreach and education in the Groundwater Protection Rule but are not the enforcing entity.
MCEA	3	The 1W1P Should Address Capacity and Enforcement Issues with Delegated Authority at the County Level and Within Local Government Units ("LGUs")							
MCEA				A. We recommend that the Draft Plan more fully address the capacity and enforcement challenges that the current feedlot inspection program faces to meet the short and longterm goals of the plan for bacteria and groundwater contamination. - However, under the delegated authority program, feedlot inspections are sparse (every 10 years or so) and there is no comprehensive system of surface or groundwater monitors in place to ensure compliance with the zero discharge requirements of the NPDES permit (MPCA Feedlot Update 2013). The Draft Plan identifies the need to "enforce feedlot compliance" but does not include any specifications as to how this will be done. Greater staff capacity in this program would allow for timely responses to complaints. Furthermore, dedicated resources for surface and groundwater monitoring would help to ensure compliance with the zero discharge requirements for facilities that do have NPDES permits.	X			N	Local staff recognize that local capacity resources are finite. As defined on Page 6-7: Counties, SWCDs, the City of Winona, and the watershed district will meet when applicable to discuss ordinances and notify each other of proposed ordinance amendments. These entities will also review similarities and differences in local regulatory administration to identify local successes and identify changes needed to make progress towards goals outlined in this plan.
MCEA				B. The Draft Plan should also target education and outreach to small and mid-size feedlots that are not required to have a nutrient management plan under a NPDES permit. - Many small and mid-sized feedlots in this watershed do fall within sensitive soil areas but are unregulated under the NPDES permit system. Furthermore, there are no current guidance documents from MPCA that describe summer manure application risks and implications to water quality - Given the extent and severity of the water pollution in this watershed, the Draft Plan should expand bacteria management efforts beyond regulated CAFOs to include smaller and mid-size feedlots that also operate on sensitive soils	X			N	Regulations and statutes still apply for smaller feedlots.
MCEA				C. Although this Draft Plan identifies lead local government units and partners for implementation actions, it should more explicitly address capacity concerns within LGUs to carry out this extensive work. - LGUs often do not have the staff capacity and tools necessary to fully adopt widespread implementation of effective BMPs, and the Draft Plan could be used to direct implementation funds to hire new staff people and/or increase LGU resources dedicated to this work. - In terms of risk management, we recommend that the Draft Plan identify dedicated local leadership to send concrete information to local residents in the event of incidents like fish kills - We further recommend that the Draft Plan allocate funds to adequately staff county offices and other LGUs to sufficiently respond to resident complaints, such as with feedlots	X			N	The 1W1P concept supports and fosters local partnerships. This collaborative work creates opportunities for addressing local capacity gaps through shared services among partners and with other agencies.

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MCEA	4			The current draft of the WinLaC One Watershed One Plan addressed many concerns and priorities for the included counties. However, the current Draft Plan does not fully account for some of the concerns expressed by the community, including both human health and environmental impacts. The issues expressed in our comment include full consideration of public health concerns in this Draft Plan, such as maintaining DWSMAs at their current size in the region and building greater capacity for feedlot inspection programs and other aspects of delegated authority in the counties. These omissions do not allow for a fully comprehensive review of the Draft Plan. Accordingly, MCEA strongly recommends (1) that the Draft Plan be revised to address the above-expressed concerns and (2) the comment period for this Draft Plan be extended to adequately account for the public's engagement and concerns.			X	N	Comment noted
Landowners	1	Acknowledgements		Who is representing Izaak Walton League?			X	N	Committee membership can be provided by request outside the plan formal review.
Landowners	2	Acknowledgements		Who is representing MN Forest Resources Council?			X	N	Committee membership can be provided by request outside the plan formal review.
Landowners	3	Executive Summary	2	What is a balanced ecosystem?			X	N	A sustainable, healthy ecosystem rather than one stressed by land use changes, invasive species, etc.
Landowners	4	ES	ES-2	Need to monitor/evaluate to know if working and course correct if necessary	X			N	Section 7 has an overview of the annual assessment/5 year evaluation process.
