Meeting Agenda

Advisory Committee

Project Name:	Lower MN River East One Watershed One Plan
ISG Project Number:	27009
Date:	February 15th, 2022
Time:	10am-1pm
Invitees:	Joe Mulcahy (Met Council), Barb Peichel (BWSR), Anne Sawyer (BWSR), Travis Hirman (MDA), John Frietag (MDH), David DePaz (DNR), Brittany Faust (MPCA), Joni Giese (Prior Lake Spring Lake WD), Vanessa Strong (Scott County/WMO), Melissa Bokman (Scott County/WMO), Meghan Darley (Scott SWCD), Troy Kuphal (Scott SWCD), Linda Loomis (Lower MN River WD), Brad Behrens (Rice County), Steve Pahs (Rice SWCD), Mike Schultz (Le Sueur SWCD), Holly Kalbus (Le Sueur County), Bailey Griffin (ISG), Sarah Boser (ISG)

INTRODUCTIONS

- Name
- Entity/Agency
- What is the last book you read?

PURPOSE + GOALS

- Finalize priority resources
- Begin modeling discussion

DISCUSSION TOPICS

Lake Prioritization and Targeting

10 MINUTES

- Ranking based on attributes or criteria of projects instead of traditional tiering
    - Could incorporate different cost share rates for different priority level lakes
    - Would like lakeshed areas included with priority lakes

Stream Prioritization and Targeting

30 MINUTES

- Include streams and corresponding streamsheds as priority resources
    - For sediment: use subwatershed assessments as a starting point, complete additional stream assessments as needed, make sure both project implementation and stream/subwatershed assessments are included in the implementation tables
        - No tiering with this approach
    - Storage Targeting: look at HSPF reaches and restorable wetland potential
    - Other impairments (TP/nutrients, e,coli, chloride): multi-benefit approach?

Groundwater Targeting

5 MINUTES

- Feedback from MDH (if any)

Habitat Targeting

10 MINUTES

- Review updated targeting criteria and corresponding map

Measurable Goals Approach and Modeling

20 MINUTES

- Determine if goals should be achievable or they should be based on water quality needs
- Options for models to use, existing data

Measurable Goals Survey Recap
10 MINUTES

Measurable Goals – Small Groups for Surface Water Quality and Surface Water Hydrology
35 MINUTES

- Finalize targeting approach
- Determine how many goals there will be for each issue and how the goals will be organized
- Determine metric for how to measure each goal (see survey results)
- Note any monitoring, studies, or models that will be used to track goals. Keep in mind the capacity, level of effort, costs, and frequency of these methods for tracking.
    - Determine desired future conditions (50+ years) vs 10-year goals
- Determine the scale of the measurable goals (watershed wide vs subwatersheds vs resource-based goals)
- If time allows, develop key strategies that will be a starting point for implementation table development

Small Group Recap
10 MINUTES

Measurable Goals – Small Groups for Habitat and Groundwater
35 MINUTES

- Finalize targeting approach
- Determine how many goals there will be for each issue and how the goals will be organized
- Determine metric for how to measure each goal (see survey results)
- Note any monitoring, studies, or models that will be used to track goals. Keep in mind the capacity, level of effort, costs, and frequency of these methods for tracking.
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Small Group Recap
10 MINUTES

Next Steps
5 MINUTES

- Refinement of measurable goals

Memorandum

Lower Minnesota River East - Advisory Committee

To:	Lower MN River East Watershed Advisory Committee
From:	Bailey Griffin, Project Manager; Sarah Boser, Watershed Planner - ISG
Date:	February 15th, 2023
Subject:	Targeting, Measurable Goals, and Final Priority Resources

The following memo provides updates based on the outcomes form the January Advisory Committee (AC) meeting. A majority of priority resources and targeting information will be brought to the Policy Committee (PC) for review and approval during the February 16, 2023 meeting. Most of the upcoming AC meeting will be used to discuss measurable goals. By the end of the meeting, we hope to determine the approach for setting goals, develop a framework for number of goals in the Plan, determine metrics for how goals will be measured, and decide what models that will be used.

PRIORITY RESOURCES MEETING OUTCOMES

Priority resources and targeting information has been updated based on the outcomes from the January AC meeting. A majority of the priority resources and targeting framework will be presented to the Policy Committee for approval during their meeting on February 16, 2023. During the meeting, priority lakes and streams will be presented as well as the targeting areas and criteria for near channel erosion, overland erosion, E. coli, chloride, drainage systems, and groundwater protection. Further refinement and review from the AC is needed for habitat and storage targeting before it is presented and approved by the PC. A detailed summary of the updated framework has been included below.

MEASUREABLE GOALS OVERVIEW, APPROACH, AND MODELING

Measurable goals are high level indicators that provide an assessment on the success of implementation efforts set forth in the Plan. The goals should provide a general overview of progress while not having too many goals that that it overwhelms partners and readers. BWSR requires creating at a minimum one goal per issue statement but allows for multiple goals to be established per issue, if applicable. Generally, one issue statement is created per resource concern. Additional detail on actions and outcomes will be included in the implementation table. Therefore, supporting or pre-cursor actions that need to take place for success do not need to be included in the measurable goals.

There are many items the AC should take into consideration before determining the approach for setting goals and the metrics that will be used to measure success. Before looking at the results of the survey and dividing into small groups, we will review some modeling options such as HSPF-SAM and PTMApp. Discussion will include their availability in the watershed and how each model may influence goals.

In addition, we will also discuss approaches to setting goals. The most common approaches include either setting goals based on outcomes (ie. based on the TMDL, a 45% reduction is required to delist from impaired waters list) or an approach where capacity and estimated funding is given a higher consideration to set realistic goals that can be accomplished in the 10-year timeframe of the Plan.

MEASURABLE GOALS SURVEY RESULTS

A full summary of the results of the survey are included below. The survey results will be used as a guide throughout small group discussion and refinement of measurable goals.

MEASUREABLE GOALS: SMALL GROUPS ACTIVITY

We will be dividing into small groups to further refine measurable goals. There will be two rounds of small groups.

