



**Steering Committee Meeting
Wednesday, Oct. 27, 1-2:30pm**

To join the Meeting:

<https://us02web.zoom.us/j/81644480415?pwd=TGx6a1ZrN3Z0bGJBM3psRHUxa3dndz09>

Meeting ID: 816 4448 0415

Passcode: 732347

AGENDA

1. Administrative Updates
 - Financial update – Craig Mell
 - Discussion: Funding allocation for 2022-24 biennium
2. Subcommittee Updates
 - **A1) Agronomy Outreach** – Jay Riggs
 - **A2,4,5) Urban and Agricultural Projects** – Craig Mell and Mike Isensee
 - Update on SWWD WBIF funded project in Denmark Twp – Matt Moore
 - Update on Pine SWCD WBIF funded project on Rock Lake – Paul Swanson
 - **A3) Watershed Education** – Angie Hong and Barbara Heitkamp
 - Quarterly newsletter sent via MailChimp on Wednesday, Oct. 20
 - Workshop for local decision-makers – Conservation Development, MIDS and shoreline/wetland protections (2022)
 - Workshop series for small farmers (2022)
 - **A6) Wetland Restoration** – Becky Wozney
 - Any prospective projects coming up?
 - **A7) Internal Analyses** – Susanna Wilson – Witkowski
 - Call for projects – due Oct. 31
 - **A8) Targeting and Prioritization Analyses** - Mike Isensee
 - Enhanced street sweeping program
 - Delineation and Prioritization of Contributing Subcatchments for Pine County and the Sunrise River
3. Progress Update – Emily Heinz
 - Cumulative progress toward water quality goals
4. Other discussion:
 - 2022-24 work plan development
 - Topics for future meetings?

Anoka Soil and Water Conservation District - Brown's Creek Watershed District - Chisago County
Carnelian-Marine-St. Croix Watershed District - Chisago Soil and Water Conservation District
Comfort Lake-Forest Lake Watershed District - Isanti County - Isanti Soil and Water Conservation District
Middle St. Croix Watershed Management Organization - Pine County - Pine Soil and Water Conservation District
South Washington Watershed District - Sunrise River Watershed Management Organization
Valley Branch Watershed District - Washington County - Washington Conservation District

LSC Steering Committee Meeting
September 22nd, 2021

Meeting Notes:

Attendees: Angie Hong, Barbara Heitkamp, Emily Heinz, Mike Isensee, Tiffany Determan, Jay Riggs, Susanna Witkowski-Wilson, Karen Kill, Caleb Anderson, Becky Wozney, Paul Swanson, Jeremy Williamson, Matt Moore, Maureen Hoffman, Jamie Schurbon, Melissa King, Barb Piechel

1. Administrative Updates

- a. Work plan revisions – Craig Mell
 - i. Verbiage in attached meeting packet, formation of policy as it relates to moving money around between the A2 and A5 activities. Planning committee can approve work plan changes up to \$50K without policy committee approval.
 - ii. Will present to policy committee in October.
 - iii. No objections/concerns raised by anybody in the group.
- b. Project request form template – Emily
 - i. Need to approve project request form template for policy committee
 - ii. Contains all needed documents for a partner to fill out for WBIF funding, inclusive of flow chart, deadlines, and additional documents needed from specific subcommittees not covered on main form.
 - iii. Can put a PDF of this on the website or can send Microsoft word form to partners
 - iv. Question by Mike I – Is there a rolling process for subcommittees to consider proposed projects? Do we mandate deadlines?
 1. Emily – Up to the subcommittee to determine what works best for them in terms of when they put project proposals forward
 - v. No objections raised by the group.
- c. Mobilize platform – Angie
 - i. Trying out a new platform that we can use as a list-serv, store documents, list internal events, etc.
 - ii. Hopefully not firewalled (yet) by anybody.
 - iii. Some did not receive invite – Angie will forward invite after the meeting
- d. Financial Update – Craig
 - i. 47% of 2 year funds encumbered, 1.3% spent

2. Subcommittee Updates

- a. A1 – Agronomy Outreach – Jay
 - i. Position has been posted, receiving applications through this Sunday (26th) – will evaluate at that time whether we need to extend deadline
 - ii. Subcommittee met on Monday, included introducing Joel Larson (UMN Extension and WRC) to the group
 - iii. Selection committee will include Joel and 1-2 other UMN folks, will also include Jay Riggs, Barbara Heitkamp, Lance Peterson (LSC policy at large member) and Dave Tollberg (crop advisor & Chisago SWCD policy alternate)

- iv. The selection committee will review all application materials and will vote on most promising applications; after that is done, can share those application materials to the rest of the A1 subcommittee group.
 - v. No other questions
 - b. A2 Updates
 - i. Craig – nothing new to report, talked with a few partners about potential projects but no incoming applications
 - c. A4, 5 Updates – Mike I
 - i. Committees have been busy, a lot of the work ties to A8 subcommittee as well
 - 1. Bringing a street sweeping prioritization proposal to October steering committee meeting
 - 2. Developing an incentive/reimbursement program for cities – will pay up to \$100 per curb mile, reimbursed at the end of the year
 - a. Cities will need to weigh their collections and log when sweepings happened
 - b. Angie – any education needs? Mike – not there yet, but stand by
 - 3. Bringing forward a catchment connectivity and pollutant hotspot evaluation proposal together
 - a. Working with Bryan Pynn (WCD) and Casey Thiel (Chisago SWCD) and EOR to do a desktop analysis to determine priority action areas in pollutant loading
 - b. Northern partners at most need for this – helps narrow down scope and cost
 - c. Jay – any comparisons being done with developed SWAT models?
 - i. Jeremy – Jim Almendinger has retired, but Science Museum of Minnesota could be convinced to think it through
 - 4. Matt M – another thing we need to think about in terms of budgeting – make sure we include realistic proposals for construction engineering contracts
 - a. Craig – yes, need to have a conversation about this prior to developing next year’s work plan.
 - d. A3 - Education updates
 - i. Angie showed a teaser virtual tour map for next Monday. Staff confirmed they will attend to answer questions from the policy committee
 - e. A6 – Wetland Restoration – Becky
 - i. No updates, glad to get project form taken care of
 - ii. Craig – how can we in Chisago SWCD get a better handle on wetland restoration needs?
 - 1. Jay – hard to do, Emily – we did some historic aerial analyses, can ask team to put together a type of internal ‘training’ that may help thing of a path forward, group agrees

- f. A7 – Internal Analysis – Susanna
 - i. Doing some last tweaks to our forms, deadline for applications is November 30th
- g. A8 – Targeting and Prioritization Analyses
 - i. Have WBIF Application for updating prioritization protocols
 - 1. Originally \$5K need, but need a bit more (\$8K)
 - 2. Chisago SWCD, WCD, and CLFLWD would receive the funding to do the work
 - 3. Roll Call vote – all ayes for those present, majority carries forward
 - ii. Rock Lake SWA
 - 1. There was some confusion in whether or not monitoring is eligible for WBIF funding
 - a. It is not.
 - 2. Application did not go through subcommittee – some pieces eligible for funding – others are not
 - 3. Going to table proposal for now – Jeremy and Caleb will follow up with Melissa King and others
- 3. Progress Updates – Emily
 - a. Same status
- 4. Other Topics?
 - a. Funding allocation for 2022-24 biennium – we will know this amount by next SC meeting. Will need to begin putting together a budget and work plan for 2022-24.
 - b. Updates from Pine SWCD – Hinze project and SWWD – McQuade project?

