Lower St. Croix Watershed Partners
2024 Annual Work Plan

The Lower St. Croix River Comprehensive Watershed Management Plan adopted in October 2020 includes implementation activities for the 10-year life of the plan in Table 5-1. The 2024 work plan presented here is derived directly from Table 5-1 including estimated outputs (i.e., results) and estimated expenses. Many activities are eligible for Watershed Based Implementation Funds (WBIF) through the use of applicable policies (see attachments). Other activities will use local funds or other grants as allocated and approved by local partners.

The table is broken into four major implementation areas. A summary of each is shown below.

Additional attachments are included for a complete set of existing calendars, policies, and the joint powers agreement:
Attachment A: 2024 work plan from Table 5-1 of LSC Comprehensive Plan
Attachment B: 2024 LSC Project Process Calendar
Attachment C: WBIF Proposed Project Evaluation and Approval Process for the Lower St. Croix Watershed Partnership
Attachment D: Non-Structural Agricultural BMP Policy
Attachment E: Non-Structural Urban BMP Policy
Attachment F: Tree Canopy Assessment Protocol for Enhanced Street Sweeping Prioritization
Attachment G: Lower St. Croix Fast Track Project Policy
Attachment H: Joint Powers Agreement

2024 Work Plan Summary

Part A. Implementation Actions for Agricultural Lands	
Estimated Expenses	$1,233,900*
Activities	Shared Services: Agronomy Outreach Specialist Structural agricultural BMPs Non-structural agricultural BMPs Conservation planning and technical assistance Ditch management
2024 Estimated Outputs	200 acres with non-structural BMPs that improve soil health and/or reduce nitrogen and pesticide pollution to groundwater
	412 lbs total phosphorus reduction through structural BMPs in priority areas
	5 irrigation systems with smart technology installed
	10 - 20 Upgraded SSTS in sensitive areas and shoreland

Part B. Implementation for Developed and Developing Lands	
Estimated Expenses	$1,195,800*
Activities	Shared Services: Educator Structural urban BMPs Non-structural urban BMPs Project reviews and technical assistance on stormwater management and urban BMPs Interagency coordination Land acquisition and management
2024 Estimated Outputs	2 developments retrofitted with infiltration, recharge or reuse projects
	20 lbs total phosphorus reduction through structural BMPs in priority areas
	15% of all cities with staff certified in Smart Salting Training
	10 irrigation systems with smart technology installed
	10 - 20 upgraded SSTS in sensitive areas and shoreland
	10 shoreline restoration projects
	1 LGU with new wetland protections
	1 easement or acquisition in priority lakeshed
	1 landlocked basin analyzed
Part C. Implementation for Ecosystem Services	
Estimated Expenses	$1,668,500*
Activities	Wetland restoration Culvert Inventory Ag/Urban non-structural BMPs AIS Prevention and management Land and shoreland protection and management Technical assistance
2024 Estimated Outputs	1 stream restoration project
	100 acres restored wetlands
	2.5% increase in watercraft inspections for AIS
	2 new boat launches with AIS signage
	5 phragmites infestations removed
	1 LGU with new shoreland protections
	2 new landscape designs for climate resiliency
	100 acres protected through easement or acquisition
	100 acres managed with new Landscape Steward Plan

Part D. Implementation for Prioritization and Analysis	
Estimated Expenses	$743,225*
Activities	Targeting analyses Technical assistance Monitoring lakes, streams, wetlands, ditches, groundwater Internal lake analyses Gully and erosion inventories Mapping Chisago Chain of Lakes channel and weir operation/maintenance
2024 Estimated Outputs	3 subwatershed analyses for priority lakes
	3 subwatershed analyses for priority streams
	1 lake analyzed for internal loading
	Implementation of robust water monitoring programs by all partners

*Sources of funding include WBIF, local partner funds, other grants, etc.

Attachment A

Lower St. Croix Partnership 2024 Annual Plan of Work (based on LSC CWMP Table 5-1)

#	Activity	Priority Location	Measurable Output	Implementation Actions	2024 Estimated Outputs	2024 Estimated Cost	Activity Categories
Part A. Implementation Actions for Agricultural Lands							
	Shared Services: Agronomy Outreach Specialist					**$125,000**	A5 Ag Outreach
	Cost Share for Agricultural BMPs (structural and non-structural)					**$470,000**	A1 + A3 Structural and Non-structural Ag BMPs
	Conservation planning and technical assistance					**$273,900**	A7 Technical/Engineering
1	**GW Quality (Table 3-1 GW1A, 2B)**	Basin Wide Priority - Agricultural lands where: 1) DWSMA vulnerability is moderate, high, or very high; or 2) Pollution sensitivity to wells is high or very high; or 3) Pollution sensitivity to near surface materials is karst or high; or 4) Well testing show ≥ 5 mg/L nitrate See **Figure 5-1**	Install BMPs on 2,200 acres that improve soil health and/or reduce nitrogen and pesticide pollution to groundwater		200 ac		A3 Ag Non-structural BMPs
2	**Rivers & Streams + St. Croix River WQ (Table 3-1 R&S 1A; STC 1B, C)**	Regionally Significant Rivers and Streams: - All streams and tributaries in Sunrise River Watershed (whole watershed regardless of direct drainage) - Direct drainage areas to St. Croix River through Rock, Rush, Goose, Lawrence, and Browns Creeks and Trout Brook and other small streams shown in **Figure 5-2** See Table 5-2 for streams and total phosphorus reduction goals; see **Figure 5-2**	Reduce total phosphorus by 3,300 lbs/year (install approximately 220 BMPs @ estimated 15 lbs/BMP) and reduce TSS, bacteria, and nitrogen as secondary benefit		300 lbs TP (approx. 20 BMPs)		A1 Ag Structural BMPs
3	**Lake WQ from ag (Table 3-1 LK1A, 2A)**	Regionally Significant Lakes for Agricultural BMPs See Table 5-3 for lakes and total phosphorus reduction goals; see **Figure 5-3** for map	Install conservation BMPs, near sensitive lakes or in direct lake catchments to reduce TP by 1,275 lbs (estimated 15 lbs/BMP) and to reduce TSS, bacteria, and nitrogen as		112.5 lbs TP (approx. 200 ac)		A1 Ag Structural BMPs
4	**GW Quantity (Table 3-1 GW2A)**	All agricultural irrigators; highest priority given to highest consumers [*For context : Active water use permits from MPARS database 2018: 100 agricultural irrigators; 157 Water Supply Wells; 37 Non-crop irrigators. Total = 294. 100 of those used >1MG in 2018* .]	Install or retrofit smart technology on 40 irrigation systems		5 systems	$72,500	A3 Non-structural Ag BMPs

#	Activity	Priority Location	Measurable Output	Implementation Actions	2024 Estimated Outputs	2024 Estimated Cost	Activity Categories
5	**River & Stream Flows (Table 3-1 R&S 3A)**	Basin wide	Identify and map 100% of private ditches as part of developing Conservation Plans				A7 Technical/Engineering
	Develop and implement plan for management and maintenance of ditch system including a system and protocol for establishing BMPs within easement right of ways of existing public ditches.					$5,000	A14 Ditch Management
	Provide training for local staff on topics related to drainage management, wetland management, and related areas					$500	A6 + A5 Shared Services Education and Ag outreach
6	**Drainage impacts on wetlands (Table 3-1 WTL 1B)**	All public and private ditches	Review 100% of drainage projects for possible impacts to wetland quality			$17,000	A14 Ditch Management
7	**Drainage impact on rivers & streams (Table 3-1 R&S 1C)**	Judicial and public ditches	Maintain or improve downstream water quality following ditch maintenance				A14 Ditch Management
8	**GW quality from contaminants (Table 3-1 GW1B)**	Priority areas: Where pollution sensitivity to near surface materials is high, or in karst areas, or where bedrock is at or near the surface; see Figure 1-3 for map Secondary priority: Basin wide	Upgrade 100 non-conforming or non-compliant SSTS to properly functioning, compliant systems. [For context: Estimated 4,202 SSTS basin wide failing to protect GW. Source: SSTS Annual Report 2018 (MPCA, Aug 2019) Number of SSTS per county * % of county in LSC * estimated 15%		10 systems	$270,000	A3 Ag Non-structural BMPs
9	**Lake impacts from SSTS (Table 3-1 LK 1C)**	Basin wide: Shorelands adjacent to nutrient impaired lakes Chisago Co: Countywide	Basin wide: Decrease non-compliant and non-conforming SSTS in shorelands adjacent to nutrient impaired lakes Chisago Co: Decrease non-compliant and non-conforming SSTS in all areas by 50% and in shorelands adjacent to nutrient impaired lakes by 80% [*For context: Estimated 5,323 non-compliant SSTS basin wide. Source: SSTS Annual Report 2018 (MPCA, Aug 2019): Number of SSTS per county * % of county in LSC **]		10 systems		A3 Ag Non-structural BMPs
10	**GW quality from contaminants (Table 3-1 GW1B)**	Basin wide	Properly seal or floodproof 100% of known or discovered abandoned wells or wells at risk of flooding				A3 Non-structural Ag BMPs

#	Activity	Priority Location	Measurable Output	Implementation Actions	2024 Estimated Outputs	2024 Estimated Cost	Activity Categories
SUBTOTAL: Part A. Implementation Actions for Agricultural Lands						$1,233,900	
Part B. Implementation for Developed and Developing Lands							
	Shared Services: Educator 1) Provide outreach, education and ordinance development on Minimal Impact Design Standards with local governments, developers, and others; 2) Facilitate shared education and outreach program across basin to provide education; engage residents, businesses, and local officials; and promote and market programs and practices.					$110,000	A6 Shared Educator
	Cost Share for Urban BMPs (structural and non-structural)					$300,000	A2 + A3 Urban Structural and Non-structural BMPs
	Provide project reviews and technical assistance on stormwater management and urban best management practices through local staff and local initiatives including evaluating small storm volume control and large storm rate control ordinances.					$250,800	A7 Technical/Engineering
11	**GW recharge & infiltration (Table 3-1 GW 2B) + Lake & stream WQ (Table 3-1 LK1B, R&S 1A)**	Basin wide [Estimated 40 communities in basin without MIDS or similar standards]	Implement Minimal Impact Design Standards or more restrictive in 20 communities; including climate resiliency provisions or standards		0	$0	A6 Shared Services Education
12	**GW recharge & stream flow (Table 3-1 GW 2B, R&S 3A)**	In critical groundwater recharge areas as identified in existing or future maps or studies	Retrofit 20 existing developments with infiltration, recharge and reuse projects		2 projects		A2 Structural Urban BMPs
13	**St. Croix River flows (Table 3-1 STC 3A)**	Direct catchments to the St. Croix River and Lake St. Croix	Evaluate and update small storm volume control and large storm rate control ordinances in 4				A15 Interagency Coordination
14	**St. Croix River + Rivers & streams WQ (Table 3-1 STC 1B; R&S 1A)**	Regionally Significant Rivers and Streams: - All streams and tributaries in Sunrise River Watershed (whole watershed regardless of direct drainage) - Direct drainage areas to St. Croix River through Rock, Rush, Goose, Lawrence, and Browns Creeks and Trout Brook and other small streams shown in **Figure 5-2** See Table 5-2 for streams and total phosphorus reduction goals; See **Figure 5-2**	Reduce TP by 100 lbs. (approximately 100 BMPs) and reduce TSS, bacteria, and nitrogen as secondary benefit [Assume 1 lb/BMP; typical reduction for raingarden or similar BMP]		10 lbs. TP (approx. 10 BMPs)		A2 Structural Urban BMPs
15	**Lake WQ (Table 3-1 LK 1B)**	Regionally Significant Lakes for Urban BMPs See Table 5-3 for lakes and total phosphorus reduction goals; See **Figure 5-3**	Reduce TP by 100 lbs. (approximately 100 BMPs) and reduce TSS, bacteria, and nitrogen as secondary benefit [Assume 1 lb/BMP; typical reduction for raingarden or similar BMP]		10 lbs. TP (approx. 10 BMPs)		A2 Structural Urban BMPs
16	**St. Croix River chlorides (Table 3-1 STC 1D)**	Basin wide	75% of all cities have staff certified in MPCA's Level 1 and Level 2 Smart Salting Training		Total of 15% of cities		A15 Interagency Coordination
17	**GW quantity (Table 3-1 GW 2A)**	All irrigators; highest priority given to highest consumers and communities with highest residential usage	Install or retrofit smart technology on 40 irrigation systems		10 systems	$145,000	A2 Structural Urban BMPs

#	Activity	Priority Location	Measurable Output	Implementation Actions	2024 Estimated Outputs	2024 Estimated Cost	Activity Categories
18	**GW contaminants (Table 3-1 GW 1B)**	Basin wide - all currently unlicensed facilities and generators	License 100% of hazardous waste generators				A15 Interagency Coordination
19	**GW contaminants (Table 3-1 GW 1B)**	Priority areas: Where pollution sensitivity to near surface materials is high, or in karst areas, or where bedrock is at or near the surface Secondary priority: Basin wide	Upgrade non-conforming or non-compliant SSTS to properly functioning, compliant systems. [See Line 8 of this table for context.]				A3 Urban Non-Structural BMPs
20	**Lake impacts from SSTS (Table 3-1 LK 1C)**	Basin wide: Shorelands adjacent to nutrient impaired lakes Chisago Co: Countywide	Basin wide: Decrease non-compliant and non-conforming SSTS in shorelands adjacent to nutrient impaired lakes Chisago Co: Decrease non-compliant and non-conforming SSTS in all areas by 50% and in shorelands adjacent to nutrient impaired lakes by 80%				A3 Urban Non-Structural BMPs
21	**Lake shorelines (Table 3-1 LK 2B & UP 2A)**	Regionally Significant Lakes for Protection and Sustainable Development: Table 5-3 and **Figure 5-3**	Install 100 shoreline restoration projects [100% of lakeshore owners with altered shorelines are provided information on restoration programs]		10 projects	$40,000	A2 Structural Urban BMPs
22	**Protect wetlands (Table 3-1 WTL 1A)**	Basin wide during land use change or alteration, development or redevelopment	Increase by 5 the number of LGUs with adopted wetland protections including buffer requirements and setbacks for permanent structures		1 LGU		A15 Interagency Coordination
23	**Maintain & restore habitat (Table 3-1 UP 1F)**	Land with priority habitats and corridor connections	10% of land in new developments is dedicated to wildlife habitat [significant new areas of land conversion from vacant or rural land to residential, commercial/industrial, institutional, or transportation]		5% of land in new development		A12 Land Acquisition & Management
24	**Sensitive lake protection (Table 3-1 LK 2A)**	Regionally Significant Lakes for Protection and Sustainable Development: Table 5-3 and **Figure 5-3**	Implement sustainable development and land preservation programs in lakesheds of priority lakes through 10 easements or		1 easement or acquistion		A3 Urban Non-Structural BMPs
25	**Landlocked basin impact on River (Table 3-1 STC 1B, 3A, 4C)**	Eutrophic natural landlocked basins to be discharged to St. Croix River	Perform analysis and implement measures to meet state standards for nutrients on 3 waterbodies		1 basin	$350,000	A7 Technical/Engineering
SUBTOTAL: Part B. Implementation for Developed and Developing Lands						$1,195,800	
Part C. Implementation for Ecosystem Services							
	Perform culvert inventory: redesign and restore as road projects are completed to help manage to natural hydrologic conditions through use of MnDNR Geomorphic Approach to infrastructure Design at Road-Watercourse Intersections					$100,000	A7 Technical/Engineering

#	Activity	Priority Location	Measurable Output	Implementation Actions	2024 Estimated Outputs	2024 Estimated Cost	Activity Categories
26	**Rivers & Streams ecosyste ms & flow (Table 3-1 R&S 2A, 3A, STC 1B)**	St. Croix River and Lake St. Croix direct drainage tributaries	Reduce TP loading and TSS loading by 425 lbs and 1,085 tons, respectively. Implement 5 stream restoration projects to restore and improve stream corridors, instream habitat, and riparian area stability [Average TP reduction/restoration = 85 lbs; Average TSS reduction/restoration = 217 tons]		1 stream restoration project	$350,000	A3 Ag/Urban Non-Structural BMPs
27	**Trout populations (Table 3-1 R&S 1B)**	Trout streams (Brown's Creek, Valley Creek, Lawrence Creek, Trout Brook, Willow Brooke, Mill Stream, Falls Creek, Gilbertsons's Creek)	Trout populations maintained through stream restorations, BMP installations, and enforcement of development standards		Year 4: All streams trout YOY recruit-ment, survival of previous year class		A3 Ag/Urban Non-Structural BMPs
28	**Wetland quantity (Table 3-1 WTL 2A, 2B)**	1. In highest priority catchments (red, yellow and green areas) within BWSR's Compensation Planning Framework priority catchments in the Lower St. Croix River Watershed (Figure 5-5) 2. In locations where studies or mapping tools find that restoration will have significant positive impact on natural	Create or restore 1,000 acres of historic wetlands lost to land use changes		100 acres created or restored	$495,000	A4 Wetland Restoration
29	**Wetland loss (Table 3-1 WTL 2A, 1B)**	Judicial and public ditches	Mitigate loss of wetland acres resulting from ditch maintenance activities		No net wetland loss		A14 Ditch Management
30	**Wetland quantity (Table 3-1 WTL 2B)**	Basin wide	Create and maintain 2 new BWSR and USACE approved wetland banks within the basin				A4 Wetland Restoration
31	**AIS in Lakes & St. Croix River (Table 3-1 LK 2C; STC 2A)**	High traffic boat launches on St. Croix River and Lake St. Croix	Increase watercraft inspection hours by 25%		Increase hours by 2.5%	$443,500	A13 Aquatic Invasive Species Prevention & Management
32	**AIS (Table 3-1 LK 2C; STC 2A; R&S 2B)**	Within 15 miles of all public boat launches on zebra mussel infested lakes and rivers	Within 15 miles of all public boat launches on zebra mussel infested lakes and rivers				A13 Aquatic Invasive Species Prevention & Management
33	**AIS signs (Table 3-1 LK 2C; STC 2A; R&S 2B)**	Basin wide	Install AIS informational signage at 20 boat launches and marinas		2 new launches w/ signage		A13 Aquatic Invasive Species Prevention & Management
34	**AIS in Lakes (Table 3-1 LK 2C)**	Lakes in Chisago Co. and Isanti Co. with public access	Develop 1 comprehensive AIS rapid response plan for lakes				A13 Aquatic Invasive Species Prevention & Management