Round 1:

Surface Water Quality:

- Steven Pahs
- Meghan Darley
- Anne Sawyer
- Brittany Faust
- Bryan Spindler
- David De Paz
- Joe Mulcahy
- Joni Giese

Surface Water Hydrology:

- Holly Bushman
- Mike Shultz
- Linda Loomis
- John Freitag
- Barb Peichel
- Melissa Bokman
- Brad Behrens
- Travis Hirman

Round 2:

Groundwater:

- Holly Bushman
- Barb Peichel
- Mike Schultz
- Linda Loomis
- John Freitag
- Melissa Bokman
- Travis Hirman
- Anne Sawyer

Habitat:

- Steven Pahs
- Meghan Darley
- David De Paz
- Joe Mulcahy
- Brittany Faust
- Bryan Spindler
- Joni Giese
- Brad Behrens

MEASURABLE GOALS: ACTIVITY

Desired Outcomes from Small Group Activity:

- Finalize targeting approach
- Determine how many goals there will be for each issue and how the goals will be organized
- Determine metric for how to measure each goal (see survey results)
- Note any monitoring, studies, or models that will be used to track goals. Keep in mind the capacity, level of effort, costs, and frequency of these methods for tracking.
    - Determine desired future conditions (50+ years) vs 10-year goals
- Determine the scale of the measurable goals (watershed wide vs subwatersheds vs resource-based goals)
- If time allows, develop key strategies that will be a starting point for implementation table development

MEASURABLE GOALS: RESOURCES

Below are some of the water resources goals that have been established through existing reports, studies, plans, and models in the Watershed. These goals may influence establishment of long- and short-term goals for the Watershed.

Lower Minnesota River Watershed TMDL – Part I; Southern and Western Watersheds:
https://www.pca.state.mn.us/sites/default/files/wq-iw7-49e.pdf
Phosphorus TMDL Lake Summaries – See page 143 – 153
Phosphorus TMDL Stream Summaries – See page 167 – 169 (Sand Creek only)
TSS TMDL Stream Summaries – See page 174 – 193
E. Coli TMDL Stream Summaries – See page 196 – 235
Chloride TMDL Stream Summaries – See page 237 (Credit River only)

Cedar Lake and McMahon Lake TMDL: https://www.scottcountymn.gov/DocumentCenter/View/1249/Cedar-Lake-and-McMahon-Lake-TMDL-Final-Report-PDF See pg 53 - 54

TABLE 1: PRIORITY LAKES PHOSPHORUS REDUCTION BASED ON TMDL

Lake Name	Impairment Status	Phosphorus Reduction (%)	Load Reduction (lb/yr)
Lower Prior	N		
O'Dowd	N		
McMahon	N	81	
Fish	Y	14	79.7
Lemay	IF*		
Thole	Y	69	825
Upper Prior	Y		
Spring	Y		
Cedar	Y	85	
Clear	Y	96	15,243
Cody	Y	91	18,220
Phelps	Y	89	16,693

Blank cells do not have TMDL completed
**IF = Insufficient Information*

TABLE 2: PRIORITY STREAM POLLUTION REDUCTION BASED ON TMDL

Stream		Priority Class	TP Reduction (%)	TSS Reduction (%)	E. Coli Reductions (%)
Upper Sand Creek	Sand Creek (-839)	Tier A	67%	27%	
	Sand Creek (-840)	Tier A	67%	61%	
Middle Sand Creek	Sand Creek (-513)	Tier A	67%	89%	68%
Le Sueur Creek		Tier A			58%
Roberts Creek		Tier A		72%	78%
Unnamed Creek (761 - near Henderson)		Tier A			72%
Forest Prairie Creek		Tier B			70%
Raven Stream		Tier B			77%

Unnamed Creek -604 (County Ditch 13)	Tier B			
Eagle Creek	Local Priority Only - Protection			8%

Blank cells do not have TMDL completed

Lower Minnesota River WRAPS: https://www.pca.state.mn.us/sites/default/files/wq-ws4-58a.pdf

The calculation of 'overall estimated pollutant loading reduction needed to meet water quality standards' was a primary part of the TMDLs and is provided in Table 15 of Section 3.4 (where data were sufficient to make this estimate) – See page 80 – 126

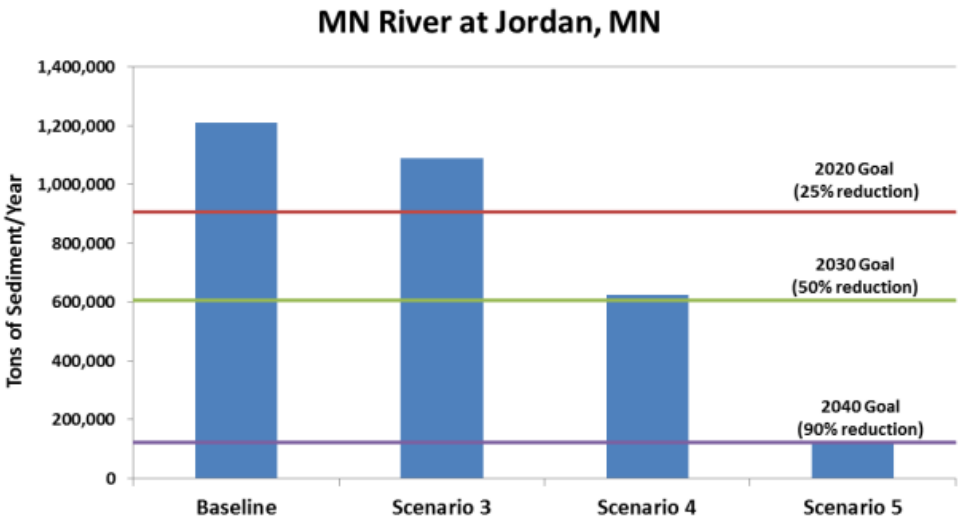
South Metro Mississippi River Total Suspended Soils TMDL: https://www.pca.state.mn.us/sites/default/files/wq-iw9-12e.pdf

Based on that input, extensive research, and 22 years of water monitoring data, the MPCA recommends the following reductions in the amounts of sediment flowing into the Mississippi:

- *60% from the Minnesota River during high and very high flows and 50 percent during average and low flows;*
- *50% from the Cannon River;*
- *20% from the Upper Mississippi River; and*
- *20% from smaller rivers and streams in Minnesota and Wisconsin that flow directly into the river*

Sediment Reduction Strategy for the Minnesota River Basin and South Metro Mississippi River:
https://www.pca.state.mn.us/sites/default/files/wq-iw4-02.pdf

See page 13-16 for scenarios and goals established through analysis



Evaluation of Hydrologic Change Technical Summary: Lower Minnesota River Watershed:
The water balance table for this watershed (Table 5) shows changes in discharge, evapotranspiration, and precipitation. The change in average annual precipitation before and after the 1991 change point was 3.6 additional inches across the

watershed. Similarly, the average difference in discharge before and after 1991 was 3.8 inches. Having a greater volume of water leaving the watershed on average indicates the need for water storage in strategic places while emphasizing retaining precipitation as close as possible to the location in which it lands.