Landowners	5	1	5	Priority C. insert 'are'		X		Y	Revised as suggested
Landowners	6	1	6	Include pesticides	X			N	Plan issues were developed with input from the public, agencies, and advisory groups and are not able to be changed at this point in the process
Landowners	7	ES	12	Why increase staffing? Looking at organizations/groups/comittees. There are lots of staff. The need is coordinated effective delivery. Currently there is a lot of redundancy in groups and boards.			X	N	Comment noted. Staffing in relation to implementation and administration of the full plan.
Landowners	8	2	3	No mention of public land and recreation as #1 economy income			X	N	Plan includes information about economy if references exist. See Page 2-9.
Landowners	9	2	4	No mention of Richard J Doreer Memorial Hardwood Forest, Whitewater Wildlife Management Area	X			N	Summary lists example public areas and parks to provide context for the reader, and is not intended to be all-inclusive.
Landowners	10	2	4	No mention of streams north WW watershed listed			X	N	Streams are just listed here to provide context to the reader, and are not intended to be all-inclusive.
Landowners	11	2	6	Mention AIS funds and county positions	X			Y	Language added to describe county role in AIS management.
Landowners	12	2	7	Forests and the role they play in reducing runoff and more emphasis on reforestation, edge protection	X			Y	Language added to describe plumbing the landscape impacts from previous land uses like forest.
Landowners	13	2	10	State forest units not mentioned	X			Y	Text revised to include state forests
Landowners	14	3	2	What has WW watershed project accomplished in terms of: a. reduced flooding b. reucing soil, nutrients, pesticides, bacteria, etc. c. wildlife habitat improvement d. at what cost?	X			N	The Whitewater River Watershed Project is mentioned here solely to provide context to the planning region geography and jurisdictional features.
Landowners	15	3	2	Brewery creek? Is it in WinLaC?	X			N	Streams are just listed here to provide context to the reader, and are not intended to be all-inclusive.
Landowners	16	3	3	Does the plan encorage acquisition in the RJDMH, Wildlife Management Areas, Aquatic Management Areas, Trout Stream esatments, State Parks, etc?	X			N	The plan includes actions to: Protect land and implement permanent vegetative cover through perpetual conservation easements (e.g., RIM) in planning region action tables, Section 5.
Landowners	17	3	7	Acquisition/easements necessary to achieve some of Table 3-4, Priority C issues			X	N	Agreed. The plan includes actions to: Protect land and implement permanent vegetative cover through perpetual conservation easements (e.g., RIM) in planning region action tables, Section 5.
Landowners	18	4	1	How monitor/measure short term goals? Is there a monitoring plan?			X	N	See Table 6-1, various agencies and partners do water quality monitoring and their findings will be used to assess progress towards goals. Monitoring and studies is one of 5 programs in Figure ES-7.
Landowners	19	4	5	How many times have abandoned wells been inventoried? Suggestion to use a different photo		X		N	Inventory of abandoned wells is included as an action item on Page 5-23.
Landowners	20	4	6	More than Decorah Edge, see Jeff Green, Bob Tipping	X			N	Bob Tipping provided comments on the plan through MDH
Landowners	21	4	9	Forest mangement should include Forest Edge (top) buffer	X			N	Comment noted- See Section 5 for implementation actions related to forests and buffers. Forest edge also called out on Page 4-13.
Landowners	22	4	12	Will there be some sediment loading monitoring, climate change and rainfall intensity				N	Yes, MPCA, DNR, and MDA include sediment in their water quality monitoring. Climate trends/precipitation is monitored by the DNR and NWS across the state. https://climateapps.dnr.state.mn.us/index.htm

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Landowners	23	4	13	Forest edge buffer identified, include in 2-7	X			N	Page 2-7 is intended to summarize altered hydrology as a problem without comprehensively listing solutions.
Landowners	24	4	14	Nothing on soils. Provide example or organic matter	X			Y	Bullet point added on 4-15 to implement soil health practices as a means of adding temporary water storage.
Landowners	25	4	18	Should be coupled to savanna restoration a. Little to no native prairie is being grazed b. Short term goal is very modest	X			N	Goal is set to be attainable in the 10-year plan with the funding available.