#	Activity	Priority Location	Measurable Output	Implementation Actions	2024 Estimated Outputs	2024 Estimated Cost	Activity Categories
35	**Phragmites (Table 3-1 WTL 1C)**	In order of priority 1. Chisago Lakes LID 2. Carlos Avery WMA 3. Elsewhere in Chisago Co and Isanti Co 4. Headwaters of North Branch & West Branch Sunrise River	Reduce the size and number of invasive phragmites locations as reported on EddMaps by 50% or 45 infestation areas. Stabilize and eradicate those small infestataions less than 1,000 – 2,000 sq. ft. through rapid response plans, where available		Reduce by 5 infestations		A13 Aquatic Invasive Species Prevention & Management
36	**Lake levels (Table 3-1 LK 3A)**	Chisago Co. Lakes = Chisago Lakes Chain of Lakes (Chisago, South Lindstrom, North Lindstrom, Green, Little Green, North Center, South Center), Fish, Horseshoe, Little Horseshoe, Sunrise	Develop resiliency plans or responses, such as a Slow-No-Wake Ordinance or Channel and Weir Operations and Maintenance Plans, to address vulnerable properties			$10,000	A11 Shoreland Protection & Management
37	**Internal loading (Table 3-1 LK 1D)**	In lakes where internal loading is estimated to be a significant contributor to degraded water quality and where not addressing the internal loading would result in sustained degradation (See Internal Loading Lakes Table 5-4)	Address source of internal loading 3 in lakes		0	$0	A1 + A2 + A3 Structural and Non-structural Ag/Urban BMPs
38	**Shoreland (Table 3-1 UP 1A, R&S 2A, LK 2B)**	Basin wide	Increase the number of LGUs (including counties) by 2 that adopt innovative shoreland standards		1 new LGU w/ adopted standards	$40,000	A11 Shoreland Protection & Management
39	**Resilient lands (Table 3-1 UP 1C, 1D)**	Private lands in priority corridors and critical habitat areas and large-scale developments with land-use change	Increase in the number of diverse landscape designs and plantings resilient to climate change		2 designs	$50,000	A7 Technical/Engineering
40	**Land protection (Table 3-1 UP 1B; R&S 2A; LK 2A)**	First priority: Areas near already protected lands (public or private), tributaries near impaired waters, areas where known endangered species are present and identified biologically significant natural areas as identified by MLCCS mapping Second priority: Basin wide	At least 1000 acres protected through acquisition and easements.		100 acres protected	$180,000	A12 Land Acquisition & Management
41	**Land protection (Table 3-1 UP 1C, LK 1B)**	First priority: Areas where upland habitat is fractured and shoreline areas where there is high to moderate development or land under future development pressure Second priority: Basin wide	Create 20 new Landscape Stewardship Plans		2 new plans		A7 Technical/Engineering
42	**Habitat improve (Table 3-1 UP 2C)**	Basin wide based on prioritized mapping including MLCCS maps and other critical habitat mapping	1,000 new acres managed for better habitat, or as recommended in Landscape Stewardship Plans		100 new acres managed		A7 Technical/Engineering

#	Activity	Priority Location	Measurable Output	Implementation Actions	2024 Estimated Outputs	2024 Estimated Cost	Activity Categories
43	**Protected lands (Table 3-1 UP 2B)**	Areas located along bluffland or adjacent to publicly owned forest land such as state parks and trails	Increase acres under private Forest Management Plans or Woodland Stewardship Plans by 20% [23 plans over 10 years]		2 new plans developed		A7 Technical/Engineering
SUBTOTAL: Part C. Implementation for Ecosystem Services						$1,668,500	
Part D. Implementation for Prioritization and Analysis: Issues, Goals, Actions, Measurable Outputs, and Priority Locations							
44	**STC 1A**	Basin wide	Evaluate the water quality metrics, set reporting standards, report on goal progress for the St. Croix River	Identify, appoint, and empower entity or person to lead/evaluate the water quality metrics, set reporting standards, report on goal progress.		$25,000	A9 Targeting Analysis
45	**GW 3A**	Order of Priority: 1) Surrounding known contamination sites where data are lacking 2) DWSMAs 3) Townships without nitrate testing	Pollution sources (including mines), areas around chemical contamination sites, vulnerable areas, and surface water-GW interactions are studied and mapped	Work with State agencies and Metropolitan Council to study and map pollution sources (including mines), areas around chemical contamination sites, vulnerable areas, and surface water-GW interactions		$0	A9 Targeting Analysis
46	**GW 3A**	Basin wide	100% of recharge areas and groundwatersheds of GW dependent natural resources are mapped	Support agencies such as DNR and Met Council in mapping recharge areas and groundwatersheds of GW dependent natural resources		$20,000	A9 Targeting Analysis
47	**GW 3A**	Basin wide where needed	Complete at least one county groundwater plan	Build on existing GRAPS to develop groundwater plans that lay out technical framework, issues, policies and implementation actions for the protection and conservation of groundwater		$0	A7 Technical/Engineering
48	**GW 3A**	Maintain basin wide; expand in Isanti and Pine Co. 1) DWSMAs 2) Groundwatersheds of GW-dependent natural resources	Maintain existing or increase number of new observation wells	Work with MnDNR to maintain and expand observation well program		$41,865	A9 Targeting Analysis
49	**LK 1D**	Regionally Significant Lakes for Internal Loading Analyses **Table 5-4**	Calculate internal loading of phosphorus	Calculate internal loading of phosphorus on 15 lakes @ $25,000 each	1 lake analyzed	$37,500	A8 Internal Analysis
50	**LK 4A**	Anoka Co. Lakes = Pet, Rice, South Coon, Skunk, Tamarack Chisago Co. Lakes = Sunrise, Little Horseshoe Isanti Co. Lakes = Hoffman, Horseleg, Horseshoe, Upper and Lower birch, East and West Twin, Tamarack (30- 0001-00), Long (30-0002- 00,) Big Pine (30-0015-00), Grass (30-0017-00), Splittstoeser (30-00041-00)	Baseline data such as transparency, total phosphorus and chlorophyll- a are collected	Develop monitoring plan and collect data using available means such as volunteers, Met Council's CAMP, MPCA's citizen monitoring program, MPCA's Intensive watershed monitoring program, SWCDs, counties, parks departments, lake associations, etc. Anoka Co annual costs (5 lakes * $2,100/lake) = $10,500 Chisago Co annual costs (2 lakes) = $1,200 Isanti Co annual costs (12 lakes) = $1,430/lake = $17,160		$28,860	A9 Targeting Analysis

#	Activity	Priority Location	Measurable Output	Implementation Actions	2024 Estimated Outputs	2024 Estimated Cost	Activity Categories
51	**LK 4A STC 2B, 4C**	Basin wide	Participate in studies and/or stay informed of latest science to assess the impact of a changing climate on lakes and the St. Croix River	Use latest climate science to implement adaptive management	Included in existing work		A9 Targeting Analysis
52	**LK 4A**	Chisago Chain of Lakes	100% of lakes prone to anthropogenic water level variation are identified	Manage the channel and weir system with an approved operation and maintenance plan.		$36,000	A7 Technical/Engineering
53	**LK 4A**	Basin wide	100% of lakes prone to direct anthropogenic water level variation are identified	Participate in DNR lake level monitoring program to routinely collect lake level data		$13,000	A7 Technical/Engineering
54	**LK 1A, 1B, 4A**	Subwatersheds of Regionally Significant Lakes Table 5-3 and **Figure 5-3**	20 subwatershed project targeting analyses are completed (estimated $10,000-$50,000/SWA or $30,000 ave)	Conduct analyses to identify and prioritize water quality improvement projects within a priority subwatershed. Methods and analyses can include site or field scale subwatershed analyses, diagnostic monitoring, spatial analysis and	3 SWAs	$90,000	A9 Targeting Analysis
55	**R&S 1A, STC 4B**	Regionally Significant Rivers and Streams: - Streams and tributaries in Sunrise R. Watershed - Direct drainage areas to St. Croix River through Rock, Rush, Goose, and Browns Creeks and Trout Brook and other small streams as shown in Table 5-2 and **Figure**	20 subwatershed project targeting analyses are completed (estimated $10,000 - $50,000/SWA or $30,000 ave)	mapping, modeling, cost benefit analyses, or other data-driven targeting activities. See Section VII.B. for further description.	3 SWAs	$90,000	A9 Targeting Analysis
56	**STC 4A, 4C**	Tributaries to the St. Croix	Coordinated hydrologic, chemical, and biological monitoring of the St. Croix River and its tributaries; nutrient loading data of major tributaries to the St. Croix River is evaluated.	Operate up to 10 new monitoring stations that lack data (quality and quantity) to evaluate progress toward achieving the TMDL and to identify priority subwatersheds. @ $10,000/year/station		$100,000	A7 Technical/Engineering
57	**STC 3A**	Land use authorities in the St. Croix Riverway.	Evaluate the floodplain and zoning ordinances for consistency and effectiveness in protecting the floodplain function and preventing flood damages. Include impacts of variances in the evaluation.	Work with land use authorities along St. Croix River and MnDNR Area Hydrologists to evaluate floodplain and zoning ordinances and update where appropriate.		$25,000	A7 Technical/Engineering
58	**STC 4B & UP 2A**	Intermittent and perennial tributaries and watercourses flowing directly to St. Croix River	Inventory and prioritize active erosion sites.	Identify, evaluate, and rank active gullies directly discharging into the St. Croix or its tributaries [LIDAR to identify gully locations; RUSLE & BWSR pollution reduction calculator to determine pollution reduction		$25,000	A9 Targeting Analysis

#	Activity	Priority Location	Measurable Output	Implementation Actions	2024 Estimated Outputs	2024 Estimated Cost	Activity Categories
59	**STC 2B, 4C UP 1A**	Basin wide	Map priority restoration and protection areas for acquisition, easements, and voluntary stewardship	Complete level 4/5 MLCCS basin wide. Expand the Washington County Natural Resource Framework and use their methodology in Anoka, Chisago, Isanti, and Pine Counties. (MLCCS = $1,000/sq mi * 640 sq miles)		$100,000	A9 Targeting Analysis
60	**UP 1E**	First priority: Public lands or near public lands; areas may be further prioritized thru cooperative weed mgmt area Second priority: Basin wide	Map and target "eradicate and control list" invasive species populations for each county Contact 50% of landowners for species on restricted list	Implement a cooperative weed management area (including MNDOT when possible) and promote associated implementation strategies.		$0	A9 Targeting Analysis
61	**WTL 3E**	Pine County	Complete soil survey	Complete soil survey as developed by NRCS, USDA & shown in Soil Survey Geographic (SSURGO) Database	To be completed by NRCS		A7 Technical/Engineering
62	**WTL 3D**	Wetlands upstream of nutrient impaired streams and lakes	Monitor 10 identified wetlands for nutrient and volume contribution to impaired lakes and streams	Use subwatershed analyses or monitoring/modeling data to identify degraded wetlands with the potential of contributing high nutrient loads to downstream resources.		$75,000	A7 Technical/Engineering
63	**WTL 3D**	Basin wide	Identify 5 degraded wetlands with best restoration potential in each HUC 10	Use existing Restorable Wetland Prioritization Tool to focus effort	To be completed in conjunction with existing		A9 Targeting Analysis
64	**WTL 3E & 1D**	1st priority: Public ditches in Isanti Co. 2nd priority: Basin wide	Obtain Nutrient Loading Data in basins/wetlands near Ditch outlets to identify areas for ditch improvements to filter runoff	Collect water quality data near ditch outlets of 25 ditches (estimated $2,000 per ditch)		$5,000	A9 Targeting Analysis
65	**WTL 3A, 3B, 3C**	1st Priority: Isanti County 2nd Priority: Basin wide	Create wetland inventory based on MLCCS, and function and value assessment and/or floristic quality assessment	Increase by 5 the number of LGUs with policies requiring wetland function and value assessments with project proposals such as developments or ditch work.		$25,000	A7 Technical/Engineering
66	**WTL 3B**	Pine County and Isanti County	An inventory and map of all areas of wetland loss and historic wetlands is locally verified	Verify recently completed inventory and map % of areas of wetland loss and historic wetlands		$6,000	A7 Technical/Engineering
SUBTOTAL: Part D. Implementation for Prioritization and Analysis: Issues, Goals, Actions, Measurable Outputs, and Priority Locations						$743,225	

Attachment B

2024 LSC Project Process Calendar

Policy Committee meets quarterly (4th Monday of the month)
Steering Committee meets monthly (4th Wednesday of the month)
Planning Team meets monthly (2nd Wednesday of the month)
Advisory Committee meets as needed (e.g., AC meets to approve annual work plan)

This calendar only shows meetings which pertain to the proposed project approval process. Additional meetings are held at the frequencies described above.

January	February	March
1/5 Deadline: All partners submit 2023 activity reports to Reporting Lead **1/15 Deadline**: Policy Committee meeting packet posted, including 2023 grant activity report **1/22 Policy Committee**: At regular quarterly meeting review 2023 grant activity report	**2/14 Deadline**: Project requests <$50K submitted to Meeting Facilitator (2 weeks before SC meeting) **2/28 Steering Committee**: At regular monthly meeting consider project requests <$50K	**3/8 Notice**: Meeting Facilitator will send out call for projects reminder to all partners 60 days in advance of the May application deadline **3/13 Deadline**: Project requests ≥$50K submitted to Meeting Facilitator **3/27 Steering Committee**: At regular monthly meeting review project requests ≥$50K that are due to come to PC in April
April	**May**	**June**
4/15 Deadline: Policy Committee meeting packet posted, including project requests ≥$50K **4/22 Policy Committee**: At regular quarterly meeting consider project requests ≥$50K once per year	**5/8 Deadline**: Project requests <$50K submitted to Meeting Facilitator (2 weeks before SC meeting) **5/22 Steering Committee**: At regular monthly meeting consider project requests <$50,000	**6/14 Notice**: Meeting Facilitator will send out call for projects reminder to all partners 60 days in advance of the August application deadline
July	**August**	**September**
	8/14 Deadline: Project requests <$50K submitted to Meeting Facilitator (2 weeks before SC meeting) **8/28 Steering Committee**: At regular monthly meeting consider project requests <$50,000	
October	**November**	**December**
		12/13 Notice: Meeting Facilitator will send out call for projects reminder to all partners 60 days in advance of the February application deadlines (dual notice this month – projects less than and greater than $50K)

Attachment C

LOWER ST. CROIX WATERSHED PARTNERSHIP

WBIF Proposed Project Evaluation and Approval Process for the Lower St. Croix Watershed Partnership

Updated February 1, 2023

Contents

Purpose

This document provides a detailed overview of the evaluation and approval of projects proposing to use Lower St. Croix Watershed Partnership (LSCP) Watershed-Based Implementation Funds (WBIF). This document is intended to be reviewed each December to evaluate its effectiveness in relation to Comprehensive Plan implementation, and determine what modifications to improve process, address gaps, or to better align with other policies or procedures should be made.

The process described in this document is an aggregation of the following sources:

- Appendix to the 2022 Annual Plan of Work: Lower St. Croix Project Approval Process Policy
- Appendix to the 2022-23 Annual Plan of Work: Lower St. Croix Fast Track Project Policy
- September 26, 2022 – Lower St. Croix Watershed Partnership Policy Committee Meeting Minutes
- Review process graphics for proposed WBIF projects

WBIF Funding Applicability

To apply for WBIF-funding, eligible entities/applicants are limited to the 15 local government unit (LGU) partners that signed on to the joint power's agreement for implementation of the Lower St. Croix Comprehensive Watershed Management Plan. Non-included entities/individuals can work with one of the 15 partners to submit an application.

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

Project Review Schedule

Request for Projects and Submission Deadlines

- The Lower St. Croix Watershed Partnership staff will send out requests for projects to all partners 60 days in advance of a scheduled Steering or Policy Committee meeting in which projects will be reviewed by an appointed individual of a partner. [1]

- Submission deadlines are 2 weeks prior to the applicable Steering or Policy Committee meeting to provide adequate time to assemble meeting packets.

- The 2023 submission deadlines and meeting schedule is shown in **2023 LSC Project Process Calendar** (Attachment 1).

Reviews

The projects reviewed and considered by the Steering and/or Policy Committee will fall into one of two broad categories.

1. Projects equal to and exceeding $50,000[2]

2. Projects less than $50,000

The primary difference in these categories is the review schedule/frequency, and the review audience. Both categories will generally follow the same core process. The primary differences between the project types are outlined below.

- Projects equal to and exceeding $50,000

    - Schedule:
        - Reviewed one time annually (March by the Steering Committee; April by the Policy Committee).

    - Audience:
        - Projects must be reviewed by the Steering Committee, who provides a recommendation for approval/denial to the Policy Committee.
        - Projects must be reviewed by the Policy Committee, who provides a recommendation for approval/denial to the fiscal agent.[3]

[1] Each December calls for proposals will be sent for both categories of projects (less $50,000 - reviewed in February; and, equal to or exceeding $50,000 - reviewed in March).
[2] Amounts above, equal to, or below $50,000 refers to the grant fund request amount, not total project cost.
[3] Projects do not require approval by the Lower St. Croix Watershed local partner boards unless the project requires a grant agreement amendment or work plan revision equal to or exceeding $50,000.