Change Point = 1991	Discharge (in.)	ET (in.)	Precip (in.)	Runoff Ratio (D/P)
Pre 1991	3.1	25.3	28.4	0.11
Post 1991	6.9	25.2	32.1	0.22
Change	3.8	-0.2	3.6	0.11

Table 5. Water balance (in inches over the watershed) for the Minnesota River near Jordan (05330000)

NEXT STEPS: SETTING MEASURABLE GOALS AND BEGINNING IMPLEMENTATION TABLE

Once we have the framework for measurable goals, along with an established approach for setting the goals, and determined methods for modeling, ISG will begin to frame up the development of the numeric values associated with measurable goals. This may include models, widgets, or previously completed studies. Next, we will begin the initial steps of creating an implementation table. This will include discussion on allocation of funding, programs, and setting up formatting of the implementation table.

PRIORITY RESOURCES MEETING OUTCOMES

LAKE PRIORITIZATION

Nearly / Barely Status:

The primary consideration for the selection of priority lakes are nearly/barely lakes. Nearly barely lakes are the lakes that are closest to meeting the water quality standard set by the MPCA for the North-Central Hardwood Forest (NCHF) ecoregion. The standard for is 60 ug /L and 40 ug/L for shallow lakes and deep lakes, respectively. All lakes within one level of magnitude of the standard are included for priority lake consideration. Table 1 below lists each of these lakes.

Recreational Value and Public Health:

Lakes classified as a deep lake (more commonly used for boating and swimming) with public access, public park adjacent to the lake, or public beach for swimming were also included for priority lake consideration. Algae blooms can be dangerous to swimmers and dogs and have an impact on the recreational value of the lake. Special consideration was given to these lakes:

- Spring
- Cedar
- Clear

Connectivity:

Lakes connected to nearly-barely lakes were given special consideration. Upon completion of priority streams, additional lakes may be considered for connectivity to priority streams.

- Spring (Lower and Upper Prior Lake)
- Cody and Phelps (LeMay)

Professional Judgement:

The AC further refined the list utilizing professional judgement by removing lakes that may have met the above-mentioned criteria however rated low with local support, political support, availability of funding mechanism, momentum towards goals, and consideration for capacity and distribution of work.

The priority lakes include three protection lake, eight restoration lakes, and one lake with insufficient data to determine impairment status.

TABLE 1: PRIORITY LAKES

Lake Name	County	Depth Class	Impairment Status	Ecoregion	Mean TP (ug/L)	TP Standard (ug/L)	% Mean P from P Standard
Lower Prior	Scott	Deep	N	NCHF	25	40	37%
O'Dowd	Scott	Deep	N	NCHF	46	40	-15%
McMahon	Scott	Shallow	N	NCHF	70	60	-17%
Fish	Scott	Deep	Y	NCHF	47	40	-17%
Lemay	Rice	Deep	IF	NCHF	61	40	-52%

Lake Name	County	Depth Class	Impairment Status	Ecoregion	Mean TP (ug/L)	TP Standard (ug/L)	% Mean P from P Standard
Thole	Scott	Shallow	Y	NCHF	104	60	-73%
Upper Prior	Scott	Deep	Y	NCHF	72	40	-79%
Spring	Scott	Deep	Y	NCHF	90	40	-125
Cedar	Scott	Deep	Y	NCHF	185	60	-208%
Clear	Le Sueur	Deep	Y	NCHF	334	40	-735%
Cody	Rice	Shallow	Y	NCHF	344	60	-474%
Phelps	Rice	Shallow	Y	NCHF	390	60	-551%

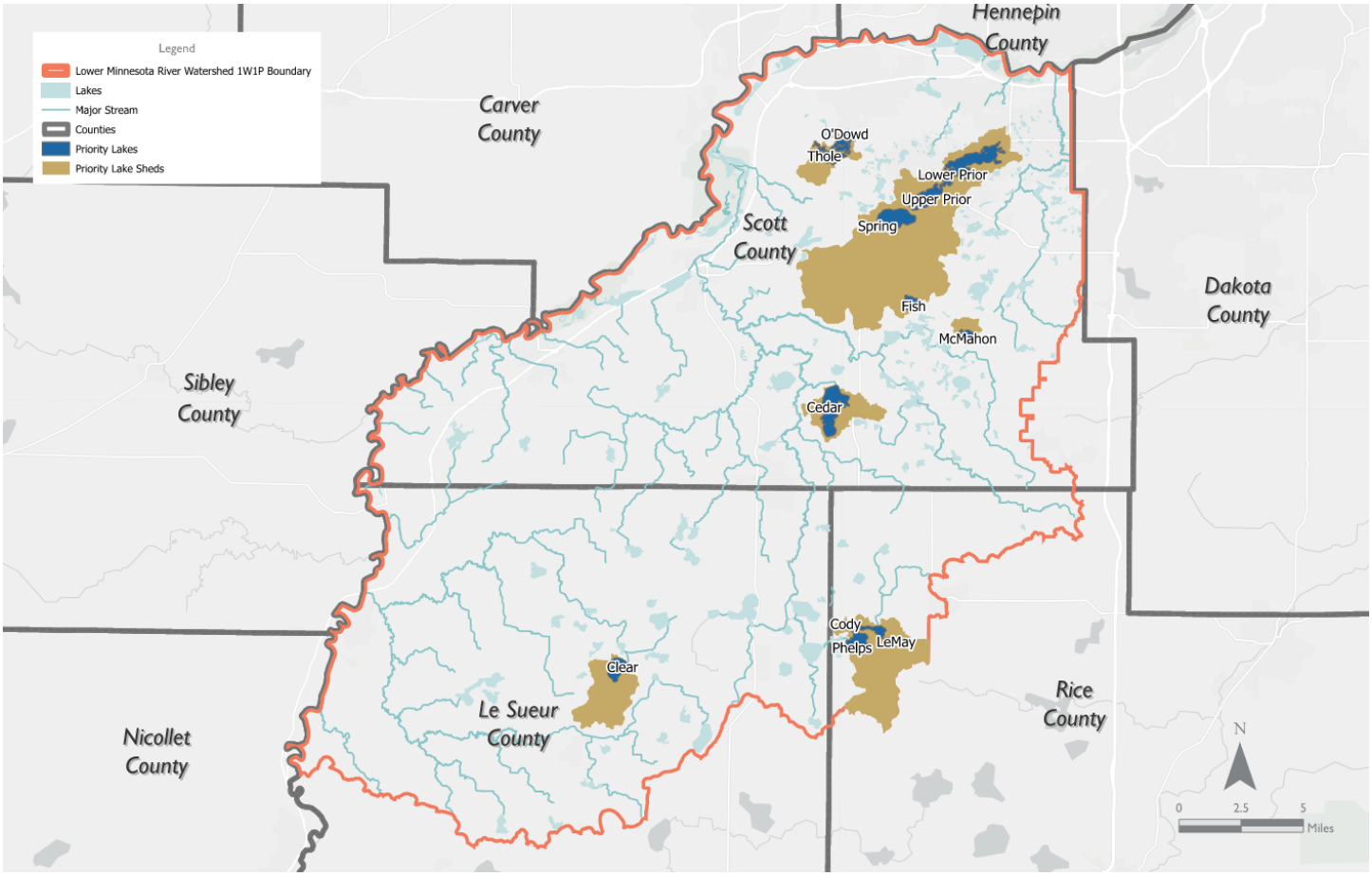


Figure 1:Priority Lakes and Subwatersheds

STREAM PRIORITIZATION

When considering priority resources, the AC primarily focused on pollutant loading and impacts to the Minnesota River. Additionally, the Minnesota River has great impacts to downstream waters including the Mississippi River, Lake Pepin, and eventually the Gulf of Mexico. Lastly, the Minnesota River has the greatest recreational value for streams within the Planning Area with multiple public accesses, refuges, and parks.