Financials and Progress Update

Financial Update – Watershed Based Implementation Funding Grant

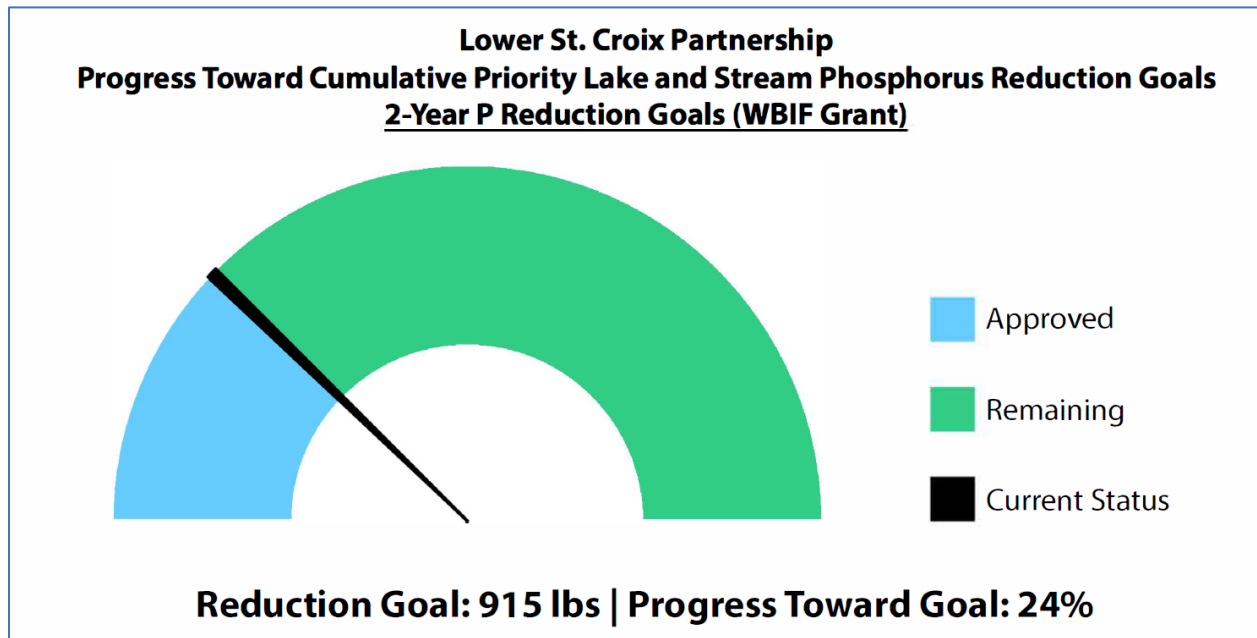
- WBIF Grant Award: \$1,264,531
- WBIF Grant Encumb.: \$596,100 (47%)
- WBIF Grant Spent: \$43,357 (3%)

- WBIF Match Budget: \$129,800
- WBIF Match Spent: \$15,423 (12%)

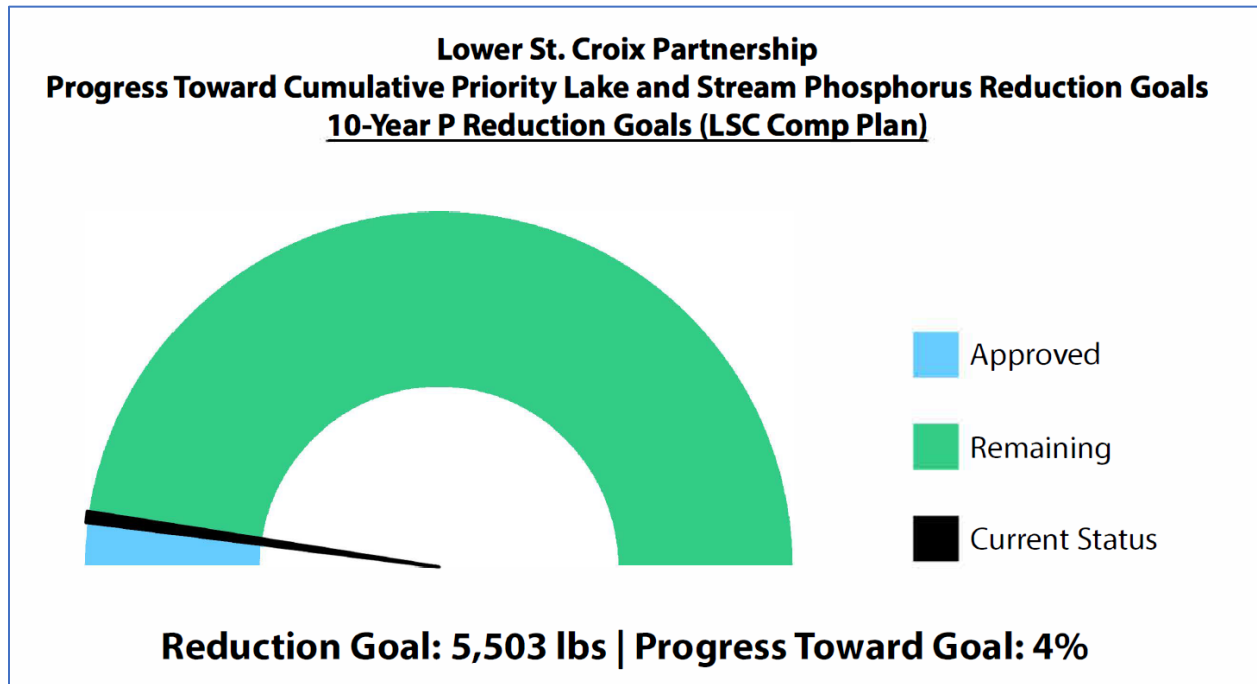
Progress Update

- Process established and associated templates largely complete for WBIF funding requests (Project Request Packet also included in Policy Committee meeting packet)
- Several staff time/professional services initiatives underway, and two on-the-ground projects approved by Steering Committee (funds encumbered)
 - SWWD McQuaid Ravine Stabilization: 220 lb/yr phosphorus reduction to St. Croix River
 - Pine Co Hinze Cattle Exclusion & Buffer: 3.5 lb/yr phosphorus reduction to Rock Lake
 - Total: 223.5 lb/yr

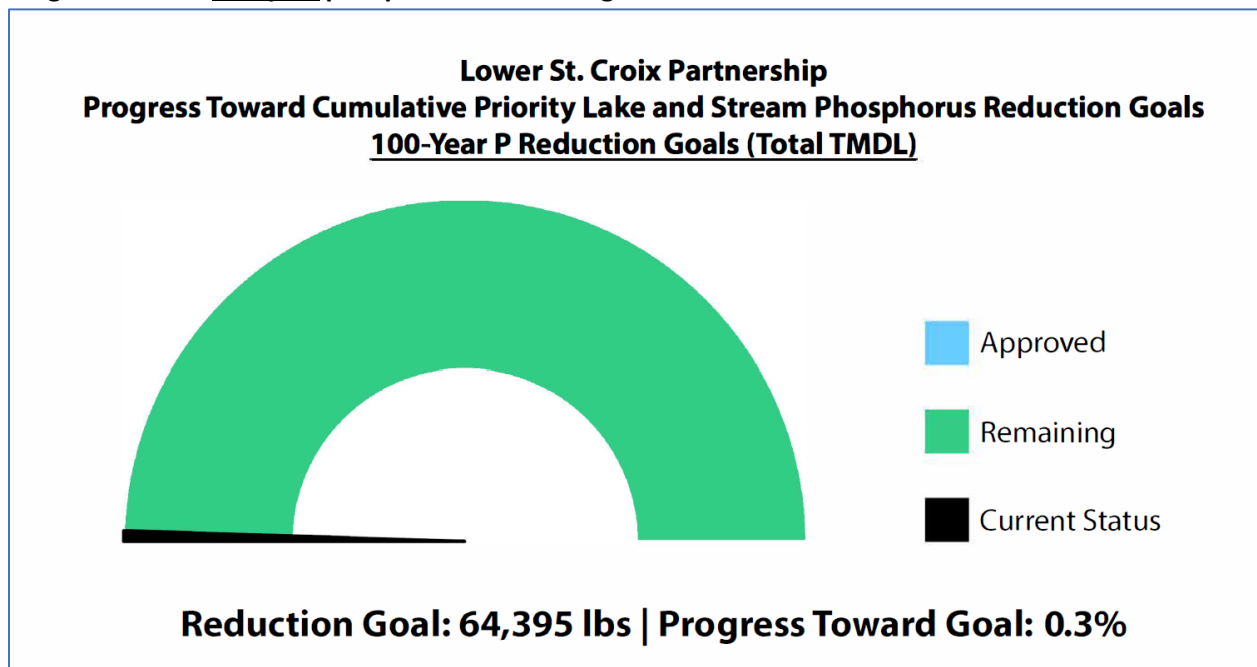
Progress toward 2-year phosphorus reduction goal from WBIF grant work plan