Landowners	26	4	19	Please delete term marginal lands. Relegating grazing on land that is not farmed presents lots of challenges on ecologically sensitive lands		X		Y	Revised as suggested
Landowners	27	4	20	The aberration that E. coli remains high 'despite number reduction effots" suggests that what has been done doesn't work. What does this plan propose to do different?			X	N	Improve education, enforce feedlot compliance, and continue collaboration with partners to develop management plans, feedlot fixes, and animal waste storage.
Landowners	28	4	23	The major way to improve trout streams is to reduce runoff and increase infiltration that increases base flows. The bullet 'improve and … temperature' is too simple and universally understood to mean tree shade.	x			Y	Text revised as suggested
Landowners	29	4		General comment-Would like to see recognition of what has not worked. The construction of the plan is awkward: Prioirty Issues, Actions, Output, Program, Focus, Leads/Partners in different areas.			X	N	Plan content follows BWSR guidelines and focuses on future actions following best practices with what we know now, the plan scope doesn't cover what has not worked.
Landowners	30	4	28	How do you propose to inventory? Same as 40 years ago? Tether septic improvements to sale of property or transfer of ownership (e.g. relative or other)	x			N	MPCA leads SSTS inventory
Landowners	31	4	30	Why is fee acquisition not included?			X	N	List shows example actions, and is not intended to be all-inclusive. A full list of actions is shown in Section 5.
Landowners	32	4	32	Very modest short term goal			X	N	Noted, goals were developed based on what could be realistically achieved.
Landowners	33	5	4	Edit 1st 2 sentences under "Planning Region Chapters"		X		Y	Revised as suggested
Landowners	34	5	5	The Whitewater River Planning Region has been utilizing public resources for a long time. What are the results? Let's rethink voluntary.			X	N	The plan focuses on voluntary conservation action.
Landowners	35	5		General comment- very litte by way of upland terrestrial habitat improvement. By removing 0-15% of upand farmland from production, we could achieve a lot of water quality goals, sequester carbon, develop some habitat connectivity, crease a more visually appealing landscape, and create habitat for birds, mammals, pollinators, etc.			X	N	Comment noted for implementation
Landowners	36	5	28	Edit- remove redundant organizations, dissolve BALMM and Whitewater Watershed Board	X			N	Comment noted - language not included in the plan
Landowners	37	6	4	Acquisiton not mentioned			X	N	See "land protection" for temporary and permanent protection , Page 6-2.
Landowners	38	6	4	Is there monitoring in place and how will it be coordinated?			X	N	See Table 6-1, various agencies and partners do water quality monitoring and their findings will be used to assess progress towards goals. Monitoring and studies is one of 5 programs in Figure ES-7.
Landowners	39	General		General comments: A.How do you coordinate outreach to landowners?			X	N	SWCD have relationships with landowners in their districts
Landowners	40	General		B. Appears to be program driven. Couldn't some flexibility be introduced so that if a landowner has ideas that do not conform to program, can include if it can achieve outcomes			X	N	Any action a landowner takes that will reduce sediment/nutrients or increase storage/land protection is welcome even if it's not explicitly a part of the 1w1p plan actions
Landowners	41	General		C. Pesticides- need to be accounted for in the plan: reporting, monitoring, reduction	X			N	Monitoring is summarized in Table 6-1. Implementation actions addressing nutrients will also have ancillary benefits toward pesticides.
Landowners	42	General		D.Grassed waterways deliver a concewntrated flow of water. They would be more beneficials for water storage and upland habitat if they were wider, had some "pooling" capabilities, and larger/wider vegetated outlets. When used on slopes, back the outlet away from the field-woodland-bluff edge			X	N	Noted for implementation
Landowners	43	General		E. Wetland restoration efforts could be completed in upland swales that were farmed through wetlands or became grassed waterways. This would improve to upland water storage, reduce runoff, and improve upland habitat.			X	N	Noted for implementation
Landowners	44	General		F. Prairie strips- why? How different from other practice options? How will it be ensured that there isn't herbicide drift that affects insects and birds (e.g. fungicides)? Narrow bands will be sinks for ground nesting birds to be consumed by predators			X	N	Prairie strips are a recommended conservation practice by the NRCS that reduce sediment and nutrient loss. Your comments have been noted for implementation.
Landowners	45	7	1	Policy composition question- what are they assuring? Who comprises the policy committee?			X	N	Committee membership can be provided by request outside the plan formal review.