Tier A: Tier A includes streams with large sediment exports (near channel and overland) to the Minnesota River.

Tier B: Tier B includes streams with other pollutant concerns such as E. Coli as well as streams with IBI impairments or connectivity stressors.

TABLE 2: CANIDATE STREAMS FOR PRIORITIZATION

Stream	Priority Class	HUC10 Watershed
Upper Sand Creek	Tier A	Sand Creek
Middle Sand Creek	Tier A	Sand Creek
Le Sueur Creek	Tier A	Le Sueur Creek
Roberts Creek	Tier A	City of Belle Plaine – Minnesota River
Unnamed Creek (761 - near Henderson)	Tier A	City of Le Sueur – Minnesota River
Forest Prairie Creek	Tier B	Le Sueur Creek
Raven Stream	Tier B	Sand Creek
Unnamed Creek -604 (County Ditch 13)	Tier B	Minnesota River
Eagle Creek	Local Priority Only - Protection	Minnesota River

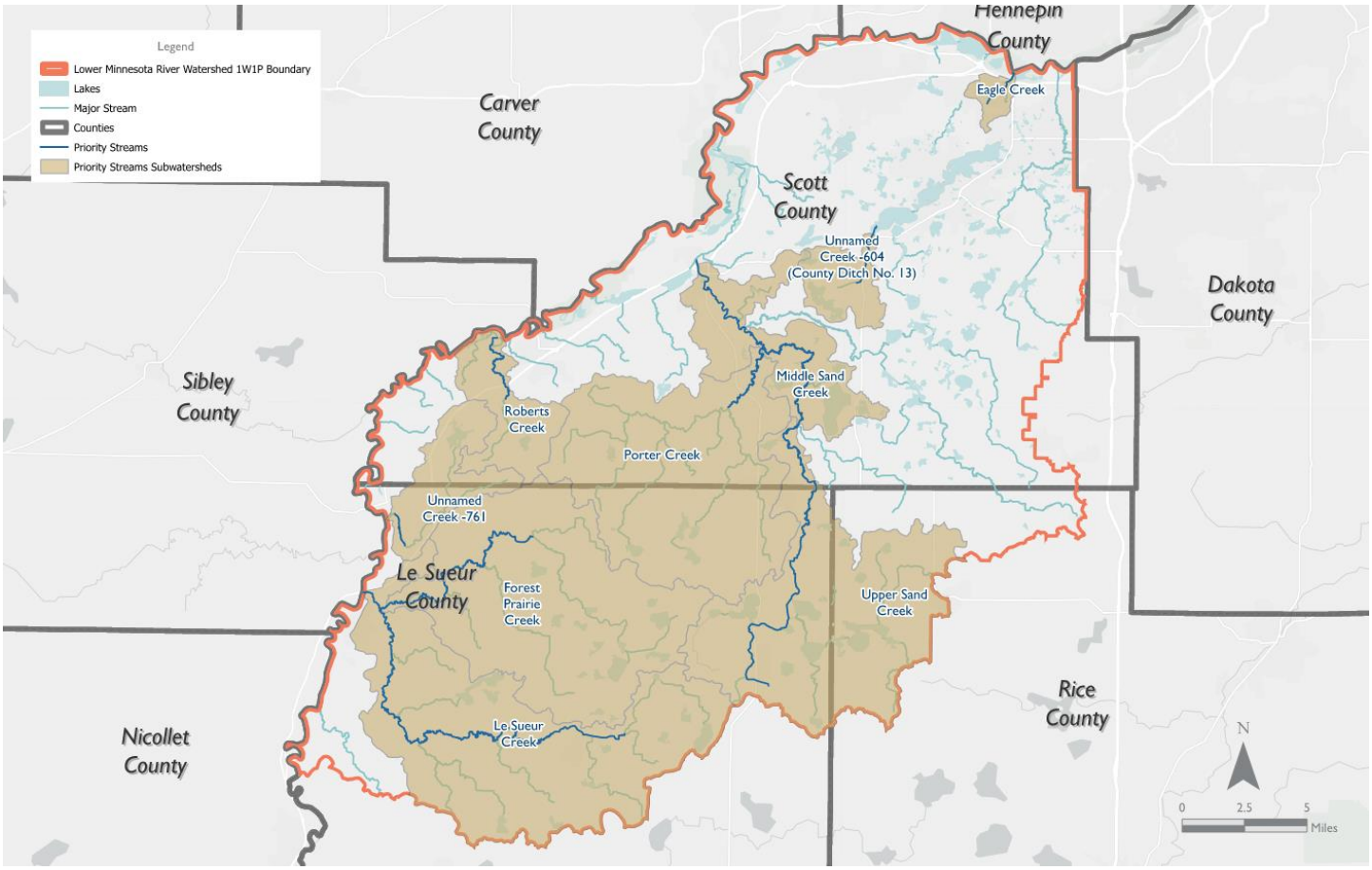


Figure 2: Priority Streams and Subwatersheds

RESOURCE BASED TARGETING

SEDIMENT – NEAR CHANNEL:

Background:

Near channel sources (gully, ravine, and bank erosion) are the largest contributor of sediment to stream reaches in the watershed and the Minnesota River. A study found Sand Creek was the 2nd largest contributor of sediment to the Minnesota River behind the Le Sueur River. Ravines along the Minnesota River are also a known source of near channel erosion. There are varying levels of data collection and monitoring available for the ravines and gullies along the Minnesota River in the Planning Area.

Targeting:

Targeting:

- Sand Creek
    - Source: Sand Creek Total Suspended Solid Model and Analysis of Potential Management Practices - https://www.scottcountymn.gov/Archive/ViewFile/Item/359 (See pg 32)
        - Middle and Upper Sand Creek subwatershed have the highest TSS yield.
            - Management strategies found wetland restoration in the upper watershed and stabilization of middle sand channel to be most effective for pollution reductions.