Progress toward 10-year phosphorus reduction goal from LSC Comprehensive Watershed Mgmt Plan



Progress toward 100-year phosphorus reduction goal from cumulative TMDLs



Note: keep in mind that additional projects and initiatives led by partners and other organizations within the LSC Basin will help make progress toward these goals. Not solely dependent on WBIF projects. Additionally, due to priority waterbody connectivity, reductions for some waterbodies may also result in reductions to downstream waterbodies.

FY21 WBIF - Lower St. Croix Watershed Partners Grant

	A	B	C	D	E	F	G	H	I	J	K	L
	ACTIVITY	BEGINNING WBIF BALANCE	BEGINNING MATCH BALANCE	AMOUNT WBIF's ENCUMBERED (Sub-Agreements)	AMOUNT WBIF's SPENT	PERCENT WBIF's ENCUMBERED	PERCENT WBIF's SPENT	AMOUNT OF MATCH FUNDS SPENT	PERCENT OF MATCH FUNDS SPENT	WBIF BALANCE REMAINING	TOTAL MATCH REMAINING	TOTAL WBIF & MATCH REMAINING
A1	Basin Ag Outreach Program	\$ 200,000.00	\$ -	\$ 200,000.00	\$ -	100%	0%	\$ -	NA	\$ 200,000.00	\$ -	\$ 200,000.00
A2	Structural Ag BMP Implementation	\$ 160,000.00	\$ 55,000.00	\$ 180,100.00	\$ -	113%	0%	\$ -	0.0%	\$ (20,100.00)	\$ (20,900.00)	\$ (41,000.00)
A3	Shared Services Educator	\$ 125,000.00	\$ 4,800.00	\$ 125,000.00	\$ 27,134.77	100%	22%	\$ 14,711.00	306.5%	\$ 97,865.23	\$ (9,911.00)	\$ 87,954.23
A4	Non-Structural Ag/Urban BMP Implementation	\$ 200,000.00	\$ -	\$ -	\$ -	0%	0%	\$ -	NA	\$ 200,000.00	\$ -	\$ 200,000.00
A5	Structural Urban BMP Implementation	\$ 200,000.00	\$ 70,000.00	\$ -	\$ -	0%	0%	\$ -	0.0%	\$ 200,000.00	\$ 70,000.00	\$ 270,000.00
A6	Wetland Restoration Implementation	\$ 39,531.00	\$ -	\$ -	\$ -	0%	0%	\$ -	NA	\$ 39,531.00	\$ -	\$ 39,531.00
A7	Internal Analyses	\$ 50,000.00	\$ -	\$ -	\$ -	0%	0%	\$ -	NA	\$ 50,000.00	\$ -	\$ 50,000.00
A8	Targeting Analyses	\$ 150,000.00	\$ -	\$ 8,000.00	\$ -	5%	0%	\$ -	NA	\$ 142,000.00	\$ -	\$ 142,000.00
A9	Technical/Engineering	\$ 40,000.00	\$ -	\$ -	\$ -	0%	0%	\$ -	NA	\$ 40,000.00	\$ -	\$ 40,000.00
A10	Administration/Coordination	\$ 100,000.00	\$ -	\$ 83,000.00	\$ 16,223.03	83%	16%	\$ 712.17	NA	\$ 83,776.97	\$ (712.17)	\$ 83,064.80
PROJECT BALANCE:		\$ 1,264,531.00	\$ 129,800.00	\$ 596,100.00	\$ 43,357.80	47%	3%	\$ 15,423.17	11.9%	\$ 1,033,073.20	\$ 38,476.83	\$ 1,071,550.03

PROJECT REQUEST FORM
Lower St. Croix Partnership – Watershed Based Implementation Funding

G

To: A8 Prioritization Subcommittee, Steering Committee **Date:** 10/22/2021
From: Mike Isensee, A8 Subcommittee
Subject: WBIF Project Request: Tree Canopy Assessment Protocol for Enhanced Street Sweeping

Table of Acronyms

CWMP: Comprehensive Watershed Management Plan	LSC: Lower St. Croix
SWCD: Soil & Water Conservation District	WD: Watershed District
WBIF: Watershed Based Implementation Funding	WMO: Watershed Management Organization

Eligible Project Sponsors

A sponsoring agency is required for each submitted project. The sponsor fills out this request. That agency must be a party to the Joint Powers Agreement for the implementation of the Lower St. Croix Comprehensive Watershed Management Plan. The sponsor, if the project is selected for funding, will enter into a subcontract with the Chisago Soil and Water Conservation District (SWCD) for project funding.

Description of Project (brief paragraph)

This request proposes to develop guidance outlining procedures for assessing street corridor tree canopy through visual inspection and automated digital assessment (GIS) for inclusion in to the Subwatershed Analysis Protocol for developing Enhanced Street Sweeping Plans.

Benefitted Waterbody Information (add rows for additional waterbodies if necessary)

Target waterbody	Rush Creek, Goose Creek, Sunrise River, St. Croix River
Waterbody area (acres)	Mega Acres
Watershed area (acres)	Mega Acres
DNR shoreline classification	None to Scenic and Wild River
Description of the watershed and near-shore land uses	Paved urban streets discharging to target waterbodies listed above
Impairment status	Impaired
Protection or restoration	Restoration

Project Details

Project Name	Tree Canopy Assessment Protocol for Enhanced Street Sweeping
Project Sponsor	TBD
Additional Project Partner(s) (other than sponsor)	TBD
Eligible Project Locations	Rush City, Harris, North Branch, Stacy, Wyoming, Taylors Falls, Marine on St. Croix, Stillwater, Afton, Bayport, Baytown Township, Lakeland, Lakeland Shores, Lake St. Croix Beach, Oak Park Heights, St.