- Projects less than $50,000

    - Schedule:
        - Reviewed three times annually in February, May, and August

    - Audience:
        - Projects must be reviewed by the Steering Committee, who provides a recommendation for approval/denial to the fiscal agent.

Evaluation Process

Step 1: Application

An eligible applicant fills out a project request form plus appropriate attachments (see attachments listed on project request form) and self-evaluates the project.

***Application Criteria**: The following are **required** for a project to qualify for WBIF funds.*

1. The eligible applicant has investigated potential match funding options from other sources.

2. The eligible applicant has submitted a Funding Request Form and any necessary attachments/self-evaluation forms at least two weeks in advance of the Steering Committee meeting to the Lower St. Croix Watershed Partnership meeting facilitator.

3. The project is indicated as a priority in the Lower St. Croix 10-year Comprehensive Watershed Management Plan.

4. The project is in alignment with the Lower St. Croix Watershed Partnership WBIF grant work plan.[4]

5. The project meets all of the Gatekeeper Criteria (see page 95).

Step 2: Steering Committee Evaluation

The Steering Committee evaluates the project. Projects meeting these criteria will be weighted higher than those that do not.

1. How project scores (the forms linked below are viewable on the LSCP website):
    a. CWMP Scoring Matrix
    b. Wetland Restoration
    c. Internal Loading Analyses
    d. Targeting Analyses

[4] If a partner is proposing a project that is not in alignment with the Lower St. Croix Watershed Partnership (LSCP) WBIF grant work plan, the partner must first request and receive a work plan amendment prior to submitting an application for LSCP WBIF funding consideration.

2. The applicant is in good standing with the LSC (e.g., has delivered and/or closed previous projects in a timely fashion).

3. The project will take place in the current grant cycle.

4. The project will utilize funds on the cusp of expiration.

Step 3: Steering Committee Recommendations

The Steering Committee makes a recommendation. Recommendations require a simple majority vote, (50% plus one of partners attending the meeting). Only a single representative from each entity may cast a vote. If the recommendation is for approval, Step 4 is followed for project requests equal or exceeding $50,000. Skip to Step 5 for project requests less than $50,000.

- If the project was not selected for funding, a Partner may pursue an Appeal.
  The Fiscal Agent and a designated member of the Steering Committee will keep an ongoing list of projects that have been approved/recommended.

- If a project is not selected for funding, an applicant may resubmit the same project at a future date for consideration. Re-submitted projects will be evaluated as described in Step 2.

Step 4: Policy Committee

The Policy Committee considers the project.

- Prior to making any recommendations, the Policy Committee will review the **Conflict of Interest Policy**, as part of the agenda, requesting members to disclose any actual, potential, or perceived conflicts.

- The Policy Committee will make a decision on projects rankings, based on merit, either choosing to uphold Steering Committee recommendations or modifying the Steering Committee's recommendations based on its own analysis.

- Recommendations of approval from the Policy Committee require a super majority vote of the members attending the meeting (2/3 or 66%).

- A recommendation for approval advances the project to Step 5.

Step 5: Fiscal Agent.

The fiscal agent will take action on the project request for funding. If approved, the fiscal agent executes a subcontract with the partner sponsor who submitted the application.

Step 6: Post Project Administrative Steps

- Upon completion of the project, the partner fills out the Invoice Template, and submits it to the fiscal agent.[5]

- The fiscal agent and the Lower St. Croix Watershed Partnership Progress Reporter review the project invoice and work through any remaining items with the project partner.

- Upon project completion, partners are required to provide an update to the Steering Committee, who will subsequently review and accept final documentation.

- When all reimbursement documentation has been determined to be complete and approved by the Steering Committee, the project payment is processed at the fiscal agent's next regularly scheduled meeting.

Appeals

An eligible partner who submitted an application that was not recommended for funding or full funding by the Steering Committee may appeal directly to the Policy Committee. The partner requesting the appeal will be expected to:

- At least one week prior to the Policy Committee meeting, submit a written memo, quantitative demonstration of the value or merit of the project.

- Attend the Policy Committee meeting in which the appeal will be considered.

Exceptions and Additional Requirements

Non-structural Projects: These projects are not subject to review by the Steering Committee at pre-determined evaluation meetings (February, May, August).

- Projects will be eligible for funding already allocated to each soil and water conservation district. Projects will be reviewed against prioritization criteria listed in the non-structural agricultural practices policy (See the CWMP, pg. 40), and a decision will be made by a committee of:

    - The agronomy outreach specialist;

    - The Lower St. Croix Watershed Partner(s); and,

    - Applicable soil and water conservation district.

[5] If a partner wishes to receive partial payments for a particular project, the partner must execute a project assurance that is acceptable to both the fiscal agent and the Board of Water and Soil Resources (BWSR).

Urban Non-structural Street Sweeping: These projects are not subject to review by the Steering Committee at pre-determined evaluation meetings (February, May, August). Incentive funding will only be available to communities with enhanced street sweeping plans approved by the LSCP.

- For projects (including studies), the project proposer is required to bring an information item to the Steering Committee, notifying the Committee of the project's completion, and any related reports or data.

Contracts: Contracts dealing with the employment or continued funding of Lower St. Croix Partnership staff are not subject to the Project Evaluation and Approval Process outlined in this document. Contracts will be handled between the Fiscal Agent and the contracting party independently.

Interim Applications: Partners may submit a written request to the LSCP Progress Reporter that their projects be reviewed at the next scheduled monthly Steering Committee meeting. The partner must demonstrate that the project review cannot wait until the next scheduled review meeting, in accordance with the LSCP's Fast-Track Project Policy, adopted April 25, 2022. The Progress Reporter will forward the request to the Planning Team, who will review the request, either in a special meeting, or through other communications, and determine if the project warrants a fast-track designation and should advance to the Steering Committee.

If the Steering Committee reviews the interim application outside of the approved calendar, the review process will be identical to the process outlined for other project reviews.

Lower St. Croix Fast-Track Project Policy

"Beginning on July 1, 2022, the Lower St. Croix Watershed Partnership will use a stream-lined approach to review and recommend projects for funding. Projects submitted by participating entities will be ranked and reviewed two to three times per year in spring, summer, and fall.

On occasion, however, the Partnership recognizes that high value projects may arise that are well-aligned with the goals of our Comprehensive Watershed Management Plan but require more timely review in order to be completed within the calendar year. For time-sensitive projects such as these, local partners may request that their project be reviewed at the next scheduled monthly steering committee meeting.

All projects that are recommended for funding by the Lower St. Croix Watershed Partnership will be required to follow the same process, regardless of the timing for their review. This includes: completing a project request form and self-evaluation; submitting the project for steering committee and/or policy committee review; executing a contract for funding with the fiscal agent; and filling out and submitting an invoice template to the fiscal agent upon project completion.

Projects will only be fast-tracked if they cannot wait until the next scheduled review meeting and their benefit would significantly outweigh that of future projects that will be considered.

This policy should not be construed to include "emergency projects", as defined by Minnesota Statute 103D.615. The term "emergency project" is strictly applicable to watershed districts and counties during a declared State of Emergency. The Lower St. Croix Watershed Partnership does not have authority under Minnesota Statute to declare a State of Emergency nor complete "emergency projects.""

Conflict of Interest Policy

This policy follows, supports, and expands upon items outlined in the Lower St. Croix Comprehensive Watershed Management Plan Policy Committee Bylaws, adopted January 25, 2021 (Article II, Subsection 3).

Definition

A conflict of interest, whether actual, potential, or perceived occurs "when a person has actual or apparent duty or loyalty to more than one organization and the competing duties or loyalties may result in actions which are adverse to one or both parties. A conflict of interest exists even if no unethical, improper or illegal act results from it." (Office of Grants Management, Policy 08-01).

According to the Office of Grants Management Policy 08-01:

- ACTUAL CONFLICT OF INTEREST: An actual conflict of interest occurs when a decision or action would compromise a duty to a party without taking immediate appropriate action to eliminate the conflict.

- POTENTIAL CONFLICT OF INTEREST: A potential conflict of interest may exist if a grant reviewer has a relationship, affiliation, or other interest that could create an inappropriate influence if the person is called on to make a decision or recommendation that would affect one or more of those relationships, affiliations, or interests.

- PERCEIVED CONFLICT OF INTEREST: A perceived conflict of interest is any situation in which a reasonable third party would conclude that conflicting duties or loyalties exist.

Application

No LSC member or representative shall participate personally through decisions, approval, disapproval, recommendation, the rendering of advice, investigation, or otherwise in any proceeding, application, request for a ruling or other determination, contract, award, cooperative agreement, claim, controversy, or other particular matter in which award funds (including program income or other funds generated by federally-funded activities) are used, where to his/her knowledge, he/she or his/her immediate families, partners, organization other than a public agency in which he/she is serving as an officer, director, trustee, partner, or employee, or any person or organization with whom he/she is negotiating or has any arrangement concerning prospective employment has a financial interest of less than an arms-length transaction.

In the use of agency project funds, personnel and other officials shall avoid any action which might result in, or create the appearance of:

- Using his or her official position for private gain.
- Giving preferential treatment to any person.
- Losing complete independence or impartiality.
- Making an official decision outside of official channels.
- Affecting adversely the confidence of the public in the integrity of the government or the program.

Implementation

During a Policy Committee meeting, and prior to the Policy Committee's review or discussion of any items that involves a grant or funding decision/recommendation, an agenda item will be included to identify and/or disclose actual or perceived conflicts of interest. During this agenda item, the Policy Committee Chair will review the *Definition* of a Conflict of Interest, and request that meeting participants disclose any actual, potential, or perceived conflicts. It is the participant's obligation to be familiar with the LSC's Conflict of Interest Policy, and to disclose any conflicts of interest. A disclosure does not automatically result in a participant being removed from the meeting or process, only that the conflict has been identified.

Attachment D

Non-Structural Ag BMP Policy adopted 5/25/2022

Activity 4 – Non-Structural Ag BMP

Process of Submitting Project Requests

Funds will annually be allocated to each District based on the percentage of acres the LSCW encompasses to provide program payments to administer within their county for the non-structural ag BMP practices, allocation as follows:

1. Anoka SWCD $10,000
2. Chisago SWCD $40,000
3. Isanti SWCD $10,000
4. Pine SWCD $10,000
5. Washington CD $30,000

Districts wishing to utilize WBIF funds for implementing agricultural non-structural BMPs will submit a project request form for the allocation of funding to the Fiscal Agent (Chisago SWCD), including local approved non-structural ag BMP cost share policy and JAA with submittal.

Individual Districts will approve or disapprove contracts with interested land occupiers according to their local policies and following the most up to date Grants Administration Manual and the Watershed-Based Implementation Funding Policy –FY20-21. A District may request additional funds if available in another District of which funds are not encumbered, through a request to the Chisago SWCD and approval of the contributing District.

The Districts will abide by the most up to date Grants Administration Manual and the Watershed-Based Implementation Funding Policy –FY20-21 guidelines and their local policies. This attachment will be updated to reflect future Watershed-Based Implementation Funding Policies.

Processing Applications - Conservation staff will use their local non-structural ag BMP policy to rank and select non-structural BMP projects to be submitted to the District the project is located in. Reference Section VII.B of the Lower St. Croix Comprehensive Watershed Management Plan for targeting process and Appendix C for scoring projects.

Ag Priority Areas

- Tier 1: Rock Lake, Rock Creek, Sunrise River and tributaries, St. Croix River tributaries with direct discharge (Rock, Rush, Goose, Lawrence, Browns, and Trout Brook, Creeks, and small creeks south of Lawrence Creek and north of Valley Branch).
- Tier 2: lakes that drain to St. Croix tributaries.
    - Rush and Goose Lakes in Chisago County
    - Forest and Comfort Lakes in CLFLWD (drain to Sunrise River)
- Projects may also occur at other priority waters as identified in Table 5-2 and Table 5-3 of the LSC CWMP. The project ranking subcommittee will also consider CWMP Figure 5-1 Vulnerable Groundwater in Agricultural Areas when evaluating potential projects.

Program Requirements

Cost share is available for implementing non-structural BMPs that have erosion control or water quality improvement benefits in accordance with the Board of Water and Soil Resources (BWSR) Watershed-Based Implementation Funding Policy –FY20-21. Non-structural BMPs will be planned and implemented according to the Natural Resources Conservation Service (NRCS) standards and specifications found on the Electronic Field Office Technical Guide (EFOTG).

Cost Share Contract:

A contract between the District and land occupier receiving state funds is required to provide a legal standing to ensure practices are installed and maintained according to approved standards and specifications.

All practices must be consistent with USDA Natural Resources Conservation Services Field Office Technical Guide (FOTG) or be professionally accepted engineering or ecological practices. Design standards for all practices must include specifications for operation and maintenance for the effective life of the given practice, including an inspection schedule and procedure. Technical services will be provided by local SWCD staff with appropriate job approval authority; conservation partners with appropriate job approval authority (such as: Natural Resources Conservation Service); or a NRCS approved Technical Service Provider (TSP). Non-structural vegetative practices must follow the Native Vegetation Establishment and Enhancement Guidelines from WBIF policy.

Review of proposed practice(s) with client including technical information (implementation requirements, seed mixes, design quantities, O&M, etc.) and programmatic requirements (length of contract/lifespan, cost share rates, maximum payments, noncompliance, etc.) and agreement of client will be required prior to submitting the project for recommendation to the local SWCD.

The local SWCD from the county the practice is implemented in will be responsible for the operation and maintenance (O&M) inspections.

Incentives to install or adopt land management practices must have a minimum duration of 3 years. Contract compliance will follow the most up to date Grants Administrative Manual and the District's local policy.

Rates and General Requirements:

Cost share rates will comprise of a flat per acre rate for all non-structural BMP practices based on the Minnesota NRCS Practice Average Annual Cost Information Spreadsheet FY2018 and the Practice Cost Information Workbook Tool 2019 found in the EFOTG. Practices will be planned for 3 years of implementation and the maximum total WBIF per contract will follow local policies. Local policies will dictate whether annual or one-time payments will be made to land occupiers. Practices may be implemented on the same acres for the 3 year duration (required for nutrient management and prescribed grazing), practices may move with the rotation but must implement the same amount or greater acres in years 2 and 3, or two or more practices may be implemented on the same acres for the 3 year period alternating years (ex. Plant cover crops after corn harvest, no-till soybeans the following year). Eligibility requirements include that planned practices are newly adopted; not previously implemented on the acres by the current owner/operator and did not previously meet NRCS standards and specifications.

- **Cover Crops** - Must follow NRCS Practice Standard 340
    - 1-2 species $50/acre/year
    - 3+ species $60/acre/year
    - Implementation can occur on different acres within the three-year contract or on the same acres consecutively
- **Nutrient Management** - Must follow NRCS Practice Standard 590
    - $20/acre/year
    - Implemented on the same acres annually
- **Prescribed Grazing** - Must follow NRCS Practice Standard 528
    - $40/acre/year
    - Implemented on the same acres annually
- **Residue and Tillage Management – No-Till & Strip Till** - Must follow NRCS Practice Standard 329 for No-Till/Strip-Till
    - $20/acre/year

    - Implementation can occur on different acres within the three-year contract or on the same acres consecutively
- **Residue and Tillage Management - Conservation Tillage** - Must follow NRCS Practice Standard 345 for Conservation Till
    - $10/acre/year
    - Residue cover following a corn crop at the time of planting the subsequent crop must be 60% or greater.
    - Residue cover following a soybean crop at the time of planting the subsequent crop must be 30% or greater.
    - Residue cover following a small grain crop at the time of planting the subsequent crop must be 60% or greater.
    - Implementation can occur on different acres within the three-year contract or on the same acres consecutively

Project Selection Criteria

Districts will follow their respective non-structural ag BMP policy for selecting projects of which are to be located in the ag priority locations and following the Grants Administration Manual and the Watershed-Based Implementation Funding Policy –FY20-21. Reference Section VII.B of the Lower St. Croix Comprehensive Watershed Management Plan for targeting process and Appendix C for scoring projects.

Attachment E

Non-Structural Urban BMP Policy **Adopted May 25, 2022**

Activity 4 – Non-Structural Urban BMP

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 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 summary 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 developing these plans in the LSC Watershed Partnership Watershed Based Implementation Funding work plan under Activity 8: Targeting Analyses

Process of Submitting Project Requests

Once a LSC WP JPA partner self-scores their project, submit to the Steering Committee (SC). The SC will review projects and make recommendations to the Lower St. Croix Policy Committee (PC), which in turn makes a recommendation to the Fiscal Agent (Chisago SWCD). Final funding decisions are made by the Chisago SWCD.

The Districts will abide by the Grants Administration Manual and the Watershed-Based Implementation Funding Policy – FY20-21 guidelines and their local policies.

Processing Applications

LSC WP JPA staff will use Appendix C to rank and select urban non-structural BMP projects to be recommended to the SC. Reference Section VII.B of the Lower St. Croix Comprehensive Watershed Management Plan for targeting process.

Urban Priority Areas:

- Rush Creek (Rush City)
- Goose Creek (Harris)
- Sunrise River (North Branch, Stacy, Wyoming)
- St. Croix River (Taylors Falls, Marine on the St. Croix, Stillwater, and MSCWMO cities including Afton, Bayport, Baytown Township, Lakeland, Lakeland Shores, Lake St. Croix Beach, Oak Park Heights, St. Mary's Point, Stillwater, and West Lakeland Township).

Program Requirements

Cost share is available for implementing non-structural BMPs that have erosion control or water quality improvement benefits in accordance with the Board of Water and Soil Resource's (BWSR) Watershed-Based Implementation Funding Policy –FY20-21. Non-structural BMPs will be planned and implemented according to the Minnesota Stormwater Manual and will follow the most up to date Grants Administrative Manual.