- Gullies and Ravines adjacent to Minnesota River
    - Source: High priority areas identified in LMRWD 2021 Gully Inventory - https://lowermnriverwd.org/application/files/8416/6818/9034/2021_Gully_Inventory_Final_2022-07-15_r.pdf (See pg 78-101)
        - Main branch of Eagle Creek
        - Savage Bluff Line
        - Shakopee Bluffs
        - Kelly Court
    - Source: Feasibility Report for Stabilization of Salisbury Hill and County Road 6 Ravines
        - Salisbury Hill
        - County Road 6
    - Known ravines in Le Sueur County and portions of Scott County not already prioritized
        - Feasibility study needed to inventory and prioritize areas

Data Gaps:

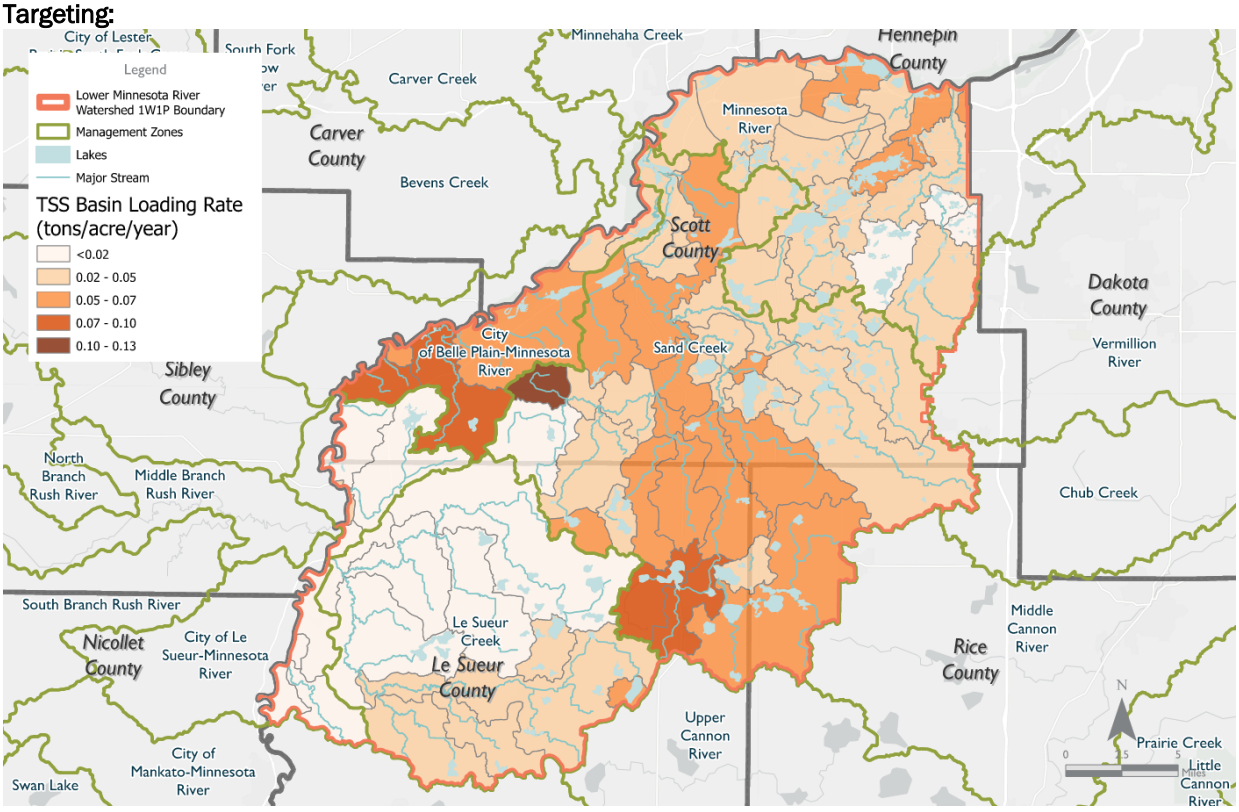
- Data collection, monitoring, and feasibility studies for ravine areas in Le Sueur County and portions of Scott County
- Models that include near channel erosion

SEDIMENT – OVERLAND:

Background:

Cropland erosion is the second largest contributor of sediment to stream reaches in the watershed and the Minnesota River. HSPF model analyzes overland erosion. The heat map shown below indicates the subwatersheds with the highest sediment loading rate (not including near channel contributions). Streams with the highest annual load to the Minnesota River from overland sources are Le Sueur Creek (33,327 tons/year) and Sand Creek (13,027 tons/year).

Targeting:



E. COLI:

Background:
E Coli impairments are widespread throughout the planning area. E Coli impairments can be very complex. In most cases, the first step is to identify the sources of E Coli in order to target efforts. E Coli monitoring can be very expensive and have results that are inconclusive. The outcome from the last AC meeting determined that the partners would focus on the areas with known concerns from landowners and impairments with cultural and habitat values.

Targeting:
Watershed wide with efforts focusing on planning, education and outreach, and imminent threats to human health

CHLORIDE:

Background:
The Met Council conducted a study that found nearly all monitored streams have experienced a rise in chloride levels in the Metro area. Chloride pollution in water is permanent, therefore reversing the increasing trend to protect and preserve natural and groundwater resources is critical. The main sources of chloride in waterbodies include de-icing salt, synthetic fertilizers, household water softening salt, and livestock waste. Chloride impacting surface water can infiltrate and impact groundwater resources. Chloride concentrations from MPCA ambient groundwater monitoring found increasing trends. Two ambient groundwater wells in the Planning Area exceeded the EPA drinking water standard of 250 mg/L.

Targeting:
Watershed wide with efforts focusing on protection and reversal of increasing trends through education and outreach

CHANNEL ALTERATIONS – CONNECTIVITY

Background: Channel alterations and connectivity may adversely impact water quality and hydrology as well as limit fish migration. Channel alternations and connectivity have been identified as a stressor to aquatic habitat for many reaches in the watershed. Channel alterations and connectivity may be dams, perched culvert, dredging channels, and straightening channels among others.

Targeting:
- Le Sueur Creek
- Forest Prairie Creek
- Middle Sand Creek
- Upper Sand Creek

WATER STORAGE

Background: Hydrology has been significantly altered within the watershed due to land use changes which have altered flow rates, drainage, volumes, and storage causing flooding, erosion, and downstream impacts. Increases in precipitation and climate change have also contributed to increases in flow rates and volumes. Through various studies, water storage has been found to be the most cost-effective strategy to compact the impacts of altered hydrology.

Targeting: (map and more detail to come during the meeting)
- HSPF Runoff Rates
- Restorable Wetland Potential

DRAINAGE SYSTEMS

Background: Drainage systems have concerns related to altered hydrology, channel alterations, connectivity, lack of storage, sediment, and nutrients. Agricultural conservation practices are needed to improve water quality and water storage.