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MNWOO	1	General		Local Capacity and Staffing- See Comment Letter #1 and #4			x	N	Local staff recognize that local capacity resources are finite and see value in building partnerships. The 1W1P concept supports and fosters local partnerships. This collaborative work creates opportunities for addressing local capacity gaps through shared services among partners and with other agencies.
MNWOO	2	General		Formal Review and Adoption Schedule - See Comment Letters #3 and #5			x	N	Minnesota Statutes 103B.801 directs the Board of Water and Soil Resources (BWSR) to establish operating procedures for Plan development, which is followed by the WinLaC Partnership.
MNWOO	3	General		Groundwater Data and Prioritization - See Comment Letter #2, #3, #5, and #7			x	Y	Details of the subwatershed (HUC-12) prioritization process added to Appendix F of the final WinLaC Comprehensive Watershed Management Plan. For language pertaining to nitrate health hazards in water, see response to MDH Comment #12.
MNWOO	4	General		Goals and Desired Future Conditions - See Comment Letter #2 and #7			x	N	Desired Future Condition: Describes the desired future condition of a resource that planning partners would like to see, without a given time constraint. For language pertaining to nitrate short-term measurable goal, see response to MCEA Comment #1c.
MNWOO	5	General		Regulation/Policy Addressing Groundwater (Drinking Water) Protection - See Comment Letter #2, #3, and #6			x	Y	For language pertaining to fish kills, please see response to MPCA Comment #10. The vision of One Watershed, One Plan, and the watershed plans developed under this Program, includes a focus on voluntary actions that can be taken, rather than establishing new regulations.
MNWOO	6	General		Wellhead Protection - See Comment Letter #5			x	N	Extensive outreach and education can be used to provide well owners with information about their well, importance of monitoring their drinking water, and how to take steps to protect that water source.
Landowner	1	General		See Comment Letter #8			X	N	The WinLaC CWMP is a 10-year plan, comprehensive plan that addresses issues pertaining not only to groundwater, but also surface water, habitat, and land use / protection. The CWMP is intended to be a public-facing local plan, not a technical report. The CWMP was developed following BWSR's "One Watershed, One Plan Operating Procedures" (Version 2.00), with content of the plan following BWSR's "One Watershed, One Plan Content Requirements" (Version 2.1). One of the guiding principles of the One Watershed, One Plan is "One Watershed, One Plan is not an effort to change local governance." The resulting plan uses existing structures for collaboration and cooperation, and does not create a new regulatory entity. The Land and Water Resources Narrative is intended to be a brief and concise summary of land and water resources information to inform the planning process and support actions in the plan. For concerns related to the limitations of PTMApp, please see the response to MPCA Comment #2.
Landowner	2	General	2-5	See Comment Letter #8		x		Y	Text revised as suggested to avoid mentioning Lake Winona and Winona waste water NPDES in the same paragraph.
Landowner	3	General	2-6	See Comment Letter #8			x	Y	Reference added for the altered watercourses data layer
Landowner	4	General	3-1	See Comment Letter #8			x	N	Planning regions were created to divide a watershed into smaller subwatersheds, consistent with the vision of a watershed plan.
Landowner	5	General	2-8	See Comment Letter #8	x			Y	Explanation added for Conservation Opportunity Areas
Public Hearing Verbal Comments									
Cherie Hales	N/A	General	N/A	Appreciates the opportunity to comment. When she lived rurally in the County, participated in MDA's well testing. •Four townships in western Winona County have issues with high nitrates (above 10 mg/L). •21% of wells exceed the drinking water standard. •4200 rural residents relay on private wells for their drinking water.			x	N	Comment noted for implementation, with thanks

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Paul Schollmeier	N/A	General	N/A	For the record, stated that he was formerly the Chair of the Winona County SWCD, and he is married to Chris Meyer, one of the WinLaC Policy Committee members. He also thanked the Policy Committee for bringing this venue to the public for comment. •Encourage the Policy Committee to seriously consider MNWOO comments. •Noted the MNWOO comment regarding the University of Minnesota Center for Changing Landscapes capacity survey. Necessary (additional) funds need to be appropriated for the needed work to begin on WinLaC. •Winona County (and the three other counties within WinLaC) need to fully fund their SWCDs, and BWSR needs to adequately train SWCD staff to fulfill the tasks within WinLaC Plan. •The risk of chloride contamination for surface waters needs to be recategorized to the Priority B list. Reducing chloride contamination impacts should be a priority.			x	N	Comment noted for implementation, with thanks. See response to MNWOO Comments 1-6 above.
