



HOW WATERSHED DISTRICTS WORK IN MINNESOTA

MARK DONEUX

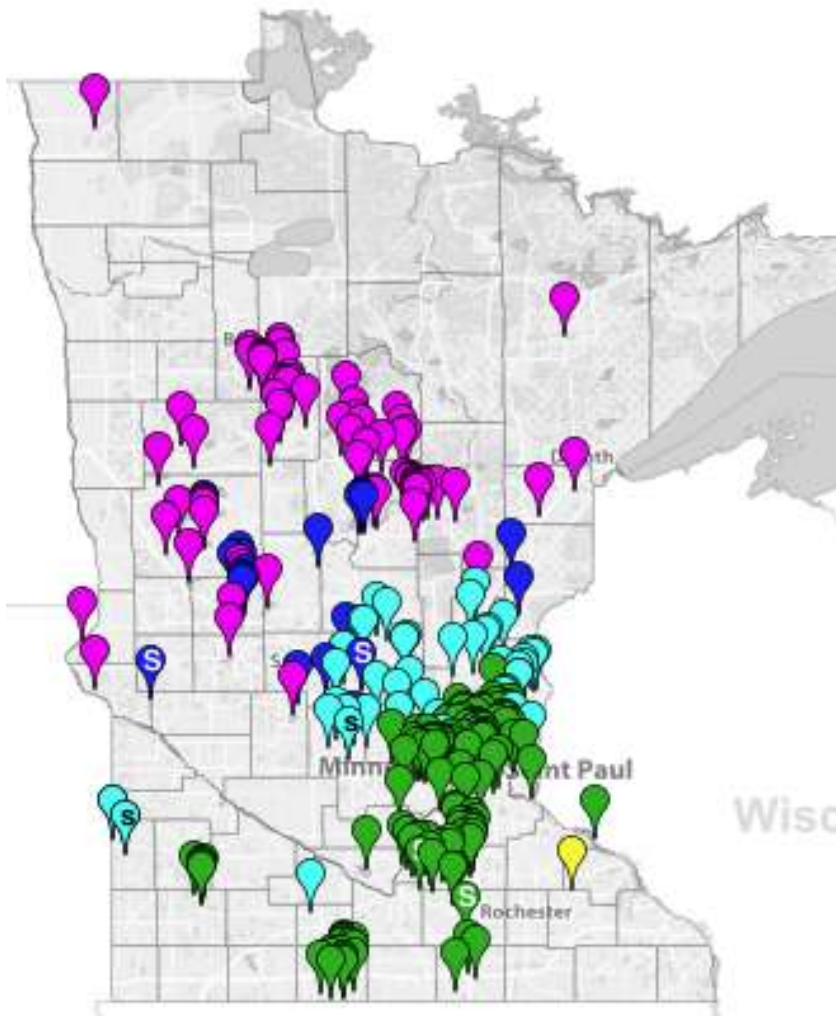
MAY 10, 2023



Minnesota Waters



2023 Ice Out Date



Legend

2023 Ice Out Date



 - [DNR/PCA Sentinel Lake](#)

What was happening in 1955?

- 1954: Federal Watershed Protection and Flood Prevention Act.
- Foster coordination between federal, state, and local authorities
- Protect, improve, and develop water and land resources in watersheds of up to 250,000 acres
- Provided financial assistance to local agencies responsible for the management of secondary watersheds.
- These agencies had the power of eminent domain and the ability to levy for support of their activities.