Cost Share Contract: A contract between the LSC WP JPA partner and land occupier receiving state funds is required to provide a legal standing to ensure practices are installed and maintained according to approved standards and specifications. The LSC WP JPA will enter into one contract with each community for 3 years of the contract.

The local LSC WP JPA partner from the county the practice is implemented in will be responsible for the operation and maintenance (O&M) inspections.

Rates and General Requirements:

The contracts will provide an annual incentive payment for the 3-years. The rate, set by the Lower St. Croix Partnership allows for 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.

Tier 1 $100/curb-mile/year (complete the MPCA credit calculator based on curb miles swept and provide the report)

Tier 2 $125/curb-mile/year (complete the MPCA credit calculator based on the tracking of weights, dates, and provide the report)

To participate, communities will need to implement increased sweeping as prescribed by the adopted Enhanced Street Sweeping Plan. Participating communities will be required to enter into a 3-year 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 to expand enhanced sweeping in other areas identified in an enhanced sweeping plan.

Annual payments will be made at the end of each year of the 3-year contract based on actual miles swept in the spring and fall within the enhanced street sweeping zones. Communities will complete 3 years of implementation. If a community fails to implement one of the years, they would be considered in contract non-compliance, and the SWCD who has a contract with them works to bring them into compliance. If they can not be brought into compliance, they are liable to the State (through the local government grantee) for up to 150% of the financial assistance received.

Project Selection Criteria

Districts will follow their respective non-structural urban BMP policy for selecting projects of which are to be located in the urban priority locations and following the Grants Administration Manual and the Watershed-Based Implementation Funding Policy –FY20-21. Reference Section VII.B of the Lower St. Croix Comprehensive Watershed Management Plan for targeting process and Appendix C for scoring projects.

Attachment F

technical memo

Project Name |	LSCWP Tree Canopy Assessment Protocol	**Date** |	7/15/22
To / Contact info |	Craig Mell, Chisago SWCD Mike Isensee, CMSCWD		
Cc / Contact info |	LSCWP Subcommittee A8 Members		
From / Contact info |	Paula Kalinosky, EOR Sarah Voje, EOR		
Regarding |	Tree Canopy Assessment for Street Sweeping Prioritization – Final Report		

Tree Canopy Assessment Protocol for Enhanced Street Sweeping Prioritization

In December 2021, the Lower St. Croix Water Partnership (LSCWP) hired EOR to develop methodology to assessment street corridor tree canopy for use in planning street sweeping practices. The methods described in this memo have been developed to help municipalities identify and prioritize areas within their jurisdiction for enhanced street sweeping practices using GIS data sources that are widely available and analysis methods that do not require advanced software or special training. The method was developed for the LSCWP initiatives plan to improve water quality in the Lower St. Croix region. This plan includes goals for implementation of non-structural BMPs like street sweeping.

1 Background and Definitions

In this section we provide a brief summary of the rationale for enhanced street sweeping based along with a discussion of key terms. The information in the section is based on research conducted by the University of Minnesota in 2011-2013 for the Prior Lake, MN Street Sweeping Study (see References and Works Consulted).

What is Enhanced Street Sweeping?

Most municipalities sweep streets in the spring to remove accumulated sand and tracked sediment that collects during the winter months. This process is typically repeated in the fall to reduce leaf litter on street surfaces. Enhanced street sweeping is simply additional sweeping protocols that are completed for surface water quality protection and other potential benefits (Table 1).

What is Street Corridor Tree Canopy?

As a concept, street corridor tree canopy includes trees located within right-of-way areas and front yards or other areas that are likely to contribute leaf litter and duff to road surfaces. For the purpose of this the assessment outlined in this memo, street corridor tree canopy is defined as canopy cover located within the road right-of-way plus 10 feet. This choice is discussed further in Section 2.1.3

Why Assess Street Corridor Tree Canopy Cover?

Solids that collect on road surfaces include organic litter from trees like leaves, pollen, seeds, and other duff. These inputs to street surfaces are obvious during fall leaf drop but can be a significant source of nutrients in accumulated solids at other times during the growing season (Kalinosky, 2015).

Aren't Trees 'Good' for Water Quality?

Yes, trees provide multiple benefits including reducing stormwater runoff, reducing pollutants in runoff, and moderating heat island impacts from impervious surfaces like roads in urban areas.

Table 1. Benefits of street sweeping and factors that influence the effectiveness and cost-effectiveness of street sweeping programs.

Benefits of Street Sweeping (Objectives)	Factors that Influence:	
	Accumulation of Solids on Road Surfaces	**Cost-Effectiveness of Street Sweeping**
• Aesthetics (clean streets)	• Adjacent land use	• Accumulated Solids:
• BMP maintenance benefits (L)	• Construction activity	o Location of sweeping
• Driver and pedestrian safety (S)	• Local topography	o Frequency of sweeping
• Local flood control (clogged catch basins)	• Roadway traffic volume	o Timing of sweeping
• Surface water quality	• **Tree canopy density (This Study)**	• *Objectives for Sweeping*
• Pavement management (L)	• Weather	• Sweeper Financing/Ownership
	• Winter road practices	• Sweeper Type

= *Benefits, and implementation factors that are associated to tree canopy*

(L) = Sparse research available

(S) = Seasonal benefit

2 Tree Canopy Assessment Methods

Quantitative Assessment

Tree canopy cover can be assessed quantitatively through geospatial analysis if mapped tree canopy cover data are available for the area of interest. In the method described in Section 2.1, street corridor areas are defined using road centerline data and right-of-way widths. Mapped tree canopy cover is then intersected with defined corridor areas to calculate a percent tree canopy cover over for each street. This assessment method is most efficient for municipalities located within the 7-County Twin Cities Metropolitan Area and other metropolitan areas for which high resolution land cover data are available (e.g., Duluth, Rochester).

Parameters and recommended methods for quantitative assessment of tree canopy cover are discussed in Section 2.1.

Qualitative Assessment

For small municipalities or neighborhood-scale analysis, qualitative assessment of tree canopy cover may be more efficient than geospatial analysis and quantification. Tree canopy cover can be inspected visually using recent aerial photographs or other satellite imagery along with a visual guide to classify canopy cover at a neighborhood or development scale. This method is outlined in Section 2.2.

2.1 Quantitative Assessment of Street Corridor Canopy using Geospatial Analysis

2.1.1 Municipalities inside the 7-County Metropolitan Area (TCMA)

For municipalities located with the TCMA, mapped tree canopy data are available in raster format through the Minnesota Geospatial Commons. The TCMA 1-Meter (horizontal resolution) Urban Tree Canopy Classification data set distinguishes deciduous and coniferous tree canopy from buildings, bare soil, paved surfaces, and 7 other land cover classifications.

This data set was developed in 2015 by the University of Minnesota Remote Sensing and Geospatial Analysis Laboratory for the purpose of evaluating existing tree canopy cover, particularly where tree canopy overhangs buildings, roads, parking areas and other impervious surfaces.

Because tree canopy cover is not static – trees mature, are removed to develop land or because they are damaged, tree canopy density estimates developed using mapped canopy cover will include some inaccuracies. These are especially accentuated in areas of recent development. In the context of planning street sweeping, these inaccuracies are generally tolerable, though some manual correction may be needed where development has occurred few years before 2015 or after 2015. Examples of 2015 TCMA mapped canopy vs. aerial imagery are shown in Figure 1.

Other land cover data sets typically prioritize impervious surfaces to define roads, buildings, and other paved surfaces (e.g., TCMA High Resolution Land Cover) or to characterize land cover in urban areas using composite values. For example, urban areas are classified using percent impervious rating in the Minnesota Land Cover Classification System (MLCCS). The same areas may be classified as Low-, Medium-, or High-Intensity Developed land cover in the National Landcover Database (NLCD).

2.1.2 Municipalities outside the TCMA

For municipalities outside the 7-County TCMA, mapped tree canopy data are not readily available. Canopy data sets can be developed using false color imagery in combination with LiDAR data that has been processed to reveal bare earth points. This method was used by the University of Minnesota to develop the TCMA 1-meter Urban Tree Canopy data set described in the previous section. While the data required to perform this analysis are available through various government agencies, the methodology requires advanced GIS analytics which are outside the scope of this protocol. Additional information about the methodology is available through the University of Minnesota Digital Conservancy: https://conservancy.umn.edu/handle/11299/183470mn

See Section 2.2 for further discussion of tree canopy cover assessment for areas outside the 7-county TCMA.

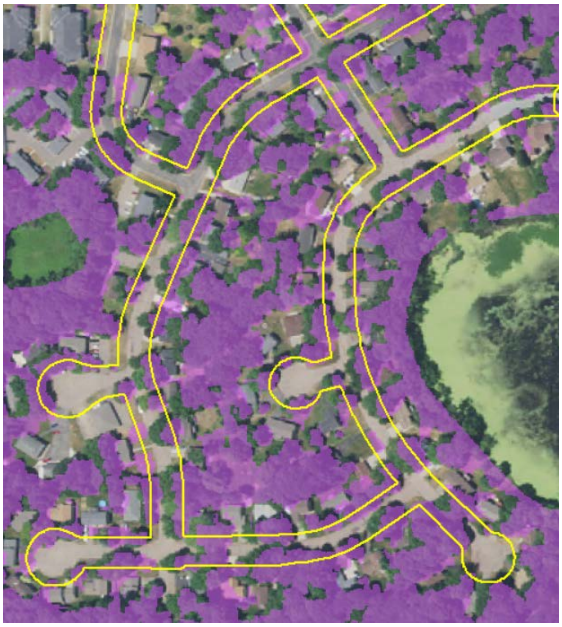
2015 TCMA Mapped tree canopy cover data is most accurate in areas with mature trees where development has not occurred in the last decade.	
	
2021 Aerial Imagery (NAIP, Natural Color) in an area of mature tree canopy, Prior Lake, MN	2021 Aerial Imagery with 2015 TCMA mapped tree canopy overlay shown in purple
Tree canopy data may be out-of-date in areas developed few years before 2015 or after 2015	
	
2021 Aerial Imagery - In areas developed in 2015 or later, mapped tree canopy cover (purple) may include trees that have since been removed.	2021 Aerial Imagery - In areas developed before 2015, mapped canopy cover (purple) may not be totally representative of current canopy cover.

Figure 1. Comparison of aerial imagery and 2015 tree cover (TCMA High Resolution Land Cover Data).

2.1.3 Defining boundaries for assessment of street corridor tree canopy

For assessing potential leaf litter and organic inputs to street surface, we recommend quantifying tree canopy at the roadway right-of-way distance plus an additional 10 feet. This recommendation is based on finding from the Prior Lake Street Sweeping Study (Kalinosky, et. al., 2013). When assessed at different buffer distances from the street, correlations between tree canopy cover and recovered pollutant loads tended to increase with increasing distance from the street up to about 20 feet from curb lines (or 10 feet from the right-of-way). Appendix B shows these results numerically and graphically. Figure 2 illustrates that the percentage of tree canopy increases significantly (3% to 26%) when the curb line footprint is expanded by 20 feet. After 20 feet, the percentage of canopy cover increase is relatively small (i.e., 26% at 20 feet and 32% at 50 feet).

Using the boundary width of the right-of-way distance plus an additional 10 feet was considered appropriate for the following reasons:

- Reduced error in estimates compared to smaller assessment corridors – the data sets used in this assessment each contain some amount of error and error accumulates as data sets are clipped and intersected with one another. For raster data, like the tree canopy data used in this assessment, error will increase as feature scale approaches the raster resolution.
- Extending the assessment boundary into front yard areas help account for leaves and organic litter transported to street surfaces by wind and runoff, rather than just what falls onto the street directly.
- Many developed area retain wooded areas in backyard. Including areas like this, which are less likely to contribute organic litter to road surfaces when compared to front yards, may artificially inflate street corridor canopy estimates in some areas, especially newly developed areas.

Figure 2. Percent tree canopy cover quantified over and within variable distances from the curb line.

Tree canopy cover within curb line ~3%	Tree canopy cover within curb line plus 10 feet ~ 16%
	
Tree canopy cover within curb line plus 20 feet ~ 26%	**Tree canopy cover within curb line plus 50 feet ~32%**
	

2.1.4 Geospatial Analysis for Assessment of Street Corridor Tree Canopy Cover

There are several different methods that can be used to quantify tree canopy cover for defined corridors. A limiting factor for all methods is availability of data sets characterizing the extents of tree canopy. Depending on what tree canopy data is available (if any) for the area of interest, the assessment will be more or less complex. The method summarized below is one that uses public data sets that are readily available and commonly used in water/natural resources planning, analysis, and mapping. This method was chosen for its simplicity and adaptability of the end product for use in different street sweeping prioritization exercises.

2.1.4.1 Recommended workflow for simple quantification of street corridor tree canopy cover.

The workflow summarized below is shown diagrammatically in Figure 4. These are the Workflow steps:

Identify and isolate candidate roads

1) Where available, begin the analysis using road centerline data maintained by the municipality. If county or state-level data are used, the fist step is to refine the data set to eliminate roadways owned by other jurisdictional entities:
    A. Clip road centerline data using the applicable municipal boundary.
    B. Select roads segments by jurisdiction using the MNDOT Route System Code ('ROUTE_SYS' attribute) that is shown in Appendix C. The route system code for municipal streets is number '10'. Other route system codes (e.g., 05 Municipal State Aid Street) may be applicable depending on individual context.
    C. Inspect Road data, remove duplicate linework if coincident segments are present.

Determine the extents of tree canopy quantification

Using minimum (local ordinance) or typical right-of-way widths (Table 2), assign centerline buffer distances to define the extents of the tree canopy assessment.

2) For road centerline data that do not include an attribute describing the functional classification OR the ROW width:
    A. Add a text field to classify road segments by functional class. Review data for attributes that can serve as a proxy for functional class (e.g., lane width, speed limit).
    B. If no suitable proxy attributes are included in the data, functional class can be added through visual inspection. It may be easier to identify primary throughfare or high capacity routes visually using satellite/aerial imagery in combination with roadway names. Remaining roads can then be assigned an 'uncategorized' function class (Table 2).
    C. Assign function class based on proxy attribute or manual selection.

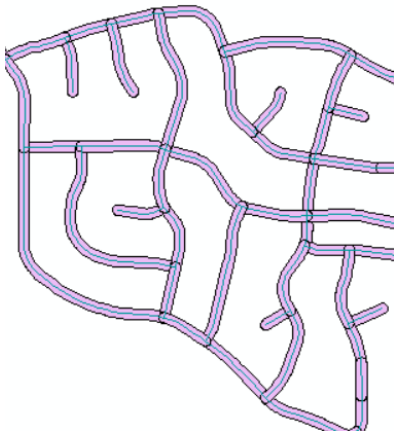
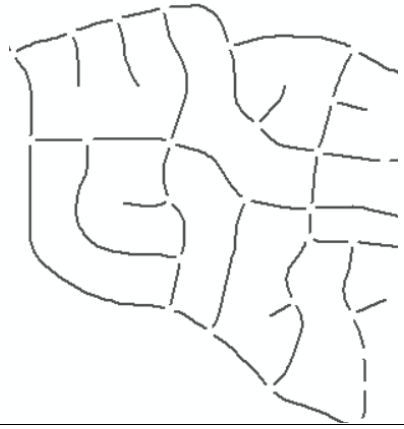
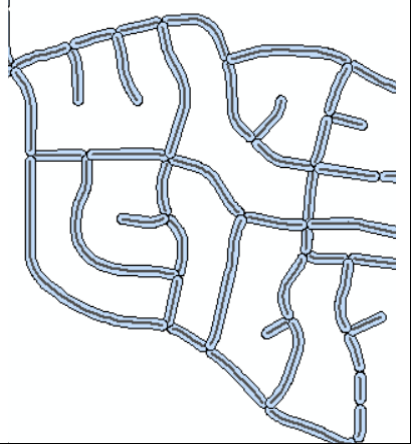
3) If road centerline data do include a functional class, but do not include ROW width data:
    A. Add a new double field, 'ROW,' to the attribute table in the municipal road data set defined in step 1C.
    B. Assign ROW width based on the function classification using minimum ROW widths from local zoning code, engineering standards, or the recommended values in Table 2.

Table 2. Recommended road centerline buffer distance for street corridor canopy assessment.

Road Type (Functional Class)	Typical ROW Width (feet)	Assessment Boundary	Recommended Centerline Buffer Distance
Major or Minor Arterial	150	ROW + 10 feet on either side	85 feet
Collector (neighborhood or other)	80 - 120		60 feet
Commercial or Industrial Service Street	80		50 feet
Local Road	50 - 60		40 feet
Uncategorized (classification or suitable proxy attribute not available)	50 - 80		50 feet

4) Calculate centerline buffer distance for canopy assessment
   A. Add a new double field, 'Buffer' to the road centerline data from step 3B.
   B. Select the 'Buffer' attribute field and assign values using the 'Field Calculator' tool. Set the field value to = 0.5 *[ROW] + 10 (one-half the ROW width plus 10 feet).
   C. Geoprocessing – buffer the road segments layer using the 'by field' buffer distance assignment option.

Table 3. Example of intermediate buffer polygons (left) shortened road segments (middle), and refined buffer polygons (right) described in steps 4C, 5A, and 6C.

Initial buffer polygons (step 2D), Many points of overlap present	Shortened road segment (step 3C)	Refined buffer polygons (step 3D), Few points of overlap present
		

Refine buffer polygons

5) Buffering line segments, like road centerline, which intersect one another, will produce buffer polygons that overlap at intersections and road segment breaks. Buffer polygons should be 'cleaned' to eliminate double counting tree canopy in the assessment. The following is one simple methods for clean polygon buffers.
   A. Intersect the road segment data from Step 1C with the buffer polygons created in step 4C. This will produce a road centerline data layer with all of the attributes assigned in steps 3 and 4, but with breaks at intersections with buffer polygons as well as centerline intersections.