PROJECT REQUEST FORM

Lower St. Croix Partnership – Watershed Based Implementation Funding

	Mary's Point, Stillwater, and West Lakeland Township
DNR Level 8 Subwatershed	TBD
Applicable WBIF Work Plan Activity	Activity 8 Targeting and Prioritization
Funding Specifically Allocated to this Project in Work Plan (if applicable)	N/A
Estimated Construction Timeline	November 2021 to Feb 2022
Total Project Cost	Estimate: \$8,500
Estimated Lifetime Project Cost (incl. O&M)	N/A
Requested Grant Funding	\$8,500
Match provided, match source (cannot be state funds)	\$0
Target Waterbody (from CWMP Table 5-2, 5-3, 5-4)	Rush Creek, Goose Creek, Sunrise River, St. Croix River
Est. Phosphorus Load Reduction @ Target Waterbody	TBD
Est. TSS Load Reduction @ Target Waterbody	TBD
Calculation Tool Used	N/A
Project Lifespan	N/A
Lifetime Cost-Benefit (\$/lb phosphorus removed)	N/A

Pre-Project Identification

Total phosphorus load entering target waterbody	N/A
Total suspended solids load entering target waterbody	N/A
Major sources of nutrient loading	N/A
P reduction required to achieve water quality goal	N/A
Completed projects, load reduction	N/A
Alternative projects, load reduction	N/A

List of Informational Attachments/Templates Included With Form:

1. WBIF Project Request Process Flow Chart
2. CWMP Priority Waterbody Maps
3. CWMP Appendix C – Project Targeting Criteria and Scoring Matrix (for [Activities 2, 4, 5, 9](#))
4. Wetland Restoration Scoring Matrix (for [Activity 6](#))
5. Internal Analysis Request for Funding (for [Activity 7](#); filled out by applicant)
6. Internal Analysis Selection Criteria (for [Activity 7](#); filled out by subcommittee)
7. Targeting Analysis Scoring Matrix (for [Activity 8](#))

Required Attachments for Requesting Partner to Complete (check all that apply):

- Project Plans/Visual/Map (for all requests)
- Completed Appendix C Project Scoring Matrix (for [Activities 2, 4, 5, 9](#))
- Completed Wetland Restoration Scoring Matrix (for [Activity 6](#))
- Completed Internal Analysis Request for Funding (for [Activity 7](#))
- Completed Internal Analysis Selection Criteria (for [Activity 7](#))
- Completed Targeting Analysis Scoring Matrix (for [Activity 8](#))

PROJECT REQUEST FORM
Lower St. Croix Partnership – Watershed Based Implementation Funding

WBIF Work Plan Activity Color Coding
Implementation - BMPs/Restoration Activities
Implementation - Shared Services
Prioritization & Analysis
Administration

Submit this form and attachments to Angie Hong at (ahong@mnwcd.org) one week prior to the Steering Committee meeting.

Steering Committee Roll Call Vote

Steering Committee roll call vote to recommend this project for Lower St. Croix Watershed Based Implementation Funding in the amount of \$26,772 for the Delineation and Prioritization of Contributing Subcatchments for Pine County and the Sunrise River

Organization	Aye	Nay	Absent
Anoka SWCD			
Brown's Creek WD			
Carnelian Marine St Croix WD			
Chisago County			
Chisago Lakes LID			
Chisago SWCD			
Comfort Lake Forest Lake WD			
Isanti County			
Isanti SWCD			
Middle St. Croix WMO			
Pine County			
Pine SWCD			
South Washington WD			
Sunrise River JP WMO			
Valley Branch WD			
Washington CD			
Washington County			
TOTAL (need majority vote to pass)			

Lower St. Croix Partnership Enhanced Street Sweeping Program

The following information summarizes the Lower St. Croix Partnership (LSCP) grant program to provide cost-share/incentives to specific Lower St. Croix communities for implementing enhanced street sweeping to reduce phosphorus to priority water resources.

Program Summary

Canopy cover, sweeping frequency, timing of sweeping, and sweeper type can reduce sediment and phosphorus discharges from urban areas. Increasing late spring, early summer, and fall sweepings in catchments with medium or high tree canopy cover reduces the greatest amount of phosphorus discharging from streets. The Lower St. Croix Partnership provides cost share funds to implement increased sweeping in late spring, early summer, and fall in catchments with medium or high tree canopy and directly flowing to priority water resources. Participating communities will be responsible for implementing increased sweeping in late spring, early summer and fall in targeted areas identified in an enhanced sweeping plan.

To qualify for a grant, communities must have an approved enhanced sweeping plan completed by the Lower St. Croix Partnership.

Enhanced Street Sweeping Plan

The LSCP will conduct an Enhanced Street Sweeping Evaluation at the request of communities interested in participating in the enhanced street sweeping grant program. To initiate the evaluation, a community must apply to have a street sweeping study completed with the intent to adopt changes to their street sweeping operations. Enhanced Street Sweeping Evaluations will be completed for a cost between \$3,000-\$5,000 each, depending on scale. During the evaluation, the community will be requested to provide information regarding the existing sweeping operations. The draft plan will be reviewed with community staff or the appointed representative for the community.

Sweeping plans will be developed utilizing GIS with the following steps: 1. identify direct drainage to priority catchments, 2. Identify current sweeping frequency in the direct drainage catchments, 3. Identify canopy cover density (low, medium, high) based on tree canopy assessment protocol, 4. Identify increased sweeping frequency in late spring, early summer and fall in medium and high-density canopy cover areas directly draining to priority water resources, 4. Produce color coded street maps that indicate sweeping frequencies in late spring, early summer, and fall; summarize recommended enhanced sweeping curb miles, and identify total cost estimate for implementing enhanced street sweeping.

\$40,000 has been identified for this task in the LSC Watershed Partnership Watershed Based Implementation Funding work plan.

Eligible Communities and Water Resources

Rush City areas draining to Rush Creek; Harris areas draining to Goose Creek; North Branch, Stacy, and Wyoming areas draining to the Sunrise River.

Taylor Falls, Marine on the St. Croix, Stillwater, Afton, Bayport, Baytown Township, Lakeland, Lakeland Shores, Lake St. Croix Beach, Oak Park Heights, St. Mary's Point, Stillwater, and West Lakeland Township draining to St. Croix River.

Enhanced Street Sweeping Payment Rate and Reporting Requirements

The LSCP approved non-structural land management plan identifies an annual incentive payment for the 3-years. The rate, set by Soil and Water Conservation Districts within the Lower St. Croix Partnership is \$100/curb-mile/year, up to 50 miles per community per year (not to exceed \$5,000 per year), with a program goal of sweeping 350 curb miles per year.

To participate, communities will need to implement increased sweeping as prescribed by the adopted Enhanced Street Sweeping Plan. Communities will need to track phosphorus reductions through the MPCA Street Sweeping Credit Calculator for annual reporting and cost share reimbursement. This will require tracking wet mass sweeping weights and entering them and the season of sweeping into the calculator. Participating communities will be required to enter into a 3 year state cost share contract. After the three year enhanced sweeping payment for an area is complete, that area is no longer eligible for payments. The community may apply for incentive payments for to expand enhanced sweeping in other areas identified in an enhanced sweeping plan.

A single annual payment will be made at the end of each year based on actual miles swept in the spring and fall within the enhanced street sweeping zones.

Reference Information (to learn more)

Developing a street sweeping credit for stormwater phosphorus source reduction

https://www.youtube.com/watch?v=zfqWJNybf_M

Start at minute 46 for an overview of the data used to create the MPCA Street Sweeping Credit Calculator.

MPCA Street Sweeping Phosphorus Calculator

https://stormwater.pca.state.mn.us/index.php?title=Street_Sweeping_Phosphorus_Credit_Calculator

Street Sweeping Webinar Hosted by MPCA May 13, 2021

<https://www.youtube.com/watch?v=fQrmdUwPYks>

At 34 minutes demonstrates how to use the MPCA Street Sweeping Phosphorus Calculator

At 1 hour 3 minutes provides a summary of a USGS paired study in WI evaluating the impact of leaves in the street to P discharge charges in stormwater.

Project Name	Enhanced Sweeping Assessment Protocol	Date	10-21-2021
To / Contact info	Mike Isensee, CMSCWD Emily Heinz, CLFLWD		
Cc / Contact info	LSCWP Subcommittee A8 Members		
From / Contact info	Paula Kalinosky, PE		
Regarding	Proposed Scope of Services – Tree Canopy Assessment Protocol Assistance		

Per your request, this memorandum presents a scope of services for the development of a tree canopy assessment protocol for the Lower St. Croix Partnership Enhanced Street Sweeping Municipal Cost Share Program.