Targeting:

- Le Sueur JD 1
- Le Sueur JD 4
- Rice CD 25
- Rice CD 14
- Rice CD 31
- Scott CD 10
- Scott CD 13
- Systems under improvements
- Systems in priority subwatershed for storage

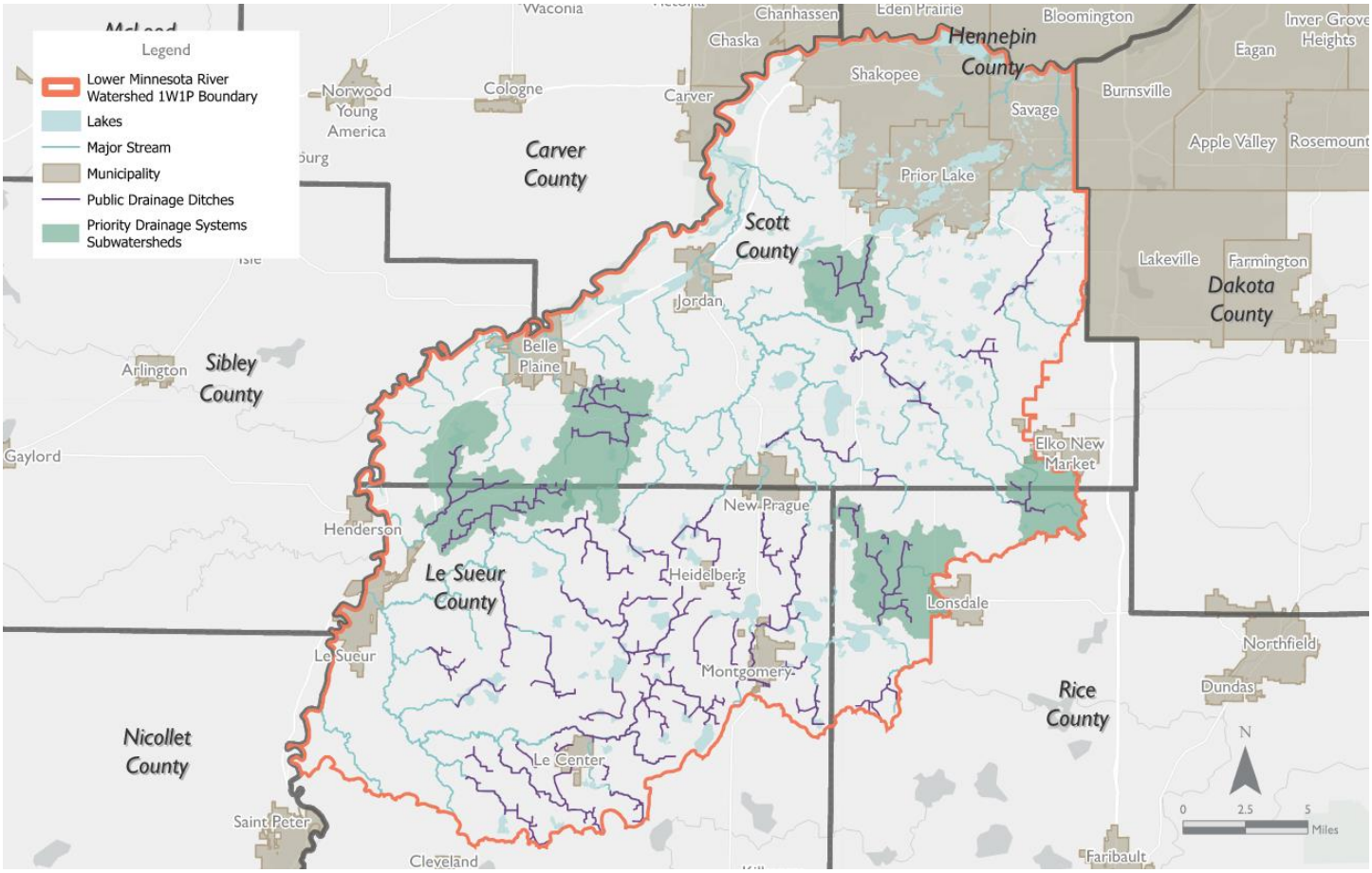


Figure 3: Public Drainage Systems

GROUNDWATER

Groundwater is a crucial resource as 100% of the drinking water for residents within the planning area is supplied from groundwater resources. Areas where groundwater may be susceptible to contamination through surface water – groundwater connections for public and private drinking water supplies and areas with monitored drinking water wells above the drinking water standards for nitrates were determined at criteria for targeting. Criteria is as follows:

1. High and moderate drinking water supplies management areas (DWSMAs) vulnerability ranking

2. High aquifer vulnerability ranking
3. Townships with drinking water wells with monitored nitrate levels that exceed the drinking water standard of 10 mg/L. The only township that meets this criterion is Ottawa Township in Le Sueur County.