Kelley Stanage	N/A	General	N/A	The Plan unfortunately misses the mark on Nitrates. •Winona County has the worst Nitrate levels (in drinking water) in SE Minnesota; Wabasha County is a close second. (cited MDA's SE MN VNMN 2021 results and are included as part of these comments) •The 10 mg/L drinking water standard was established by the EPA in 1962 (over 60 years ago). That level was set based on risk to babies. Medicine has advanced since that time, and this standard may need to be reconsidered. •The WinLaC goal to reduce nitrates by 4% is inadequate. It would take two decades for nitrates in a well with 24 mg/L to reach a safe level. •Cities such as Utica and Lewiston are facing the challenge and cost (burden to taxpayers) of drilling deeper to find safe water, and this doesn't address the underlying cause of nitrate pollution. •Efforts need to focus on a look at nitrates in private and municipal wells and determine what needs to be done to make that water safe. •The State of Minnesota has a budget surplus. Unsafe drinking water here, should be a sufficient reason to allocate some of that surplus to address nitrates in drinking water.			x	N	Comment noted for implementation, with thanks
Tim Ahrens	N/A	General	N/A	Thank you for undertaking the hard work to understand the depth of the problems faced in the watershed. •The WinLaC logo includes a trout, yet the Plan leaves out a goal related to fish kills. Trout streams are a part of our identity, and a goal around fish kills should be set. •Noting the size of DWSMAs in the Plan, I hope this Plan is a call to MDH to not consider shrinking size of established DWSMAs. I understand that as the city of Utica considers drilling a new well, action within this DWSMA is paused, and the DWSMA boundary may shrink.			x	N	Comment noted for implementation, with thanks. See response to MPCA Comment #10.
Jeff Broberg	N/A	General	N/A	Limiting verbal comments to three minutes is impairing public comments! I am a Licensed Professional Geologist (LPG). •The Plan needs to adopt an environmental risk management approach. •I have a 400 foot well that has 17 ppm in nitrates. There is no sense to drilling deeper. •I am against adopting the Plan as it is wholly inadequate to addressing groundwater concerns. •How do you take the life out of water? – By ignoring the data. •The Plan does not have an adequate assessment of karst. •The Plan ignores risk management, and does not address the facts. •The Plan fails by relying on uninformed advice. They don't do anything. •The Plan relies on models (PTMapp) that do not fit. This model tool should not be allowed. •We're chasing the money, but not looking at the issues. •The Plan does not have a GRAPS. •The Plan just puts lipstick on a pig.			x	N	Comment noted for implementation, with thanks. See response to MNWOO Comments 1-6 and MPCA Comment #2.
Andy Ventura	N/A	General	N/A	I was concerned to read about fish kills and possible link to pesticides •The big wild card in all this is climate change. •Also, forever chemicals are saturating our trout streams.			x	N	Comment noted for implementation, with thanks. See response to MPCA Comment #10.