6) Eliminate road segment within buffer overlap zones:
    A. Calculate the length of the road segments produced in the step 5A.
    B. Select all road segments that have a length less than or equal to the longest specified buffer distance calculated in step 4B. Delete these segments.
    C. Buffer the remaining road segments using the buffer distance attribute. This will produce buffer polygons with no overlap. Gaps on the order of 10 feet may be present at some locations, but for the purpose street sweeping prioritization, these gaps will not introduce significant error in canopy density estimates.

Process tree canopy data

7) The 7-County TCMA Urban Tree Canopy data set is quite large. To reduce processing times, clip the data set to the area of interest.
    A. Use 'Extract by Mask' to clip the TCMA tree canopy raster to the applicable jurisdictional boundary.
    B. Use the 'Reclass' tool to reclassify the 'Value' field, replacing the value '6' for coniferous tree canopy with '1' and reclassifying all other values as 0.
    C. (Optional) If available, burn in tree inventory points to the raster
        i. Use 'Rasterize' tool to assign all tree points as 1 and remaining points null or 0
        ii. Use 'Raster Calculator' to burn in or replace any pixels in the Tree Canopy Raster that have tree inventory points associated with them to 1, indicating tree presence.

Calculate % canopy cover

8) Overlay tree canopy data and buffer polygons to determine % canopy cover within each polygon.
    A. Using the buffer polygons created in step 6C and the reclassified tree canopy raster from step 7B (if using tree inventory data, use raster from 7C), run the 'Zonal Statistics' tool to calculate the count and sum of tree canopy cover within street corridor areas.
    B. Add a new field, 'canopy, type = float, to the new layer produced in step 8A.
    C. Calculate the percent canopy per road polygon by taking area occupied by tree cover (sum) divided by the area of the road polygon (count).

Refine symbology

9) Use symbology to highlight differences in street corridor canopy visually. An example is shown in Figure 3.

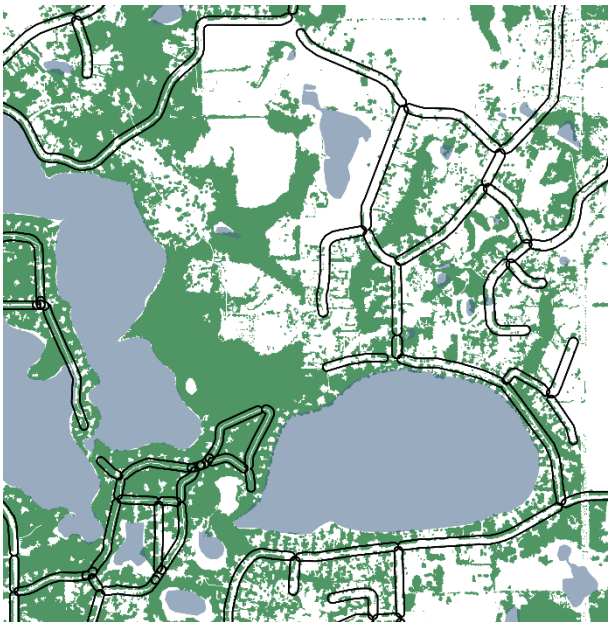
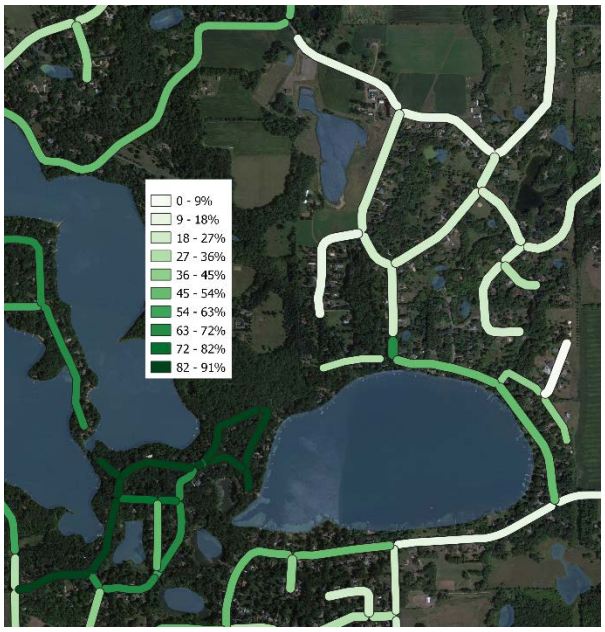
Tree canopy raster produced through raster reclassification (step 7B) overlaid by buffer polygons (step 6C).	Street corridor tree canopy buffer polygons, symbolized to show % tree canopy cover categorically (steps 8 & 9).
	

Figure 3. Tree canopy raster overlaid by buffer polygons (left) and canopy cover buffer polygons with symbology applies to show canopy ratings visually (right).

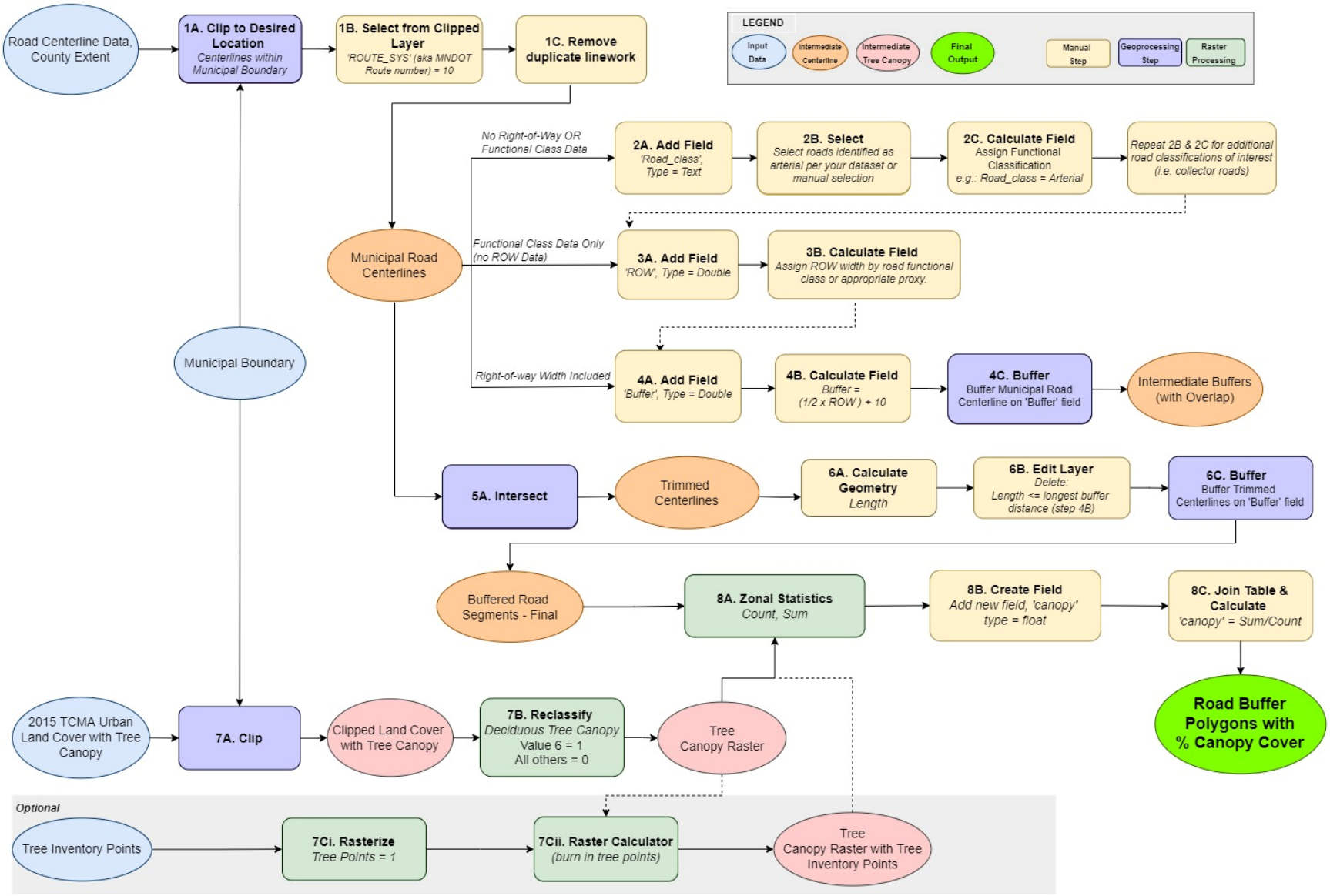


Figure 4. Workflow diagram for simple quantification of street corridor tree canopy cover using geospatial analysis.

2.1.4.2 Recommended Data Sources for Geospatial Analysis of Tree Canopy

The following data were used in developing the workflow outlined in Section 2.1.4.1. These data sources were chosen because are publicly available, are developed by reliable state and local agencies, and are commonly used in mapping and analysis.

Table 4. Summary of recommended data sources for geospatial analysis of street corridor tree canopy cover.

Tree Canopy	
Inside the Twin Cities Metropolitan Area	
Data/Source	'2015 Twin Cities Metropolitan Area (TCMA)Urban Tree Canopy Assessment, University of MN' Download available on MN Geospatial Commons
Format	Raster, 8-bit GEOTIFF, 1m x 1m pixels
Extent	7-County TCMA
Description	1-Meter high resolution urban land cover classification data set that is optimized for tree canopy mapping. In places where tree canopy overhangs an impervious surface such as a street, the canopy edge mapped rather than the impervious surface.
Comments	The data were developed using NAIP imagery from 2011 (fall) and 2015 (summer) and lidar from 2011. • Data accuracy is highest in areas with mature tree canopy. • Where development has occurred few years before 2015, canopy data may be less accurate and should be inspected by comparing to recent aerial photographs. • Data can be supplemented with local tree inventories where available.
Note: High resolution land cover data for the TCMA is also available in an impervious surface-focused format which prioritizes impervious surface edges over canopy. This version can also be used to assess ROW canopy. Users should be aware that canopy covers values derived through the geoprocessing using the impervious surface-focused version will be somewhat lower than those derived from the TCMA Urban Tree Canopy layer.	
Outside the Twin Cities Metropolitan Area	
Data/Source	National Agricultural Imagery Program (NAIP) Color Infrared Imagery, raw LiDAR data for the area of interest
Format	Raster
Extent	County
Description	False color high-resolution imagery (1-meter or better) developed from aerial imagery acquired during the growing season.
Comments	Special methodology, see University of Minnesota Digital Conservancy: https://conservancy.umn.edu/handle/11299/183470mn
Roadway Centerline Data Sets	
#1 choice	Data maintained by the county of municipality of interest. Key attributes used in this analysis include: • jurisdiction (state, county, local, private) • municipal classification (e.g., arterial, collector, local) or the ROW width.
#2 choice	MnDOT Route Centerlines (Statewide). This data set is reliable, but some additional processing may be needed to isolate road of interest when compared to county or local data sets.
Format	Vector, typically polylines with breaks at intersections, start/end of curves, changes in jurisdiction or name, and at expansion/contraction in lane number

Extent	Varies depending on jurisdiction
Description	Typically shows centerlines of public and some private roads within extents of the data set. It may also include attributes to describe road type, number of lanes, length, name, jurisdiction of roadway, width, etc.
Comments	Road centerline data are available statewide and at the county level for most Minnesota counties through the Minnesota Geospatial Commons. Some municipalities maintain geospatial records of local, municipal roads that is available upon request.
Municipal/Jurisdictional Boundary	
Data/Source	'City, Township, and Unorganized Territory in Minnesota' MN DOT and Minnesota Geospatial Information Office Available through the MN Geospatial Commons
Format	Vector
Extent	Statewide
Description	Dataset represents the boundaries of cities, townships, and unorganized territories (CTUs) in Minnesota

2.2 Visual Assessment of Tree Canopy using Aerial Imagery

For small municipalities, visual assessment of street corridor tree canopy may be more cost effective than geospatial analysis. Tree canopy cover characteristics tends to be fairly homogenous within development boundaries. Also, developments of similar age often concentrated geographically. Likewise, zoning ordinances, which dictate allowable land cover changes by land use, often have the effect of producing large areas within which tree canopy characteristics are similar. These development patterns and the tree canopy characteristics associated with them are discernable on aerial imagery (see Figure 7 in Appendix A).

Visual assessment, streets should be assessed at a development, neighborhood, or zoning scale (or combination thereof) using a categorical tree canopy rating to describe canopy cover. Canopy cover estimates, whether derived quantitatively as described in Section 2.1.4.1 or through Canopy cover estimates - whether derived quantitatively as described in Section 2.1.4.1 or through visual assessment, can be clipped or aggregated to derive average canopy cover for larger or small areas of interest using area-weighting.

Visual examples of quantified street corridor canopy are provided in Appendix A: Guide for Visual Assessment of Street Corridor Tree Canopy. A recommended rating scale (low, moderate, medium, high, or very high) is paired with neighborhood-scale examples that are categorized by average percent tree canopy cover within the area shown.

Canopy cover estimates or rating derived through this method can be added as an attribute to road centerline data sets and used in street sweeping prioritization exercises (Section 3). A sample workflow for integration of visual assessment in street sweeping prioritization is outline below. The workflow is shown diagrammatically in Figure 5

Workflow Summary

Identify and isolate candidate roads

1) *See description in Section 2.1.4.1*

Group roads by land use zoning type *(Optional)*

2) For visual assessment of tree canopy, it may be useful to assign a land use classification to road segment by intersecting municipal roads and municipal zoning boundaries. This field can be used to refine selections in step 3.

Assign Tree Canopy Rating

3) For visual assessment of tree canopy cover, NAIP true color aerial imagery is preferred to:

A. Add a new text field, 'Canopy' to the road centerline layer.

B. Select roads within areas are that have similar tree canopy cover characterizes and assign a canopy rating using the visual comparisons provided in Appendix A.
Repeat Step 3B as needed until all roads have been assigned a tree canopy rating.

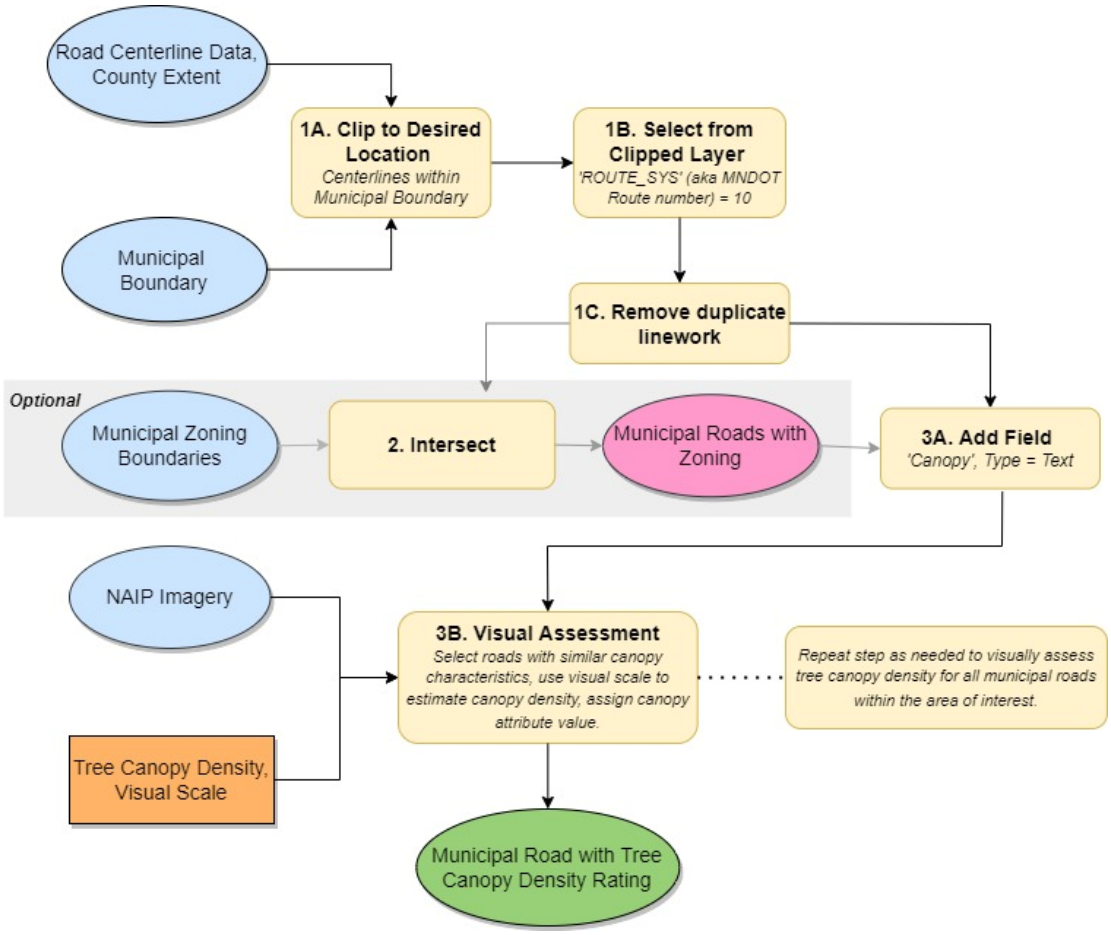


Figure 5. Workflow diagram for using visual assessment of street corridor tree canopy to associate canopy cover rating with municipal road segments.

2.2.1 Recommended Data Sources for Visual Assessment of Tree Canopy

The following data sources are recommended for visual assessment of tree canopy cover.

Table 5. Summary of recommended data sources for geospatial analysis of street corridor tree canopy cover.