Proposed Scope: Tree Canopy Assessment for Enhanced Street Sweeping

EOR will work with the LWCWP to develop a guidance document outlining procedures for assessing street corridor tree canopy. The guidance document will include the following items:

- A. Definitions – EOR will briefly summarize the rationale for assessing street corridor tree canopy and provide definitions and visual examples for the applicable extents of the assessment and canopy cover classification categories.
- B. Protocol for visual assessment of street corridor tree canopy – EOR will provide simple sample exercises showing categorization of tree canopy cover using aerial photographs, drive by inspection, and/or municipal tree inventory data. This section will include a discussion of acceptable data sources.
- C. Guidance for digital assessment of street corridor tree canopy – EOR will develop simple workflow diagrams for automated digital assessment (GIS) of street corridor tree canopy using data sets and formats from public data sources. The simplified workflow is for automated tool(s) and will include parameters and steps for automated digital assessment of canopy cover.

EOR will provide additional examples or supplementary notes to address different data formats that are commonly used to identify vegetative cover and right-of-way areas. This section will include a discussion of acceptable data sources and key considerations e.g., representation of cul-de-sacs and intersections, and determining the extents of the evaluation.

Deliverables

Guidance documents summarizing items A-C above.

Estimated Hours and Cost

We estimate that the services outline above will require approximately 65 hours of staff time at an estimated cost of \$8,500. Estimated staff hours include time for project meetings, revisions following LSCWP review, and project management. Total costs for the services will only include actual time and expenses and will not exceed the estimated fee (\$8,500) without prior approval from the LSCWP.

PROJECT REQUEST FORM
Lower St. Croix Partnership – Watershed Based Implementation Funding

G

To: A8 Prioritization Subcommittee, Steering Committee **Date:** 10/22/2021
From: Mike Isensee, A8 Subcommittee
Subject: WBIF Project Request: Delineation and Prioritization of Contributing Subcatchments for Pine County and the Sunrise River

Table of Acronyms

CWMP: Comprehensive Watershed Management Plan	LSC: Lower St. Croix
SWCD: Soil & Water Conservation District	WD: Watershed District
WBIF: Watershed Based Implementation Funding	WMO: Watershed Management Organization

Eligible Project Sponsors

A sponsoring agency is required for each submitted project. The sponsor fills out this request. That agency must be a party to the Joint Powers Agreement for the implementation of the Lower St. Croix Comprehensive Watershed Management Plan. The sponsor, if the project is selected for funding, will enter into a subcontract with the Chisago Soil and Water Conservation District (SWCD) for project funding.

Description of Project (brief paragraph)

This request proposes to fund the first part of the attached proposal to delineate subcatchments, hydrocorrect catchments (with County and State inventories of culverts, bridges, stormsewer and other relevant hydrologic structures) and identify highly contributing and highly landlock basins for the Lower St. Croix portions of Pine County and the Sunrise River. The output of this effort- delineated subcatchments and identification as highly landlocked or highly contributing is the foundation work for future pollutant load evaluation to support subwatershed analysis work for targeting and prioritization.

Benefitted Waterbody Information (add rows for additional waterbodies if necessary)

Target waterbody	St. Croix and Sun Rise River
Waterbody area (acres)	Mega Acres
Watershed area (acres)	Mega Acres
DNR shoreline classification	None to Scenic and Wild River
Description of the watershed and near-shore land uses	Natural areas, agricultural areas, single family residential, shoreland
Impairment status	Impaired
Protection or restoration	Prioritization

Project Details

Project Name	Pine and Sunrise Catchments Delineation, Hydrocorrection, and Contribution Evaluation
Project Sponsor	TBD
Additional Project Partner(s) (other than sponsor)	TBD
Project Location (lat/long, address, or description)	N/A

PROJECT REQUEST FORM

Lower St. Croix Partnership – Watershed Based Implementation Funding

DNR Level 8 Subwatershed	3703000 and many more to the north and west & 3700700 and many more to the west.
Applicable WBIF Work Plan Activity	Activity 6 Wetland Restoration
Funding Specifically Allocated to this Project in Work Plan (if applicable)	N/A
Estimated Construction Timeline	November 2021 to March 2022
Total Project Cost	Estimate: \$26,772
Estimated Lifetime Project Cost (incl. O&M)	N/A
Requested Grant Funding	\$26,772
Match provided, match source (cannot be state funds)	\$0
Target Waterbody (from CWMP Table 5-2, 5-3, 5-4)	Sunrise River and St. Croix River
Est. Phosphorus Load Reduction @ Target Waterbody	0
Est. TSS Load Reduction @ Target Waterbody	0
Calculation Tool Used	N/A
Project Lifespan	N/A
Lifetime Cost-Benefit (\$/lb phosphorus removed)	N/A

Pre-Project Identification

Total phosphorus load entering target waterbody	N/A
Total suspended solids load entering target waterbody	N/A
Major sources of nutrient loading	N/A
P reduction required to achieve water quality goal	N/A
Completed projects, load reduction	N/A
Alternative projects, load reduction	N/A

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4. Wetland Restoration Scoring Matrix (for [Activity 6](#))
5. Internal Analysis Request for Funding (for [Activity 7](#); filled out by applicant)
6. Internal Analysis Selection Criteria (for [Activity 7](#); filled out by subcommittee)
7. Targeting Analysis Scoring Matrix (for [Activity 8](#))

Required Attachments for Requesting Partner to Complete (check all that apply):

- Project Plans/Visual/Map (for all requests)
- Completed Appendix C Project Scoring Matrix (for [Activities 2, 4, 5, 9](#))
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WBIF Work Plan Activity Color Coding
Implementation - BMPs/Restoration Activities
Implementation - Shared Services
Prioritization & Analysis
Administration

PROJECT REQUEST FORM
Lower St. Croix Partnership – Watershed Based Implementation Funding

Submit this form and attachments to Angie Hong at (ahong@mnwcd.org) one week prior to the Steering Committee meeting.

Steering Committee Roll Call Vote

Steering Committee roll call vote to recommend this project for Lower St. Croix Watershed Based Implementation Funding in the amount of \$26,772 for the Delineation and Prioritization of Contributing Subcatchments for Pine County and the Sunrise River

Organization	Aye	Nay	Absent
Anoka SWCD			
Brown's Creek WD			
Carnelian Marine St Croix WD			
Chisago County			
Chisago Lakes LID			
Chisago SWCD			
Comfort Lake Forest Lake WD			
Isanti County			
Isanti SWCD			
Middle St. Croix WMO			
Pine County			
Pine SWCD			
South Washington WD			
Sunrise River JP WMO			
Valley Branch WD			
Washington CD			
Washington County			
TOTAL (need majority vote to pass)			

Project Name | LSC1W1P

Date | September 20, 2021

To / Contact info | Mike Isensee, Bryan Pynn, Casey Thiel

Cc / Contact info |

From / Contact info | Mike Talbot, Sarah Grandstrand, Carl Almer (EOR)

Regarding | *REVISED* Prioritization and Assessment Proposal

Background

EOR was contacted by the Lower St. Croix River (LSC) One Watershed, One Plan (1W1P) Prioritization and Assessment Subcommittee and asked to submit two proposals to conduct GIS evaluations of the Lower St. Croix Watershed:

1. Delineation and prioritization of contributing subcatchments
2. Identification of pollutant hot spots

We are pleased to provide the following proposed scope of work and estimated level of effort for completing these evaluations.

While there are multiple watershed districts within and intersecting the LSC1W1P boundary, we have used the Carnelian-Marine-St. Croix Watershed District (CMSCWD) as a point of reference for comparison purposes below since (a) the proposed analysis closely mirrors the Pollutant Delivery Assessment that was recently completed for CMSCWD, and (b) CMSCWD has recently completed a high-resolution subcatchment redelineation across the entire LSC1W1P Watershed.