Michael Busch	N/A	General	N/A	I have not read the Plan, but want to share some observations. •In the 1960's a lot of work was done to put dams in Pleasant Valley. •You can't stop water, you just have to make a place for it to go. •We need to keep the water clean. •Cost share is needed for stream banks. •In the flood of 2017, too much politics was involved. •Any plan needs to be flexible; we can't have one size fits all. •Maybe we also need to cost share septic systems. •Consider using old concrete for riprap.			x	N	Comment noted for implementation, with thanks
Dan Wilson	N/A	General	N/A	Thank you to the Policy Committee for hosted this. •Looking at the Plan – It's a non-binding aspirational Plan. •Let's have a Plan that puts us on the right path.			x	N	Comment noted for implementation, with thanks

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Bonnie Walcheinsky	N/A	General	N/A	•We have thousands of chemicals (in the water) that have not been tested. We don't know the effects of these chemicals or in combinations. •We need to be cautious. Dr. Waters from Wisconsin Dells gave a lecture of drinking water contaminants. These contaminants can build up in a body over time, and the human body can reach limits.			x	N	Comment noted for implementation, with thanks
Lynn Theurer	N/A	General	N/A	(Unable to verbally provide comment at the Hearing and provided email comment) •In the 1980's Winona County Community Health Services did education and outreach for families with babies. It is a known fact that after six months, babies fed with nitrates will begin to have developmental disabilities. There is a cost in dealing with small children with learning disabilities. By age 3, it's too late to reverse effects of high nitrates in a child's diet. Damaged brain cells are not easy to regenerate and taxpayers pay the price. •Why do we have to wait to have the "problem" that cannot be reversed? Prevention is the answer! Does the WinLaC Plan include education to mothers who birthed a baby in the watershed? •Education is key. The latest COVID epidemic is an example of what is needed in education to the public. Prevention of Blue Baby Syndrome is key for all of us in high nitrate karst topography. We need to revive the outreach work to families in SE Minnesota, so they have healthy, brain-developed infants.			x	N	Comment noted for implementation, with thanks
Leland Stoe	N/A	General	N/A	(Email comment) •MDA's 2017 report found that there were over 1,300 residents in Winona County who were unable to drink the water from their tap due to high levels of nitrate contamination. (Cited source report) •During the summer of 2022, an estimated 2,500 trout were killed in Rush Creek, near Lewiston. •In light of these unacceptable conditions, please update the 1W1P plan to more aggressively reduce nitrate levels in drinking water. People's health is knowingly at risk. •The 1W1P draft talks about continuing enforcement of "shoreline" to protect surface waters. It seems prudent to also designate sinkholes as shorelines. They are nearly direct paths from the surface to our groundwater (much like shorelines). Classifying them as such could create requirements for 300-foot buffer zones around sinkholes. It seems this would be most important around the "Decorah Edge" described on pg 52 of the 1W1P draft. •It is very important that farmers be compensated for their adherence. (Cites details) oPg 52 of 1W1P states: Protection is also critical near the Decorah Edge landscape. The Decorah shale is a thin, restricting clay layer underground. When groundwater percolating downward reaches this layer, it moves laterally until it reaches the Decorah Edge, a woodland/wetland ecosystem critical for groundwater filtration and recharge. oPg 118 of 1W1P states: Shoreland Management the Minnesota Legislature has delegated responsibility to LGUs (Local governmental units) to regulate the subdivision, use, and development of shorelands along public waters to preserve and enhance the quality of surface waters, conserve the economic and natural environmental values of shorelands, and provide for the wise use of waters and related land resources. This statute is administered and enforced through ordinances in all counties within WinLaC. oRegulations: Minnesota Statute 103F and Minnesota Rules, Chapter 6120.2500-3900 The Minnesota Pollution Control Agency (PCA) states: Follow this link to see 2-page MPCA text: https://link.edgepilot.com/s/a4393ec1/FhovWC4zUUu4k2e0pWIB2A?u=https://www.pca.state.mn.us/sites/default/files/wq-f4-01.pdf "Shoreland, in most instances, refers to land that is 1,000 feet or less from a lake or 300 feet or less from a river or stream. In rare instances, land near large ponds, wetlands, or ditches is classified as shoreland."			x	N	Comment noted for implementation, with thanks
Sharon Mansur	N/A	General	N/A	(Email comment) Thank you for this important initiative and for the opportunity to comment. I am an artist and educator in Winona. •I encourage continued programming like events held during We Are Water last year. This is important, interdisciplinary, intersectional & accessible work. •As with We Are Water and Winona's Creative Laureate Sarah Johnson's involvement, there are future benefits of including professional community engaged artist/creatives in programming and outreach. Having increased options to translate, visualize, embody, storytell and personally relate to the environment, our home, ourselves as one with nature…it's so powerful and healing and needed towards galvanizing connection & action. •Finally, I suggest that you bring in someone soon to keep the momentum going! Winona resident Sadie Newman would be an excellent person to tap. She has the environmental education and knowledge, experience, passion, community connections and communication skills along with her investment in this geographic area. I hope there's a way to invite her to participate as she would be an invaluable asset to your team & the important work that needs to happen.			x	N	Comment noted for implementation, with thanks