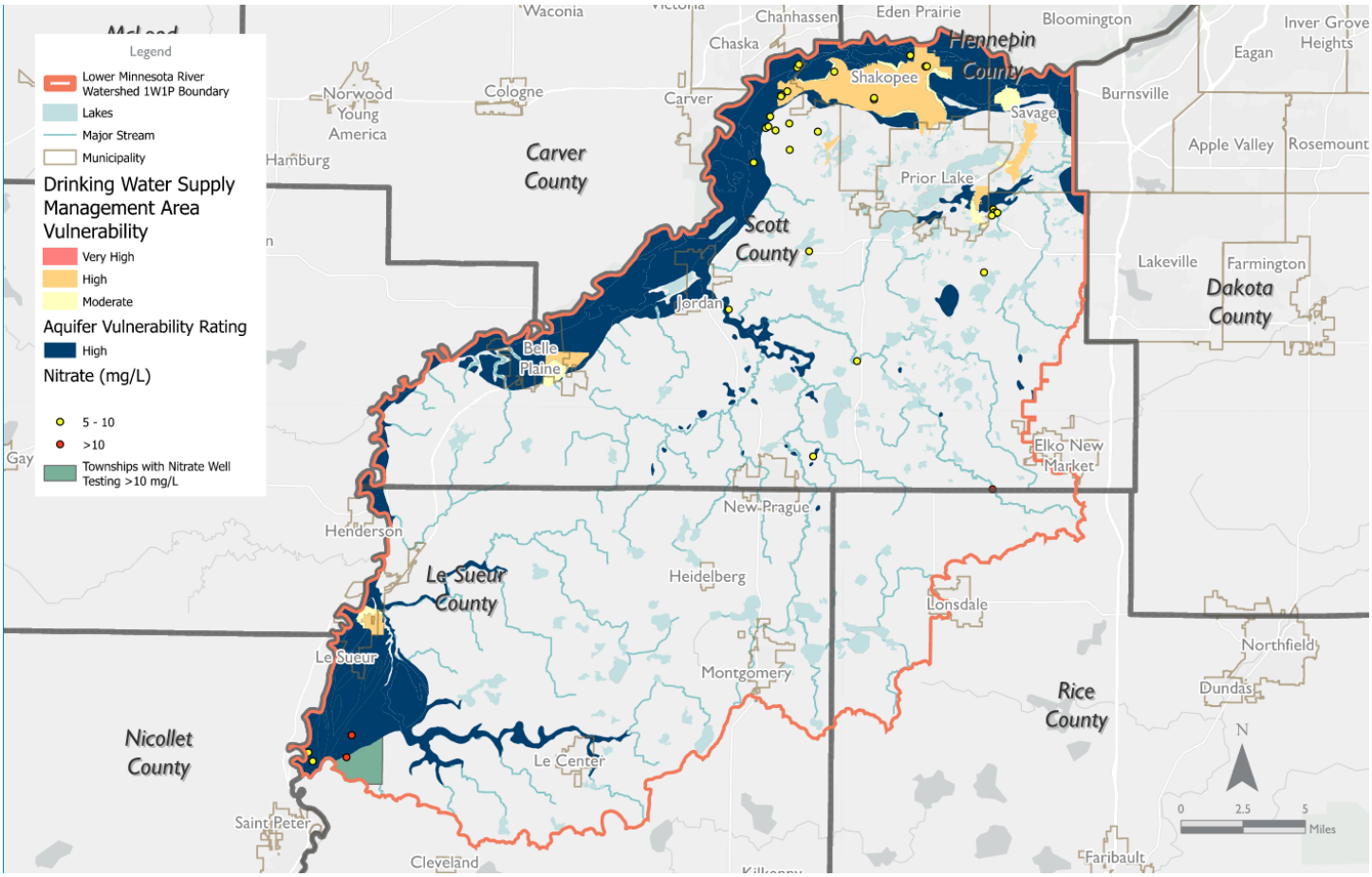


Figure 4: Groundwater Targeting Areas

Arsenic is a known carcinogen and is naturally occurring element found in rocks and soil. Groundwater well monitoring found wells that exceed the arsenic drinking water standard of 10 ug/L throughout the watershed. Due to arsenic being a naturally occurring element, there are limited actions that can be done to prevent groundwater contamination. Education and knowledge of the current drinking water arsenic concentrations and education on the impacts is key. Education and outreach efforts for arsenic will be watershed wide initiative.

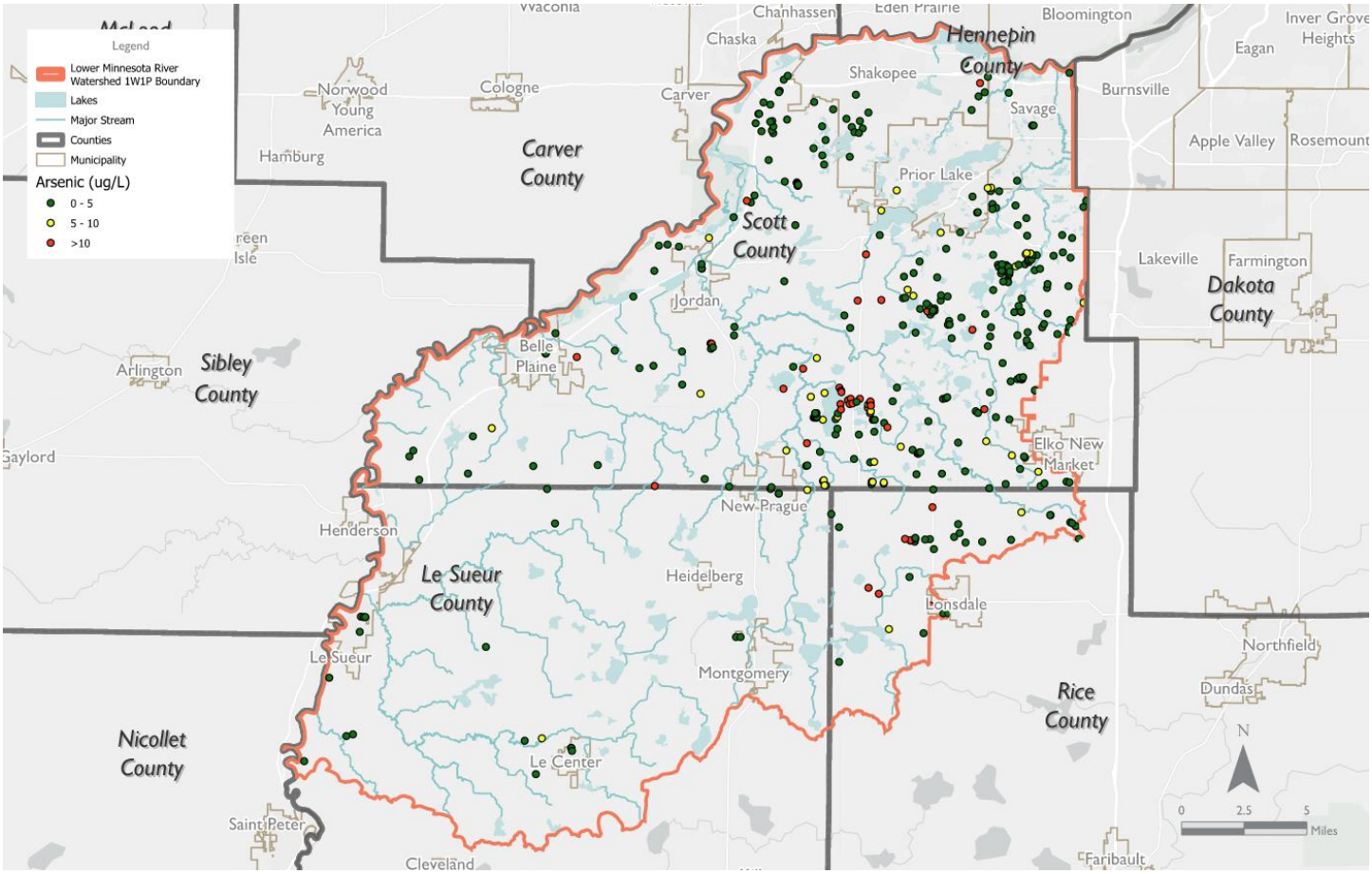


Figure 5:County Well Index Arsenic Testing

HABITAT

Background: Per the Steering Team's direction, the habitat restoration efforts will focus on riparian areas and connectivity of habitat corridors. Connectivity of habitats corresponds to greater diversity and stronger ecosystems. Riparian areas can have multiple benefits to water quality through filtering pollutants and water quantity through connectivity to floodplain.