Proposed Approach

Contributing Subcatchment Evaluation

The LSC1W1P Watershed is 586,000 acres or 915 square miles – almost 12 times as large as the CMSCWD. Developing accurate subcatchment boundaries across this extent would be a massive effort regardless of the desired catchment resolution (i.e., average size) largely due to the need for hydrocorrecting and hydroconditioning a digital elevation model (DEM) spanning portions of six counties. Considering this, we vetted several high-resolution hydrographic datasets that are readily available from state and federal agencies, any of which may – at the very least – provide a useful starting point for this analysis. There are three primary sources of potentially useful data:

1. The USGS National Watershed Boundary Dataset (WBD)
2. The USGS NHDPlus High Resolution (HR) Catchments
3. The MNDNR Watershed Suite

In Minnesota, the WBD dataset only has resolution to the HUC-12 level, which is likely too coarse for planning purposes as there are just 52 HUC-12 watersheds intersecting the HUC-8 that makes up the LSC1W1P Watershed (see Figure 2). Below is a breakdown of the number of catchments intersecting the LSC1W1P from each of the other two sources:

- 97 DNR Level 07 (HUC-14) Catchments
- 178 DNR Level 08 (HUC-16) Catchments
- 4,137 DNR Level 09 Catchments
- 5,707 USGS NHDPlus HR Catchments

Additionally, below is a breakdown of the number of catchments intersecting the CMSCWD, including the high-resolution subcatchments that were delineated for CMSCWD as part of the development of its PCSWMM model:

- 13 DNR Level 07 (HUC-14) Catchments
- 22 DNR Level 08 (HUC-16) Catchments
- 252 DNR Level 09 Catchments
- 882 USGS NHDPlus HR Catchments
- 1,356 SWMM Subcatchments

Figure 3 through Figure 8 offer a visual comparison of these catchment boundaries as well. As can be seen, the USGS NHDPlus HR Catchments provide a reasonably high degree of resolution, even when compared with the CMSCWD subcatchments that were painstakingly delineated with the help of a significant amount of GIS and field data, as well as local knowledge. Additionally, closer examination of the NHDPlus HR Catchments reveals that, although catchment resolution differs considerably in many areas, there is notably general agreement along the boundaries themselves. Given this, we propose to use this catchment layer as the fundamental basis for prioritization across the LSC1W1P Watershed.

A cursory review of the NHDPlus HR Catchments reveals that – as should be expected from a national-scale dataset – they are far from perfectly accurate at the local scale. To rectify this in the most cost-effective manner, we propose two alteration phases. First, any subcatchments that have been recently delineated and reviewed for accuracy – as is the case with all of CMSCWD and parts of CLFLWD – will be merged into the NHDPlus HR Catchments as replacement boundaries. Second, following preliminary terrain processing and a geostatistical analysis, the DEM will be hydrocorrected using available county and state inventories of culverts, bridges, storm sewers, and other relevant hydrologic structures; additionally, catchments on two ends of the pollutant delivery spectrum (i.e., those catchments that are directly or highly contributing to the St. Croix River, along with those basins that are indicated to be highly landlocked) will be further reviewed for accuracy and their boundaries rectified as necessary. For the sake of efficiency across such a large area, both phases will follow a “delineate, erase, and replace” approach, meaning no additional review or analysis (beyond boundary sliver clean-up) will be conducted once the boundaries are rectified, and no manual redelineation will be performed (i.e., all boundary delineation will be algorithmic in nature).

This analysis will result in a precursor layer to the pollutant delivery assessment that will, in and of itself, be useful for planning purposes, since both the flagging of highly contributing catchments and the elimination of highly landlocked basins can be used for preliminary catchment prioritization. Deliverables will include GIS data layers and a summary technical memorandum describing the work completed and interpreting the results of the analysis. The estimated level of effort required to complete this analysis is \$26,772, as detailed below.

<i>Task</i>	Hours	Cost
<i>GIS data preprocessing</i>	10	\$1,130
<i>Identify contributing/landlocked catchments</i>	80	\$9,040
<i>Catchment redelineation and replacement</i>	40	\$4,520
<i>QA/QC, summary memorandum and maps</i>	56	\$7,578
<i>Meetings and project administration</i>	28	\$4,504
Total	214	\$26,772

Assumptions:

- The Washington County portion of the watershed is excluded from this analysis, as significant work of this nature has already been performed across a large portion of the area
- Catchment redelineation will be performed exclusively on highly contributing areas in the Sunrise River System, in the northernmost portion of Chisago County, and in Pine County
- All data not already obtained by EOR will be provided by Chisago and Pine County staff
- Field verification will be performed by Chisago and Pine County staff (as necessary and feasible)

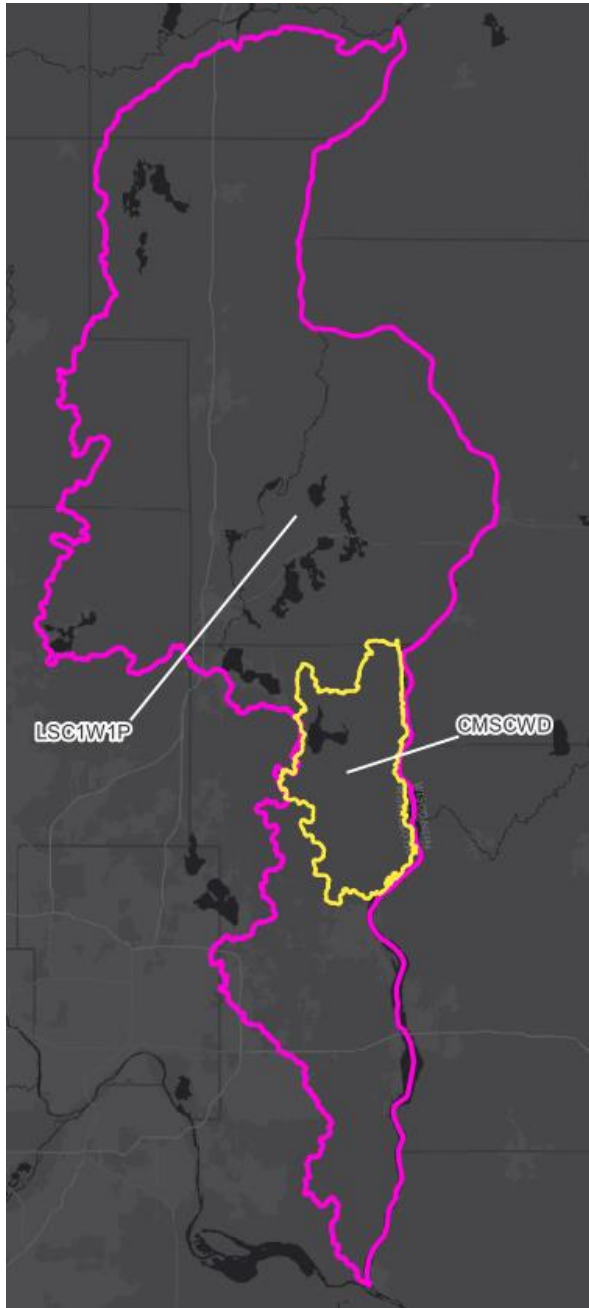


Figure 1 (Left): LSC1W1P boundary compared with CMSCWD for reference.