Aerial Imagery	
Data/Source	National Agricultural Imagery Program (NAIP), True Color Imagery[1]
Format	Raster
Extent	Statewide by County
Description	NAIP Imagery is available through the USDA: https://naip-usdaonline.hub.arcgis.com/
Boundary Layer (Optional)	
Data/Source	Data layer representing boundaries that characterize land areas within the municipality such as drainage, zoning, or development boundaries may be useful in visual assessment of tree canopy cover. This type of data is typically available through the local agencies (city, county, watershed district, etc.).
Description	Typically vector format.

[1] The same imagery may be available at a statewide extent as 'color FSA' imagery through a WMS server. Note that county-level imagery available through WMS servers tends to favor leaf-off imagery (flown during the spring or fall) any may be difficult to use for the purpose of assessing tree canopy cover. For more information on imager available through WMS servers see Minnesota Geospatial Image Service: https://www.mngeo.state.mn.us/chouse/wms/geo_image_server.html

3 Using Tree Canopy Cover Data to Identify Priority Area for Street Sweeping

Outside of additional context, street corridor tree canopy cover data alone would not define priority street sweeping zones. Canopy cover density occurs across a continuum and even where there is stark contrast in canopy cover density, other factors like direct connectivity between streets and surface waters, may provide a context that makes sweeping in lower canopy density areas more beneficial or more cost-effective than sweeping in high canopy density areas.

When used in combination with other data like, storm sewer or BMP catchment boundaries, surface water drainage areas, zoning or neighborhood boundaries, canopy cover provides a means to rank and prioritize areas for street sweeping. This can be done using geospatial analysis by intersecting the feature layer of interest (e.g., drainage boundaries) with street corridor canopy polygons derived through quantitative (Section 2.1.4.1) or qualitative (Section2.2) assessment. Area-weighting can be used to calculate an average street corridor canopy cover at the overlay feature scale. Feature areas can then be prioritized by average tree canopy cover ratings as shown in Figure 6.

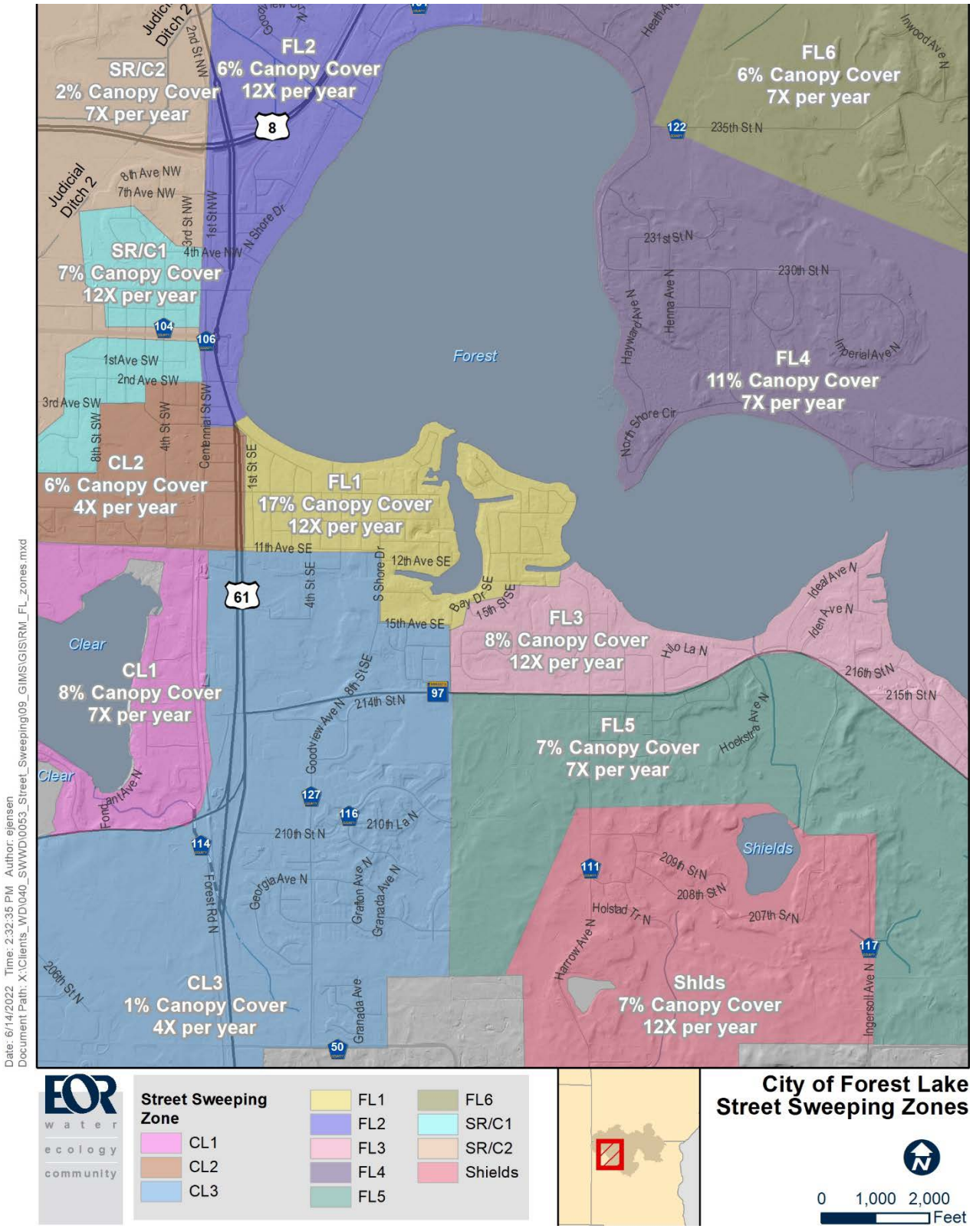


Figure 6. City of Forest Lake sweeping zones based developed through overlay of lake management areas, storm sewer catchments, and tree canopy cover. Area with high connectivity to surface waters and/or high canopy covers were prioritized for increased sweeping frequency.

4 Summary

I. Mapped tree canopy cover can be used to quantify tree canopy density for areas that are most likely to contribute leaf litter and duff to municipal street surfaces.
   - Where mapped canopy cover data are available (7-County TMCA), this analysis is simple, but additional data and data processing are required to perform the same analysis in other parts of the state.
   - Manual correction of data may be needed in areas of recent development
   - The accuracy of this method is sufficient for use in planning street sweeping; however additional parameters, such as water resource planning priorities or pre-defined routes, are needed to rank or prioritize areas for sweeping.

II. For small study areas, visual assessment of tree canopy cover using aerial imagery may a more efficient way to estimate street corridor tree canopy density for the purpose of planning street sweeping.

III. Tree canopy density ratings can be paired with drainage boundaries or other data sets that inform street sweeping objectives to identify and prioritize area of higher tree canopy cover for high frequency street sweeping.

5 References and Works Consulted

EOR, 2018, for the Comfort Lake-Forest Lake Watershed District; City of Forest Lake Street Sweeping Management Plan, http://ci.forest-lake.mn.us/documentcenter.

Kalinosky, P., 2015. Quantifying Solids and Nutrient Recovered Through Street Sweeping in a Suburban Watershed. Master's Thesis, University of Minnesota

Kalinosky, P., Baker, L., Hobbie, S., Bintner, R., Buyarski, C., 2013. User Support Manual: Estimating Nutrient Removal by Enhanced Street Sweeping, University of Minnesota for Minnesota Pollution Control Agency (MPCA).

Appendix A: Guide for Visual Assessment of Street Corridor Tree Canopy

For some municipalities, zoning boundaries may serve as a proxy for tree canopy assessment. Street corridor tree canopy tends to be most dense in older residential neighborhoods with mature trees in front yards and least dense in commercial industrial areas where trees tend to be less mature and laid out in easily discernable geometries. Areas of new development tend to have the least dense street corridor canopy.

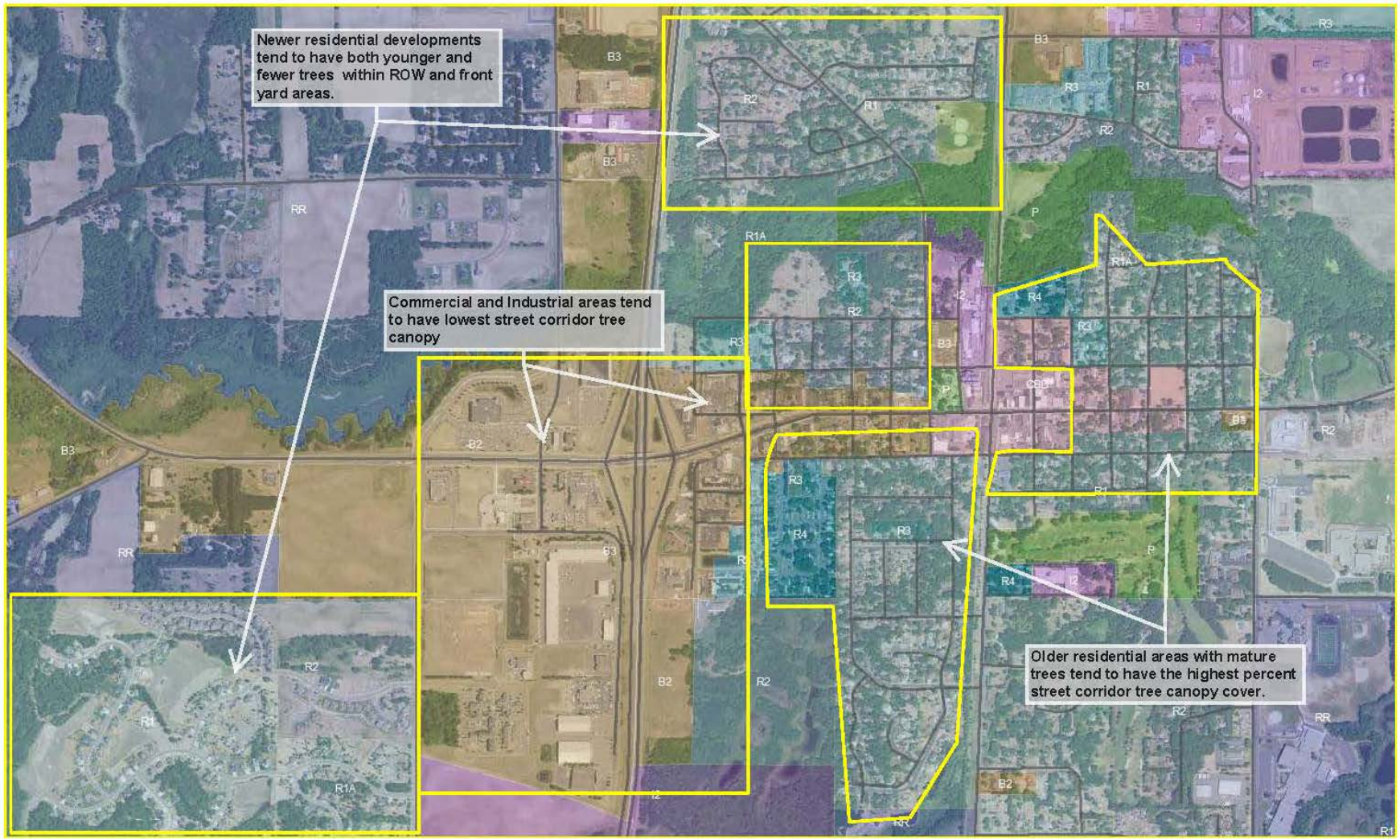


Figure 7. USDA-NRCS-NCGC Digital Ortho Quad County Mosaic, 1Meter, Typical tree canopy characteristics at the municipal zoning scale.

Visual Scale, Street Corridor Tree Canopy Assessment

Tree Canopy Density: **Low** (<5%) Assessment Boundary: Right-of-Way + 10 feet.

Area-weighted Average Density ~ 3%

Area-weighted Average Density ~ 2%

Area-weighted Average Density = < 1%

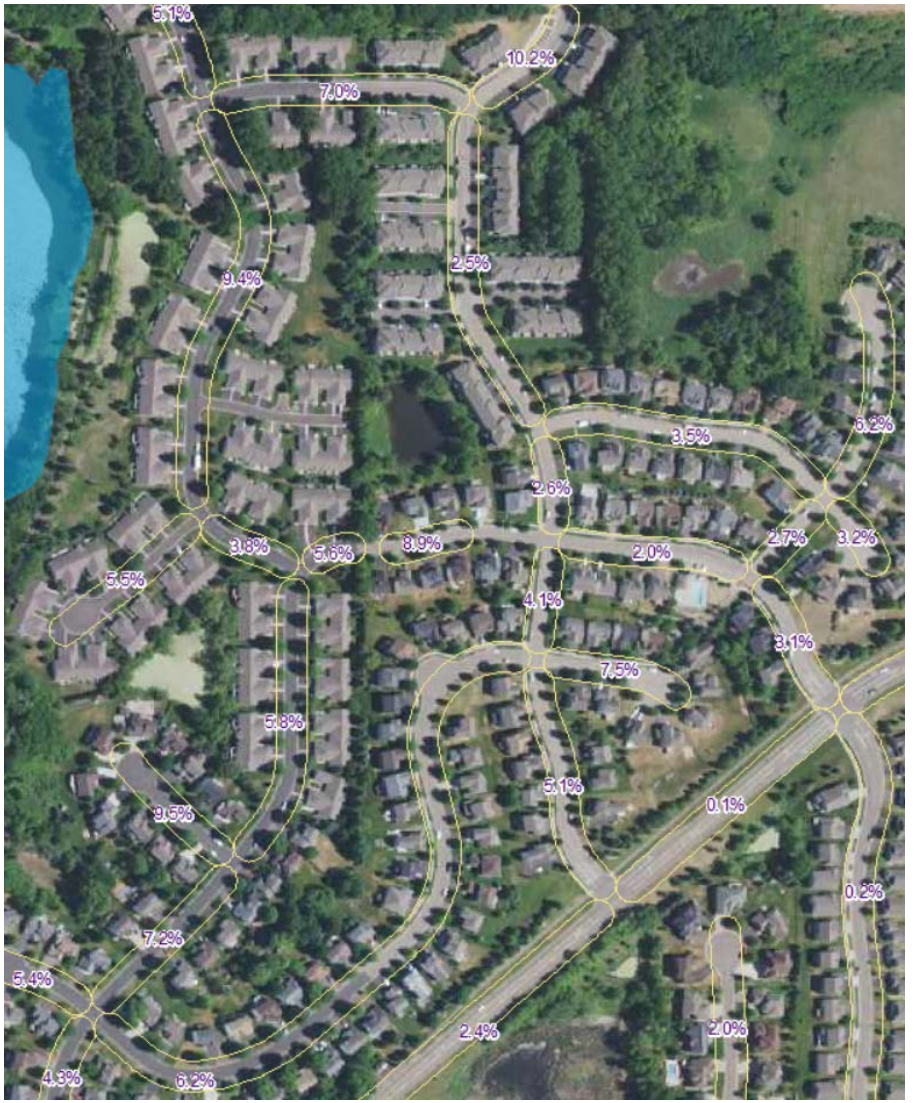
Visual Scale, Street Corridor Tree Canopy Assessment

Tree Canopy Density: **Moderate** (5%-10%) Assessment Boundary: Right-of-Way + 10 feet.