Targeting: (map and more detail to come during the meeting)
Criteria: existing vegetation, distance from public water, NWI status

MEASURABLE GOALS SURVEY RESULTS

1. What metric would you like to utilize to measure success in lakes?
    a. Load reduction (ex. lb TP/yr and/or % reduction): **10**
    b. Measure of trends (ex. no increase in TP for protection lakes): **6**
    c. # of impairments in watershed: **2**
    d. # of outreach efforts: **1**
    e. Water clarity: **0**
    f. Other: **0**

2. What metric would you like to utilize to measure success with near channel sediment resource concern?
    a. Load reduction (ex. tons/yr and/or % reduction): **10**
    b. # of acres (ex. # of acres of cover crops): **2**
    c. # of practices (ex. # of ravine stabilization practices): **4**
    d. # of impairments in watershed: **0**
    e. # of outreach efforts: **0**
    f. Other: **2**
        i. **I would like to see an assessment/inventory of gullies and ravines and then a program where identified gullies/ravines can be assessed periodically for change**
        ii. **Feasibility studies or assessments**

3. What metric would you like to utilize to measure success with overland sediment resource concern?
    a. Load reduction (ex. tons/yr and/or % reduction): **9**
    b. # of acres (ex. # of acres of cover crops): **6**
    c. # of practices (ex. # of WASCOBs): **3**
    d. # of impairments in watershed: **0**
    e. # of impairments in watershed: **0**
    f. Other: **1**
        i. **I would like to see an assessment/inventory of gullies and ravines and then a program where identified gullies/ravines can be assessed periodically for changes**

4. What metric would you like to utilize to measure success in E.Coli resource concern?
    a. # of planning efforts (ex. manure management plans): **3**
    b. # of outreach efforts: **1**
    c. # of practices implemented (ex. SSTS upgrades/replacements): **8**
    d. # of impairments in watershed: **3**
    e. Measure of E.Coli cultures: **1**
    f. Other: **2**
        i. **Rather than measuring the number of practices implemented - identify impairments and undertake studies to determine sources, then assess whether source can be addressed or if it is not feasible to address the source (if it comes from natural sources such as waterfowl or other wildlife) that that information is made available to the public.**
        ii. **load reductions of E. coli**

5. What metric would you like to utilize to measure success in chloride resource concern?
    a. # of outreach efforts: **5**
    b. # of practices implemented: **4**
    c. # of impairments: **0**
    d. Assessment of trends: **7**
    e. Assessment of groundwater concentrations: **2**
    f. Other: **1**
        i. **load reductions (salt savings) - use MPCA winter maintenance tool**

6. What metric would you like to utilize to measure success for storage?
    a. # ac-feet (BWSR Plan Requirement): **9**
    b. # of runoff reduction (ex. # inches of runoff across watershed): **4**
    c. Peak flow rate trends (ex. #% reduction in peak flows): **3**
    d. Water quantity trends (ex. #% reduction in annual water yield): **1**
    e. # of practices (ex. # wetlands): **1**
    f. # of acres (ex. # acres of wetlands): **0**
    g. # of outreach efforts: **0**
    h. Other: **2**
        i. **Would be good to use runoff reduction and peak flow**
        ii. **Is there a way to measure the flows contributed by each watershed/subwatershed**

7. What metric would you like to utilize to measure success for channel alterations / connectivity?
    a. # of planning efforts (ex. # of culvert inventories): **1**
    b. # of practices (ex. # of stream stabilization/restoration projects and/or # of dam removals): **9**
    c. # of length (ex. # linear feet stream restoration): **6**
    d. # of stressors in watershed: **1**
    e. Trends is IBI assessments: **2**
    f. # of outreach efforts: **0**
    g. Other: **0**

8. What metric would you like to utilize to measure success for drainage systems?
    a. # of planning efforts (ex. # of MDM plans): **3**
    b. # of practices (ex. # of practices per MDM plans): **5**
    c. # of storage practices (ex. # of acre-feet): **7**
    d. # of outreach efforts: **0**
    e. Other: **2**
        i. **Number of drainage systems that have been improved to better manage downstream flows**
        ii. **Load reductions for sediment, phosphorus**

9. What metric would you like to to utilize measure success for groundwater quality?
    a. Load reductions (ex. # lb/yr nitrate reduction): **6**
    b. # of projects (ex. # of well sealings): **8**

c. # of acres (ex. # of acres in cover crops): **2**
d. # of outreach efforts: **2**
e. Other: **1**
    i. **Assess trends in groundwater pollutants found in groundwater**

10. What metric would you like to utilize to measure success for groundwater data?
    a. Monitoring efforts (ex. # wells tested): **8**
    b. # of planning efforts (ex. # counties complete geologic atlas): **5**
    c. Other: **2**
        i. **assess trends in groundwater elevations**
        ii. **Unsure about what this one means - needs discussion**

11. What metric would you like to utilize to measure habitat?
    a. # of acres (ex. # of acres with perennial cover): **8**
    b. # of length (ex. # of miles of extended buffers): **4**
    c. # of stressors: **0**
    d. Other: **2**
        i. **depends on the practices (e.g., acres or length)**
        ii. **Connectivity of habitats and assessment of species diversity**

12. Are there additional resource concerns or categories that you think we missed? If so, what should be added for consideration and what goals would you like to achieve?
    a. **I would like to see one measurable education/outreach goal per issue statement. I filled the survey out with that in mind and assumed every issue statement would receive some type of education and outreach goal.**
    b. **Since storage and sediment are really important issues for the watershed, I am okay adding more than 2-3 measurable goals.**
    c. **For storage, I would also like to include runoff reduction (in addition to acre-feet and flow rates). I think all three of these are easy enough to measure and report.**
    d. **For near channel sediment, I would also like to include number or practices (in addition to load reduction and feasibility studies/assessments). These goals will definitely vary based off of current studies/assessments for each streamshed. Again, I think all three of these are easy enough to measure and report.**
    e. **Do we know sources of chloride? it is hard to address chloride pollution without knowing the sources.**
    f. **Extent of partnerships between local governments, and between local governments and landowners. continued planning and implementation efforts after plan is completed.**
13. Is there anything you would like for the AC to keep in mind when establishing measurable goals?
    a. **Want to make sure goals are reasonable to achieve and also show we are making progress within the watershed.**
    b. **To the best extent possible, they should be pollutant loads (outcomes) vs. outputs (widgets)**
    c. **There needs to be baselines established - it is hard to measure improvements if the is not a baseline to measure against. It seems that there needs to be lots of ground work done to know where we are in order to decide how to get where we want to go.**
    d. **Might be worthwhile to see how Lower MN West did their goal tracking. Same HUC 8 so it would be good to have comparable metrics in each.**