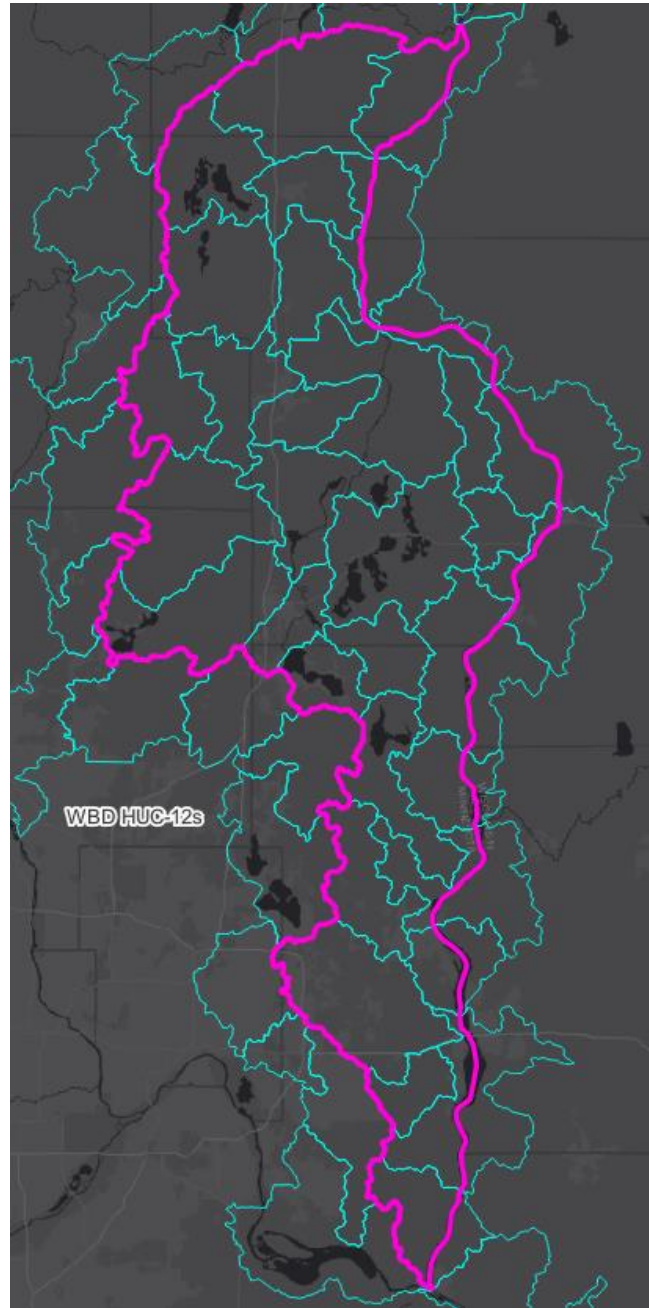


Figure 2 (Right): LSC1W1P boundary overlaid with the WBD HUC-12 subwatersheds.

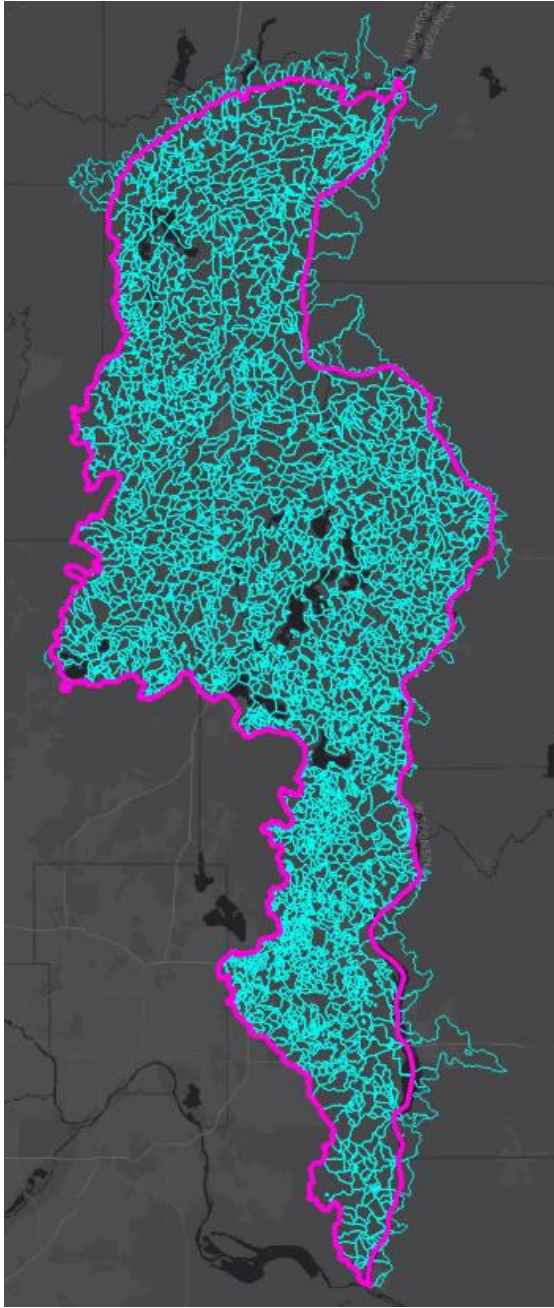


Figure 3 (Left): LSC1W1P boundary overlaid with the USGS NHDPlus High Resolution Catchments.

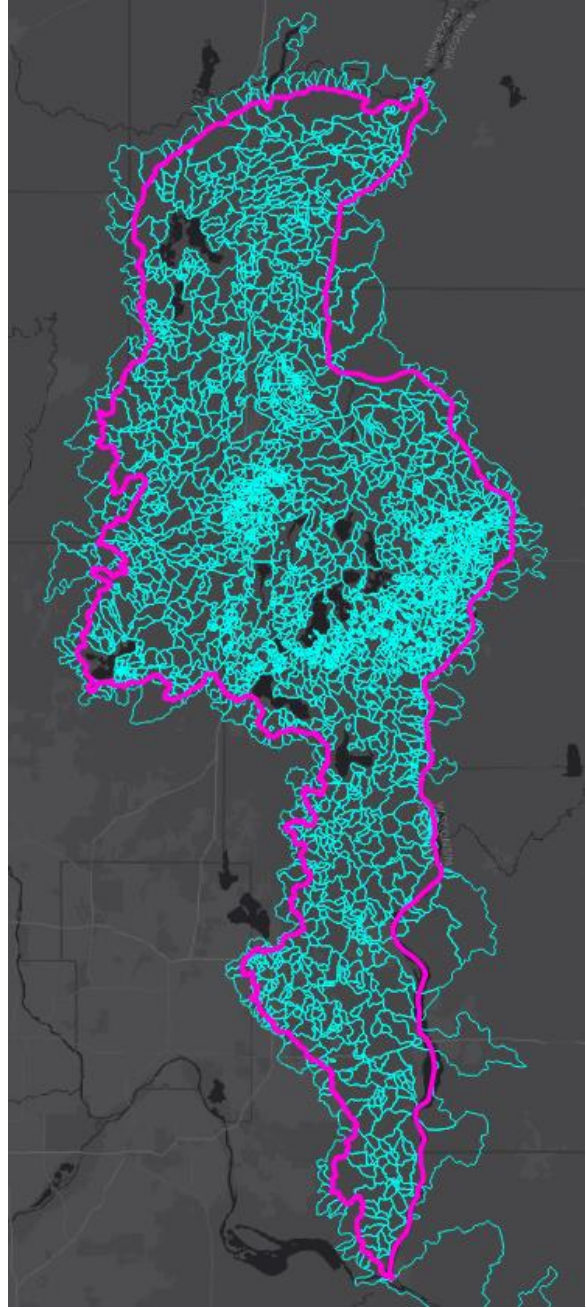


Figure 4 (Right): LSC1W1P boundary overlaid with the Minnesota DNR Watershed Suite Level 09 Catchments.