Area-weighted Average Density ~ 8%

Area-weighted Average Density ~7%

Area-weighted Average Density ~ 6%



Visual Scale, Street Corridor Tree Canopy Assessment

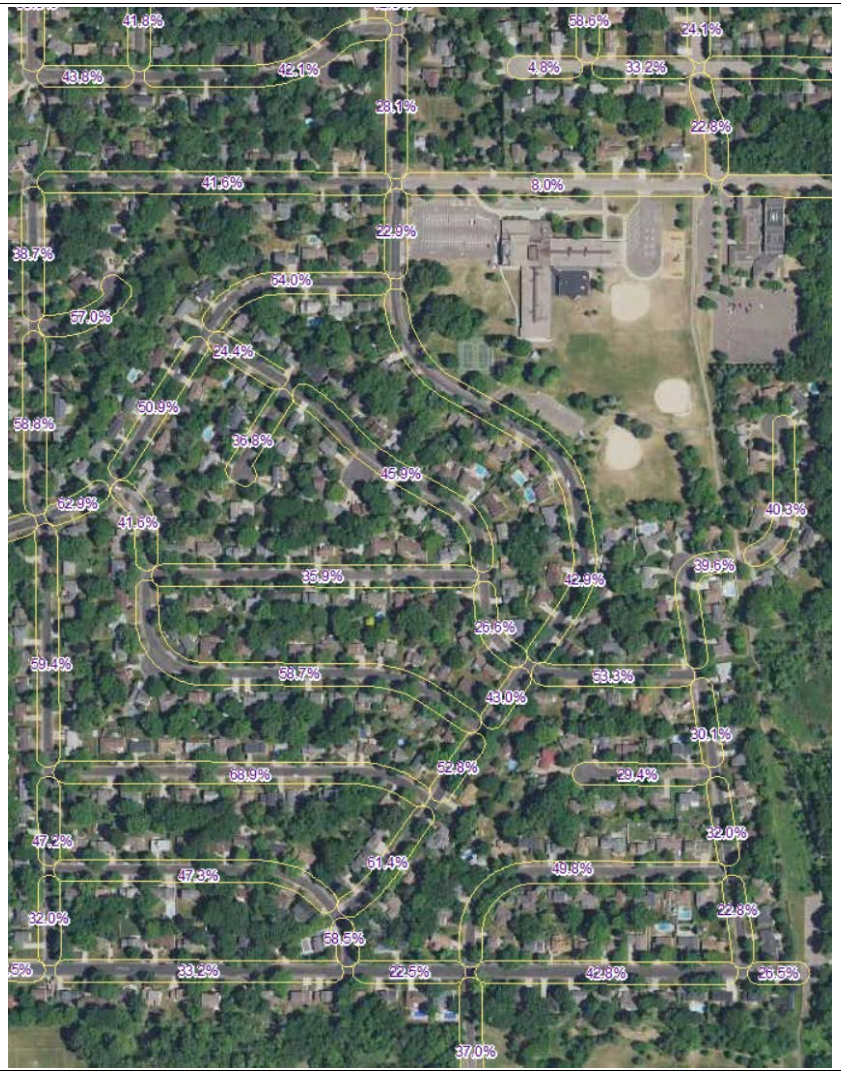
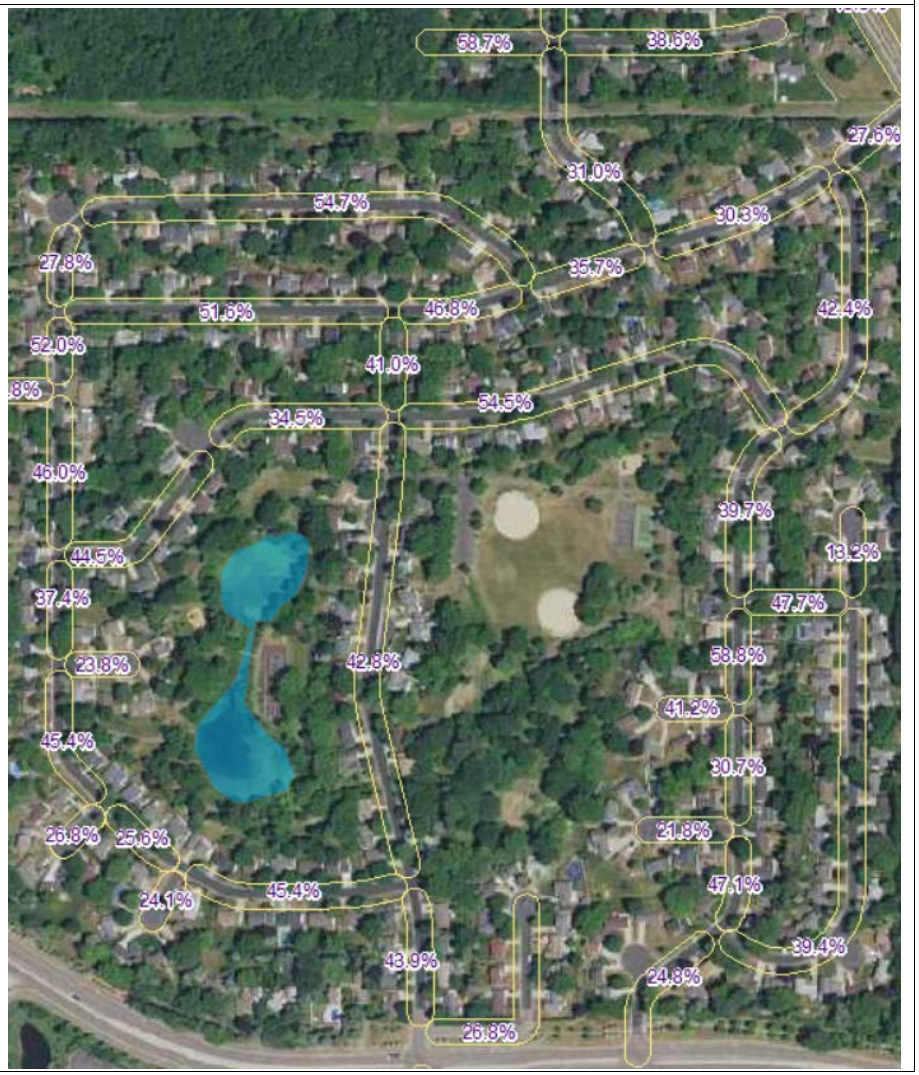
Tree Canopy Density: **Medium** (10%-15%) Assessment Boundary: Right-of-Way + 10 feet.

Area-weighted Average Density ~ 10%	Area-weighted Average Density ~ 13%	Area-weighted Average Density ~ 11%
		

Tree Canopy Density: **High** (15%-25%) Assessment Boundary: Right-of-Way + 10 feet.

Area-weighted Average Density ~ 21%	Area-weighted Average Density ~19%
	

Tree Canopy Density: **Very High** (≥25%) Assessment Boundary: Right-of-Way + 10 feet.

Area-weighted Average Density ~ 42%	Area-weighted Average Density ~ 40%
	

APPENDIX B : The Influence of Street Corridor Canopy on Solids Collected from Street Surfaces – Section from the Prior Lake Street Sweeping Study

The mass of recovered solids collected per sweep increased with increasing street corridor tree canopy cover and decreased with increasing sweeping frequency (Table 6). On an annual basis, the mass of recovered solids increased with both increasing street corridor tree canopy and increasing sweeping frequency (Table 7).

Table 6. Average dry solids collected per sweep by route (lb/lane-mile)

Sweeping Interval		Low Canopy	Medium Canopy	High Canopy
Increasing Frequency ↓	28 days	0.055	0.062§	0.121†
	14 days	0.044	0.065	0.086
	7 days	0.041	0.055	0.053

Table 7. Average dry solids collected per year by route (lb/lane-mile)

Sweeping Interval		Low Canopy	Medium Canopy	High Canopy
Increasing Frequency ↓	28 days	195	220§	429†
	14 days	156	231	305
	7 days	145	195	188

§Route originally classified as 'medium' canopy, but quantified canopy cover was closer to 'low' canopy routes.

†Route originally classified as 'high' canopy, but quantified canopy cover was closer to 'medium' canopy routes.

On an annual basis, street corridor tree canopy cover was a significant predictor of recovered total phosphorus (Figure 8).

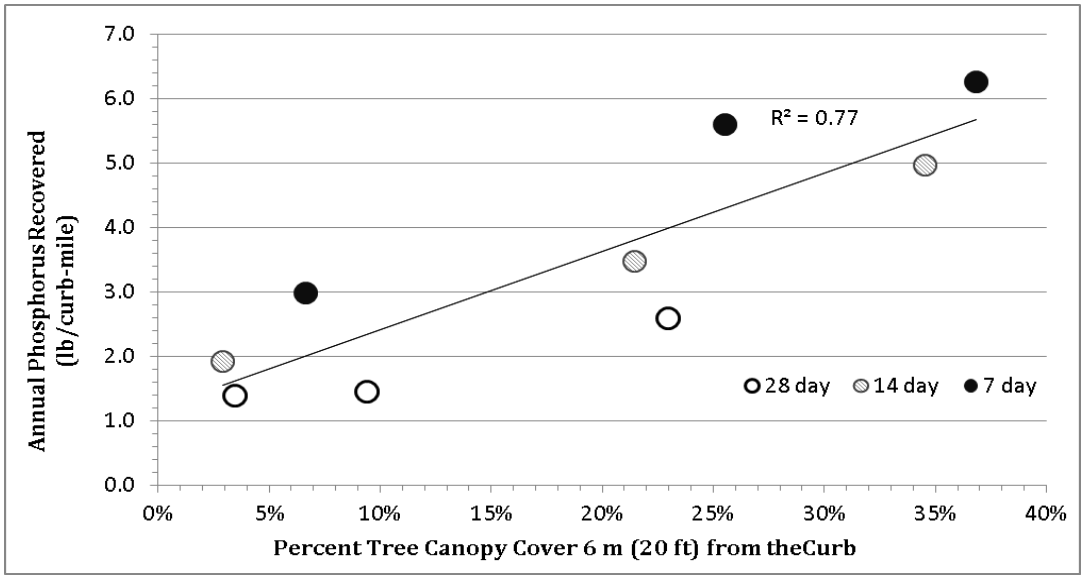


Figure 8. Average total phosphorus recovered per year vs. percent street corridor tree canopy cover for the nine street sweeping routes in the Prior Lake Street Sweeping Study.

Street corridor tree canopy cover was a significant predictor of recovered total phosphorus for data points in 6 of the 9 months assessed; and a significant predictor of coarse organic solids and total nitrogen recovered in all months (March – November), (Table 8).

Table 8. Months for which street corridor tree canopy cover (%) and sweeping frequency were significant predictors of recovered loads, Prior Lake Street Sweeping Study.

Load Type (lb/curb-mile)	**Months for which each factor was a significant predictor of the total load[1,2]**	
	% Street Corridor Canopy Cover	**Average sweeping interval[3]**
Total Dry Solids	Oct, Nov	Apr-Jun, Aug, Sep, Nov
Coarse Organic Solids[4]	**Mar-Nov (all)**	Apr, Sep
Fine Solids	Oct	Apr-Jun, Aug, Oct, Nov
Total P	May, Jun, Aug, Sep, Oct, Nov	Mar-May, Sep, Nov
Total N	**Mar-Nov (all)**	Sep

[1] Data include sweepings in March through November. Data were sparse for the months December though January.
[2] Regression analysis, α=0.05 significance level.
[3] Monthly, bi-weekly, or weekly sweeping intervals.
[4] Component of street sweepings = floatable solids with diameter > 2mm. Organic litter with diameter < 2 mm were included in the 'fine solids' component of sweepings along with other soil-like particles.

When assessed at different buffer distances from the street, correlations between tree canopy cover and recovered loads tended to increase with increasing distance from the street. The increase in correlation typically leveled off at about 20 feet from curb lines.

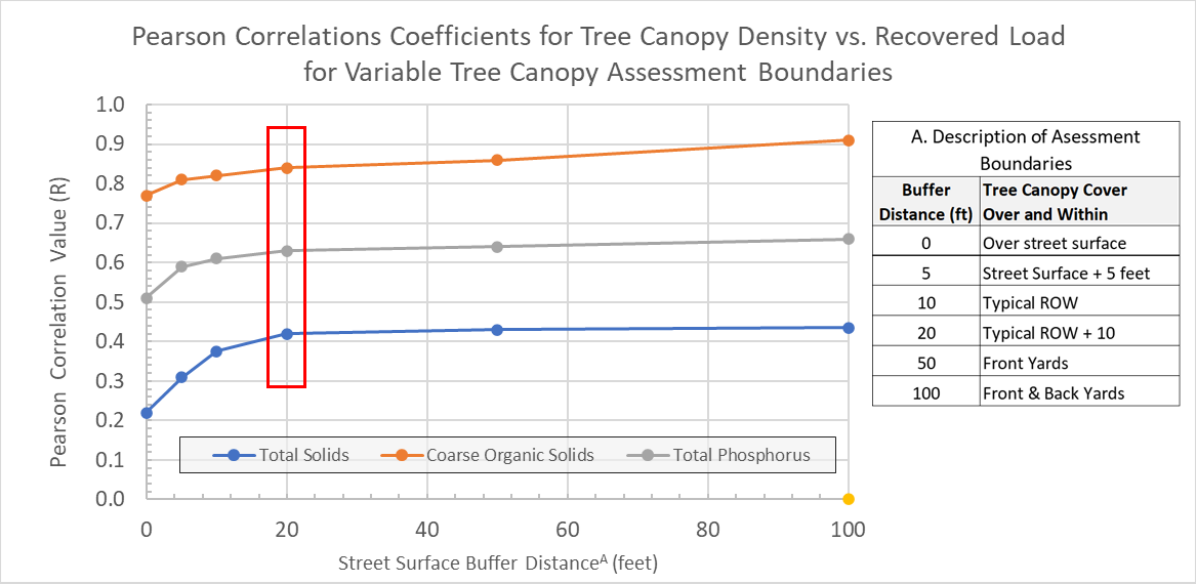


Figure 9. Pearson correlations for canopy cover vs. recover load (annual) for different canopy cover assessment boundaries and recovered load types.

APPENDIX C: Road Classifications and ROW Widths

Road centerline shapefiles developed by the Minnesota Department of Transportation include a route classification attribute, 'ROUTE_SYS,' which contains the route system codes shown below. The full document summarizing MDNOT route system descriptions is available on the MNDOT website.

DEPARTMENT OF TRANSPORTATION

3/9/2020

Route System Descriptions

Route System	Abbreviation	Description
01	I	Interstate
41	IHO	HOV/HOT/Reversible lanes on Interstate
51	UNI	Non-numbered Interstate
02	US	US Highway
42	UHO	HOV/HOT/Reversible lanes on US Hwy
52	UNU	Non-numbered US Highway
03	MN	MN Highway
32	OR	Other Road
43	MHO	HOV/HOT/Reversible lanes on MN Hwy
53	UNM	Non-numbered MN Highway
04	CSAH	County State Aid Highway
05	MSAS	Municipal State Aid Street
07	CR	County Road
08	T	Township Road
09	UT	Unorganized Territory Road
10	M	Municipal Street
11	NPR	National Park Road
12	NFR	National Forest Road
13	IND	Indian Tribe Nation Road
14	SFR	State Forest Road
15	SPR	State Park Road
16	MIL	Military Road
17	OFAR	Other Federal Agency Road
18	BFWR	Bureau of Fish and Wildlife Road
19	FRD	Frontage Road
20	OSAR	Other State Agency Road
21	PVT	Privately Maintained Public Access Road
22	CON	Connector
23	AR	Airport Road
24	BIA	Bureau of Indian Affairs Road
25	LOC	Local Park, Forest or Reservation Agency Road
26	OLR	Other Local Road
27	RSR	Railroad Service Road
28	STL	State Toll Road
29	LTL	Local Toll Road
30	ALY	Alleyway
31	BRR	USBR Road
33	BLM	BLM Road
34	NTW	Non Trafficway

Table 9. Survey of minimum right-of way width by road classification for three TCMA municipalities.

Road Type/Functional Class	Minimum ROW Width (feet)	Source
Arterial	150	A
Arterial	100 - 150	C
Collector	80 - 120	C
Collector	80 - 100	A
Collector Streets	150	B
Commercial or Industrial Service Street	80	C
Street with Medians	80	B
Residential, High-density	70	C
Residential, Multi-family	66	C
Residential, Single family high	60	C
Local Road	50 - 60	A
Residential Public Minor Streets	60	B
Half Street	30	A

A. *City of Inver Grove Heights, MN, Code of Ordinances.*
B. *City of Forest Lake Engineering Design Standards, 2022*
C. *City of Lake Engineering Specifications, 2022.*

Attachment G

Appendix to the 2022-23 Annual Plan of Work
Lower St. Croix Fast Track Project Policy

Beginning on July 1, 2022, the Lower St. Croix Watershed Partnership will use a stream-lined approach to review and recommend projects for funding. Projects submitted by participating entities will be ranked and reviewed two to three times per year in spring, summer, and fall.

On occasion, however, the Partnership recognizes that high value projects may arise that are well-aligned with the goals of our Comprehensive Watershed Management Plan but require more timely review in order to be completed within the calendar year. For time-sensitive projects such as these, local partners may request that their project be reviewed at the next scheduled monthly steering committee meeting.

All projects that are recommended for funding by the Lower St. Croix Watershed Partnership will be required to follow the same process, regardless of the timing for their review. This includes: completing a project request form and self-evaluation; submitting the project for steering committee and/or policy committee review; executing a contract for funding with the fiscal agent; and filling out and submitting an invoice template to the fiscal agent upon project completion.

Projects will only be fast-tracked if they cannot wait until the next scheduled review meeting and their benefit would significantly outweigh that of future projects that will be considered.

This policy should not be construed to include “emergency projects”, as defined by Minnesota Statute 103D.615. The term “emergency project” is strictly applicable to watershed districts and counties during a declared State of Emergency. The Lower St. Croix Watershed Partnership does not have authority under Minnesota Statute to declare a State of Emergency nor complete “emergency projects.”

Attachment H

JOINT POWERS AGREEMENT
FOR THE IMPLEMENTATION OF
THE LOWER ST. CROIX COMPREHENSIVE WATERSHED MANANGEMENT PLAN

Pursuant to Minnesota Statute Section 471.59, this Joint Powers Agreement is entered by and between the political subdivisions and local units of governmental units of the State of Minnesota and identified, as follows:

The Counties of Anoka, Chisago, Isanti, Pine, Ramsey and Washington each by and through its respective Board of Commissioners (collectively referred to as the Counties);

The Anoka, Chisago, Isanti, Pine and Washington Soil and Water Conservation Districts, each by and through its respective Board of Supervisors (collectively referred to as the SWCDs);

The Brown's Creek, Carnelian Marine St. Croix, Comfort Lake Forest Lake, South Washington and Valley Branch Watershed Districts, each by and through its respective Board of Managers (collectively referred to as the Watershed Districts); and

The Middle St. Croix, and Sunrise River Joint Powers Watershed Management Organizations, each by and through its respective governing board (collectively referred to as the Watershed Management Organizations).

Together, the above identified Counties, SWCD's, Watershed Districts and Watershed Management Organizations collectively formed the Lower St. Croix Watershed Implementation Partnership and for purposes of this Agreement, said political subdivisions and local units of government and those added in accordance with the terms of this Agreement are herein collectively referred to as "Parties" and individually, as "Party."

RECITALS

WHEREAS, pursuant Minnesota Statutes Section 103B.305, Subd. 5 and 103B.3363, each of the Parties to this agreement is a local unit of government having the responsibility and authority to separately or cooperatively, by joint agreement pursuant to Minnesota Statute Section 471.59, to prepare, develop, adopt, implement and administer a comprehensive local water management plan, as defined pursuant to Section 103B.3363, subd. 3, or a comprehensive watershed management plan, as a substitute thereof, and carry out implementation actions, programs and projects toward achievement of goals and objectives of such plans.