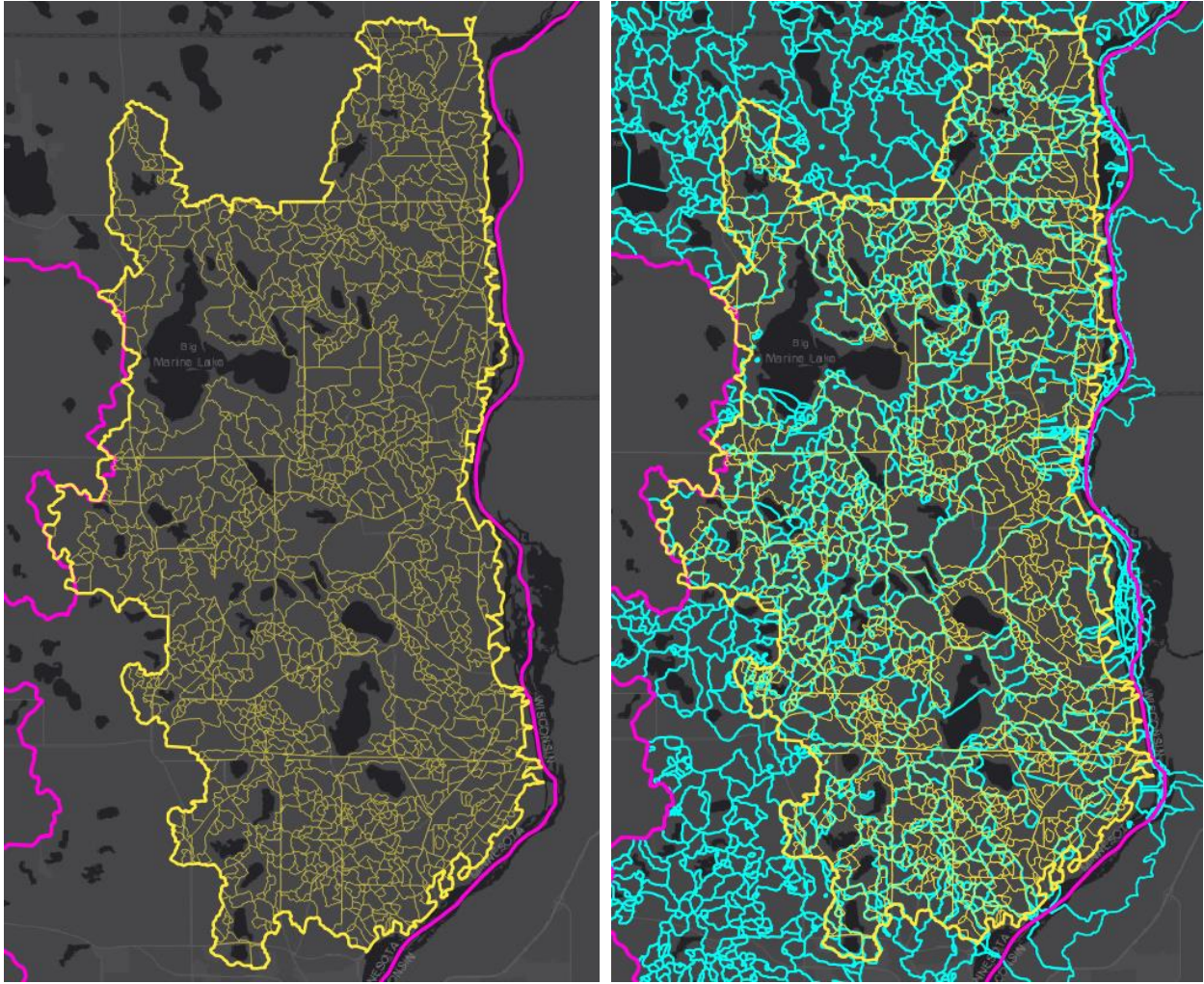


Figure 5 (Left): CMSCWD boundary and the 1,356 high resolution subcatchments used in the District's PCSWMM model.

Figure 6 (Right): CMSCWD subcatchments (1,356) overlaid with the Level 09 Catchments (about 252)

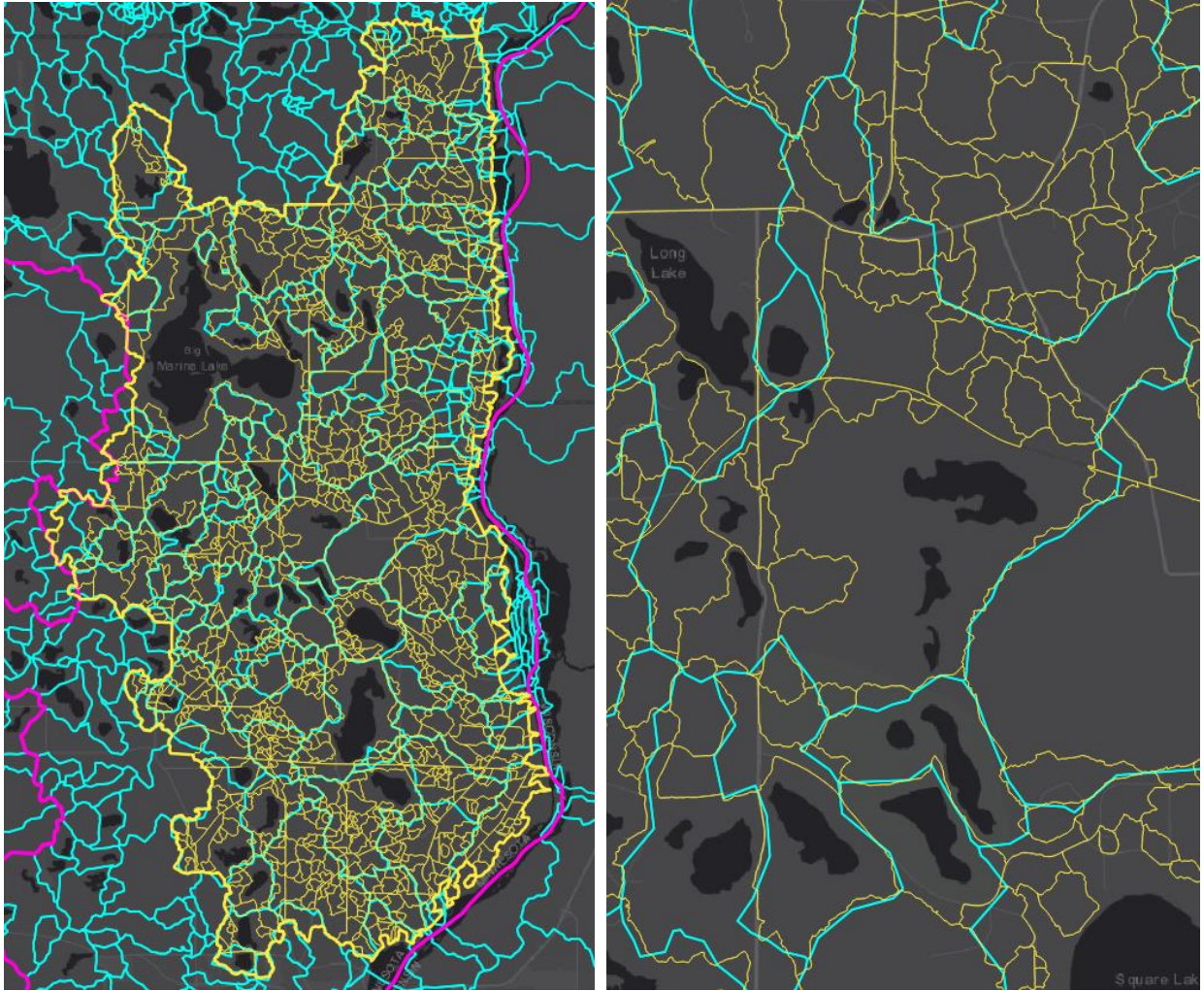


Figure 7: CMSCWD subcatchments (1,356) overlaid with the NHDPlus Catchments (882).

Figure 8: Close-up comparison of CMSCWD subcatchments with Level 09 Catchments showing differing resolution but general agreement along boundaries.