WHEREAS, pursuant to Minnesota Statute Sections 103B.101 and 103B.801, the Minnesota Board of Water and Soil Resources (BWSR) is authorized, amongst things, to coordinate the water and resource planning and implementation activities of counties, soil and water conservation districts, watershed districts and watershed management organizations and to administer and oversee the Minnesota Comprehensive Watershed Management Planning Program, known as the One Watershed, One Plan program; and

WHEREAS, each of the Parties exercises water management authority and responsibility within the Lower St. Croix River Watershed Management Area, a geographical area consisting of those portions of Anoka, Chisago, Isanti, Pine, Ramsey and Washington counties that drain into the St. Croix River watershed as depicted on Exhibit A, attached hereto and incorporated herein; and

WHEREAS, the Parties have previously entered into the Lower St. Croix Watershed Memorandum of Agreement for the purpose to collaboratively develop, as local government units, a coordinated comprehensive watershed management plan for the Lower St. Croix River planning boundary ; and

WHEREAS, in accordance with BWSR policy, the Memorandum of Agreement for planning established a framework of consistency and cooperation through a governing structure having a Policy Committee and an Advisory Committee and provisions that the role and authority of the governing bodies of the Parties, the Policy Committee and Advisory Committee; and

WHEREAS, in accordance with BWSR policy adopted pursuant to Minnesota Statute Section 103B.801, the Parties have developed the Lower St. Croix Comprehensive Watershed Management Plan, hereinafter referred to as the "Plan" and it is the intent of the Parties that said Memorandum of Agreement shall remain in full force and effect and this Agreement shall not be construed as to modify or supplant the terms or provisions of the Memorandum of Agreement; and

WHEREAS, with matters that relate to coordination of water management authorities pursuant to Minnesota Statute Chapters 103B, 103C, and 103D and with public drainage systems pursuant to Minnesota Statute Chapter 103E, this Agreement does not change the rights or obligations of the public drainage system authorities; and

WHEREAS, this Agreement and the Lower St. Croix Comprehensive Watershed Management Plan does not replace or supplant local land use, planning, or zoning authority of the respective Parties and the Parties intend that this Agreement shall not be construed in that manner.

TERMS AND CONDITIONS

NOW THEREFORE, pursuant to Minnesota Statutes Section 471.59 and other relevant state law and in consideration of the mutual promises and benefits that the parties shall derive herefrom, all Parties hereby enter into this joint powers agreement and agree, as follows:

1. Purpose: This Agreement has the following purposes:

a. This Agreement establishes the terms and conditions, governing structure and processes by which the Parties will jointly and cooperatively continue the planning and the implementation of the Plan. Consistent with its terms and conditions, this Agreement authorizes the Parties to cooperatively exercise their common and similar power of local water planning and management notwithstanding the territorial limits within which they may otherwise exercise separately.

b. This Agreement does not establish a joint powers entity. Rather, this Agreement continues the collaborative governing structure established under the Memorandum of Agreement and redefines the role and authority of the governing bodies, the Policy Committee and Advisory Committee in the decision-making process as applicable for implementation of the plan. This Agreement provides criteria and a process to add additional local units of government as Parties to this Agreement.

c. This Agreement identifies the process of preparing, adopting and carrying out annual work plans that will serve as the mechanism essential for Plan implementation.

d. This Agreement provides for the designation and appointment of a Party or Parties or their representative to carry out the administrative responsibilities associated with the continued collaborative planning and implementation of the Plan and to perform all fiscal responsibilities associated Plan implementation.

2. Eligibility and Procedure to Become A Party

a. Qualifying Party: A county, SWCD, watershed district or watershed management organization located and authorized to carry out water planning and resource management responsibilities within the Lower St. Croix River Management Area is eligible to become a Party to this Agreement.

b. Initial Parties: A county, SWCD, watershed district or watershed management organization may be an initial Party through adoption of one or more resolutions by its respective governing board that indicates its intent to be a Party to this Agreement; that adopts and authorizes such local unit of government to enter into this Agreement; and that adopts and begins implementation of the Plan, or later amendments, within 60 days of State approval of the Plan, or within 45 days of executing this Agreement, whichever is later. Such local unit of government shall also give notice of plan adoption in accordance with provisions of Minnesota Statutes Chapters 103B and 103D. Any qualifying county, SWCD, watershed district or watershed management organization that desires to become a Party after expiration of the 60 day period for joining as an Initial Party will be eligible to become a Party as an Additional Party pursuant to Section 2.c., below

c. Adding Additional Parties: A qualifying local unit of government that desires to become a Party to this Agreement at any time later than 60-days following State approval of the Plan shall provide the Administrative Coordinator a formal statement that indicates its intent to become a Party to this Agreement and a certified copy of the resolution or motion adopted by its governing board that contains all of the following:

i. A declaration of intent to join as a Party to the Agreement;

ii. A statement that the local government unit is authorized to enter into and be bound by the terms and conditions of this Agreement; including but not limited to the bylaws, policies and procedures adopted by the Policy Committee; and

iii. A statement that the local government unit adopts the Plan.

Upon receipt of such certified documents, the Administrative Coordinator shall issue a signature page to the local government unit and instructions to execute and return the same along with the name and contact data of the representatives appointed by the local government unit to serve on the Policy Committee and the names and contact information of staff of the local government unit assigned to serve on the Advisory Committee. The local government unit will have all duties, rights and responsibilities as a Party to this Agreement upon filing with the Administrative Coordinator a copy of its authorized signature to this Agreement.

d. Procedure for Parties to Leave Membership of Agreement: Any Party desiring to leave the membership of this Agreement shall indicate its intent in writing to the Policy Committee in the form of an official board resolution. Notice must be made 90 days in advance of leaving. A Party that leaves the membership of the Agreement remains obligated to comply with the terms of any grants associated with the Agreement until the grant has ended.

3. Payments and Financial Responsibilities of the Parties

Each Party is financially responsible for its costs and expenses incurred in implementing the Plan or in carrying out related implementation activities, projects, and programs.

4. Term and Termination

a. Effective Date: This Agreement is effective upon signature of all initial Parties and will remain in effect until December 31, 2031, unless terminated consistent with terms of this Agreement or as otherwise provided under law.

b. Review: Commencing in the second year following the effective date of this Agreement and continuing each year thereafter, the Policy Committee will annually conduct a review of the adequacy and effectiveness of the joint and collaborative partnership provided by this Agreement and the governing structure of the Policy Committee. With the assistance of the Advisory Committee, the Policy Committee shall prepare a report on its findings and provide recommendations as appropriate to

governing boards of the Parties. The report and recommendations should be submitted to the governing boards at the time in which the Policy Committee provides its recommendation on the proposed annual work plan. Any recommendation of the Policy Committee to revise a term or condition of this Agreement will only become effective upon 2/3rds approval of the governing boards of the then present Parties.

c. Termination: This Agreement may be terminated by resolution adopted by the governing bodies of all of the then existing Parties. The parties acknowledge their respective and applicable obligations, if any, under MN Statutes Section 471.59, Subd. 5 after the agreement has been terminated or the purpose of the Agreement has been completed.

5. General Provisions

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

b. Timeliness: The Parties agree to perform the obligations under this Agreement in a timely manner and inform each other about delays that may occur.

c. Liability and Insurance: Each Party shall be liable for the acts, errors and omissions of its respective officers, employees or agents and each Party shall carry liability insurance coverage of not less than $1.5 million per occurrence, the maximum liability for each Party as provided under Minnesota Statutes Section 466.04. The Parties may participate in a self-insurance pool to meet this requirement.

d. Indemnification: The provisions of the Municipal Tort Claims Act, Minnesota Statute Chapter 466 and other applicable laws govern liability of the Parties. To the full extent permitted by law, actions by the Parties, their respective officers, employees, and agents pursuant to this Agreement are intended to be and shall be construed as a "cooperative activity." 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 Section 471.59, subd. 1a(a). For purposes of Minnesota Statutes Section 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 any other party. If a Party is found responsible for any liability associated with the actions of the Lower St. Croix One Watershed, One Plan Policy Committee or implementation of the Comprehensive Watershed Management Plan, said Party agrees to indemnify and hold harmless any of the other non-liable parties of this Agreement for any defense costs and expenses associated with any such claim.

e. Employee Status: The respective employees and agents of each Party shall remain the employees of each individual respective Party.

f. Data Practices, Data Management and Record Retention: Notwithstanding Minn. Stat. 13.82, subd. 24 or any other provision of law the parties agree that for purposes of the Minnesota Government Data Practices Act and all other statutes and provision of law related to data practices, data management and records retention,

each party shall remain the exclusive responsible authority, as defined in Minn. Stat. 13.02, subd. 16, for its own data management, for responses to data requests and for all aspects of records retention for any and all data in any form that is collected, created, received, maintained or disseminated by the party agency. This section includes but is not limited to all data regardless of its classification as the term government data is defined in Min. Stat. 13.02, subd. 7.

g. Auditor Access and Review of Business Records: Pursuant to Minn. Stat. 16C.05 subd. 5 the parties agree that each party, the State Auditor or legislative Auditor, or any duly authorized representative at any time during normal business hours and as often as they deem reasonably necessary, shall have access to and the right to audit, excerpt and transcribe any books, documents, papers, records, etc. that are pertinent to the accounting practices and procedures of the parties and involve transactions relating to this Agreement. The parties agree to maintain and make available these business records for a period of at least 6 years from the date of the termination of this agreement.

6. Annual Work Plans:

a. Required Contents: Annual work plans will be developed that detail implementation of the Plan, minimally including projects and programs to be completed collaboratively and associated budgets. A fiscal agent and a responsible Party or Parties shall be identified for each project, program or implementation activity contained in the annual work plan. The responsible Party or Parties must provide any grant matching funds and accept responsibility for implementation and outcomes. The annual work plans may include a summary of projects, programs and implementation activities to be accomplished with state Watershed Based Implementation Funds, competitive state grants, local funds or others.

b. Process for Development and Adoption of Annual Work Plans.

The decision – making process in the development and adoption of annual work plans shall be as follows:

1. The Advisory Committee shall draft and prepare the proposed annual work plan ranking projects, programs and implementation activities utilizing the selection criteria contained in the Plan.

2. The Advisory Committee shall present the proposed annual work plan to the Policy Committee for discussion and revision as appropriate.

3. The Policy Committee shall vote to recommend a proposed annual work plan to the governing boards of the Parties for approval. A vote of 2/3rd of the members present of the Policy Committee is necessary to move a recommended annual work plan onto the governing boards.

4. The governing bodies of the Parties shall approve the annual work plan for its implementation. An annual work plan will be approved only through approval of 2/3rd of the governing bodies of then existing Parties.

7. Structure and Governance

To carry out the coordinated and collaborative planning, development and implementation of the Plan and development, adoption of annual work plans, the Parties will continue the Policy Committee and Advisory Committee, as established under the Memorandum of Agreement. The function and the authority of the governing boards of the Parties and the composition, function and authority of the Policy Committee and Advisory Committee are as follows;

a. Governing Boards of Parties

i. The governing boards are the elected or appointed officials of the respective Party to this Agreement.

ii. Responsibilities: The governing boards of the Parties have the responsibility to take approval action on matters required by the terms of this Agreement and on matters recommended by the Policy Committee. Matters on which governing boards must take formal action include, but are not limited to, as follows:

1. Designation of an elected or appointed member or members to serve on the Policy Committee and set the term of service of each member so designated.

2. Approval of Annual Work Plans;

3. Amendments to the provisions of the Plan; and

4. Adoption or approval of other matters necessary for Plan implementation.

iii. Authority: A governing board of a Party shall exercise its decision-making authority only by adoption of a formal resolution. Governing boards must act on Policy Committee recommendations within 60 days after the day in which the Policy Committee formally adopted such recommendation. The decisions of the various governing boards of the Parties will be deemed approved for purposes of this Agreement when 2/3^{rds} of the governing bodies have adopted formal action on the respective recommendation.

b. Policy Committee

i. Responsibilities: The Policy Committee has the responsibility to develop and make recommendations on those matters that require approval by the governing boards of the Parties, including, but not limited to, annual work plans, additional parties to this Agreement, revisions and modifications to this Agreement and amendments to the Plan. Each member of the Policy Committee member shall serve as a liaison to his or her respective governing board; keep such governing board informed on the implementation of the Plan; and ensure that the preferences and ideas of such governing board are communicated to the Policy Committee.

ii. Composition: The Policy Committee shall be composed of one representative from each Party to this Agreement, except that Chisago County shall have three representatives seated on the Policy Committee. Each party may

also have one alternate in the absence of the designated representative. With exception of Chisago County, representatives and alternates must be an elected or appointed member of that Party's governing board and selected by the Party's governing board. The Chisago County Board of Commissioners must appoint three representatives to the Policy Committee, with one representative and an alternative representative each being a Commissioner and the two other representatives and respective alternatives to the Policy Committee appointed by the Chisago County Board of Commissioners as it may determine as appropriate. The term of each representative is decided by the appointing governing board.

iii. Governance: The Policy Committee shall be governed pursuant to by-laws and rules of procedure as the Policy Committee may develop, adopt and revise from time to time. The Policy Committee may utilize bylaws adopted in the preparation and development of the Plan and may revise the same to be suitable for purposes of Plan implementation. Bylaws and rules of procedure shall comply with relevant statutory provisions and be in as much as possible consistent with the terms of this Agreement. In the event of conflict or ambiguity, the terms of this Agreement shall prevail.

iv. Rules of Procedure: At a minimum, the rules of procedure of the Policy Committee must provide that:

1. The Policy Committee will have at least twice-annual meetings and special meetings as necessary for implementation of the Plan.
2. The Chair or any four representatives may call special meetings giving not less than 72 hours written notice of the time, place and purpose of such a meeting delivered by mail or email to each Party.
3. All meetings of the Policy Committee will comply with statutes and rules requiring open and public meetings. The official posting location for meeting dates and locations shall be the Lower St. Croix One Watershed One Plan website.
4. The conduct of all meetings of the Policy Committee shall be generally guided by the most recent edition of Robert's Rules of Order.
5. A quorum for decision-making shall consist of at least 50% plus one of the representatives.
6. Each representative present shall have one vote. All decisions shall be approved by a supermajority vote of 2/3rds of those representatives present. All votes shall be made in person, and no representative may appoint a proxy for any question coming before any meeting for a vote.

c. Advisory Committee

i. Responsibilities: The Advisory Committee has the responsibility to assist and advise the Policy Committee and to prepare and develop matters necessary for Policy Committee recommendation, including, but not limited to, annual work plans, and proposed amendments to the Plan and this

Agreement.

ii. Composition: The Advisory Committee is composed of staff of the Parties to this Agreement. Each Party may assign up to two staff to serve on the Advisory Committee. On a vote of two-thirds of its members present, the Policy Committee may increase the number of members on the Advisory Committee.

8. Administrative Coordinator

a. The Parties shall designate a Party to serve as Administrative Coordinator. The Administrative Coordinator has the responsibility to perform the administrative and coordinative work necessary for Plan implementation that is not associated with a specific implantation activity, project or program. The responsibility of the Administrative Coordinator may include serving as fiscal agent to accept and carryout all responsibilities associated with grants, grant agreements and financial transactions that are part of and related to grant agreement and contract implementation. Alternatively, the Parties may designate a separate Party to carry out fiscal agent responsibilities. A Party designated to serve as Administrative Coordinator or fiscal agent may assign that function to its staff or contract for such services.

b. The Parties agree that until the first annual work plan is adopted that the Washington Conservation District and Chisago Soil and Water Conservation District will be jointly designated as Administrative Coordinator. The first annual work plan and each annual work plan thereafter shall identity the Party that is the designated Administrative Coordinator and, as appropriate, the fiscal agent, for purposes of implementing that respective annual work plan.

c. The governing board of the Administrative Coordinator and fiscal agent is authorized to make payments and to take other actions within a respective approved annual work plan.

d. The costs and expenses incurred by a Party in performing the function of Administrative Coordinator and fiscal agent may be paid with grant funds, including state Watershed Based Implementation Funds unless prohibited by State policy, grant contract or law. In the event that these funds are unavailable or insufficient, such costs and expenses remain the financial responsibility of such Party incurring the same unless the Parties otherwise agree through an approved annual work plan or separate action adopted by the governing boards of the then existing parties.

9. Miscellaneous

a. Counterparts: This Agreement may be executed in one or more counterparts, each of which shall be deemed an original and all of which when taken together shall constitute one and the same agreement. Any counterpart signature transmitted by facsimile or by sending a scanned copy by electronic mail or similar electronic transmission shall be deemed an original signature. This executed Agreement including all counterparts shall be filed with each party to this agreement with a notification of the Agreement's effective date.

b. Amendments Any changes, amendments, or modifications to this Agreement may only be made formal resolution adopted by all of the governing boards of the then existing Parties.

c. Savings Clause: In the event that any provision of this Agreement is determined by a court of law to be null and void, the remaining provisions of this Agreement shall continue in full force and effect.

10. Authorized Representatives

The following persons have been authorized as representatives to act as the primary contact for all matters concerning this agreement are:

Anoka County, County Administrator Rhonda Sivarajah or successor
Chisago County, County Administrator Chase Burnham or successor
Isanti County, County Administrator Julia Lines or successor
Pine County, County Administrator David Minke or successor
Ramsey County, County Board Chair Toni Carter or successor
Washington County, County Administrator Kevin Corbid or successor
Anoka Conservation District, District Manager Chris Lord or successor
Chisago SWCD, District Manager Craig Mell or successor
Isanti SWCD, District Manager Tiffany Determan or successor
Pine SWCD, District Manager Jill Carlier or successor
Washington Conservation District, District Manager Jay Riggs or successor
Brown's Creek Watershed District, District Administrator Karen Kill or successor
Carnelian Marine St. Croix Watershed District, District Administrator Mike Isensee or successor
Comfort Lake Forest Lake Watershed District, Administrator Mike Kinney or successor
South Washington Watershed District, Administrator Matt Moore or successor
Valley Branch Watershed District, President Jill Lucas or successor
Middle St. Croix WMO, Administrator Matt Downing or successor
Sunrise River WMO, Chair Dan Babineau or successor

(Signature Pages begin on next Page).

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

PARTNER: _____

APPROVED:

BY: _____

Board Chair Date

BY: _____

Manager/Administrator Date

APPROVED AS TO FORM *(use if necessary)*

BY: _____

County Attorney Date