Watershed Operations Program Cost Share

Watershed Operations Program Federal Cost-Sharing by Purpose	Engineering / Technical Assistance	Installation / Construction	Real Property Rights
Flood Prevention (Flood Damage Reduction)	100%	100%	0
• Works of Improvement			
Watershed Protection	100%	Variable	0
• Flood Control			
• Erosion and Sedimentation Reduction			
• Water Quality			
• Water Conservation			
• Wildlife Habitat			
• Woodland			
• Energy			
• Recreation Resources			
Public Recreation	100%	No more than 50%	No more than 50%
• Works of Improvement			
• Recreation Minimum Basic Facilities			
Public Fish and Wildlife	100%	No more than 50%	No more than 50%
• Works of Improvement			
Agricultural Water Management	Up to 100%	Up to 75%	0
• Drainage			
• Irrigation			
• Ground Water Recharge			
• Agricultural Water Supply Structure			
• Water Conservation			
• Water Quality			
• Rural Water Supply			
Municipal and Industrial Water Supply	0	No more than 50%	0
• Reservoir Structure			
Water Quality Management	Up to 100%	To be determined	0
• Reservoir Structure			

Source: National Watershed Program Manual, 500.3 – Eligible Purposes and Figure 500-E2

Federal Cost-Sharing Percentage Provisions for Conservation Easements and Mitigation of Fish and Wildlife Habitat Losses	Engineering	Engineering / Technical Assistance
Conservation Easements Wetland or Floodplain	Not less than 50%	Not less than 50%
Mitigation of Fish and Wildlife Habitat Losses	Not more than 50%	Not more than 50%

Source: National Watershed Program Manual, Figure 500-E1
The above provisions apply to acquisition of real property rights by purchase or easements



Watershed and Flood Prevention Operations Program



Reduced flooding and soil erosion,
improved fish and wildlife habitat,
recreation, and water supply.



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CAPITOL REGION WATERSHED DISTRICT



MN Watershed Act

- SWCDs declined to assume the WFPF powers in Minnesota
- Minnesota Legislature approved the Watershed Act, Minnesota Statutes (M.S.) Chapter 103D in 1955.
- **This act allowed the establishment of WDs based upon a petition to the Minnesota Water Resources Board** by either citizens or LGUs.
- Establish a government entity whose boundaries would be based on the flow of water rather than political boundaries.



1955 Watershed Management Act

- Watershed Districts should be run by people somewhat removed from the political process
- Board would need to make tough and possibly unpopular decisions without worrying about political consequences.
- To facilitate this, it was agreed that WD managers would be appointed, rather than elected.



Watershed District Purposes

103D.201 WATERSHED DISTRICT PURPOSES

- To conserve the natural resources of the state
- By land use planning, flood control, and other conservation projects
- Using sound scientific principles
- Protection of the public health and welfare and the provident use of the natural resources



Subd. 2. Specific purposes.

- A watershed district may be established for any of the following purposes:
 - (1) to control or alleviate damage from floodwaters;
 - (2) to improve stream channels for drainage, navigation, and any other public purpose;
 - (3) to reclaim or fill wet and overflowed land;
 - (4) to provide a water supply for irrigation;
 - (5) to regulate the flow of streams and conserve the streams' water;
 - (6) to divert or change all or part of watercourses;
 - (7) to provide or conserve water supply for domestic, industrial, recreational, agricultural, or other public use;
 - (8) to provide for sanitation and public health, and regulate the use of streams, ditches, or watercourses to dispose of waste;
 - (9) to repair, improve, relocate, modify, consolidate, and abandon all or part of drainage systems within a watershed district;
 - (10) to control or alleviate soil erosion and siltation of watercourses or water basins;
 - (11) to regulate improvements by riparian property owners of the beds, banks, and shores of lakes, streams, and wetlands for preservation and beneficial public use;
 - (12) to provide for hydroelectric power generation;
 - (13) to protect or enhance the water quality in watercourses or water basins; and
 - (14) to provide for the protection of groundwater and regulate its use to preserve it for beneficial purposes.



Watershed District Formation

- Most Watershed Districts are formed to:
 - Manage Flooding
 - Address Agricultural Drainage
 - Manage Public Drainage system
 - Improve/protect water quality (usually lakes)
 - Regulate Development



Establishment of Watershed Districts

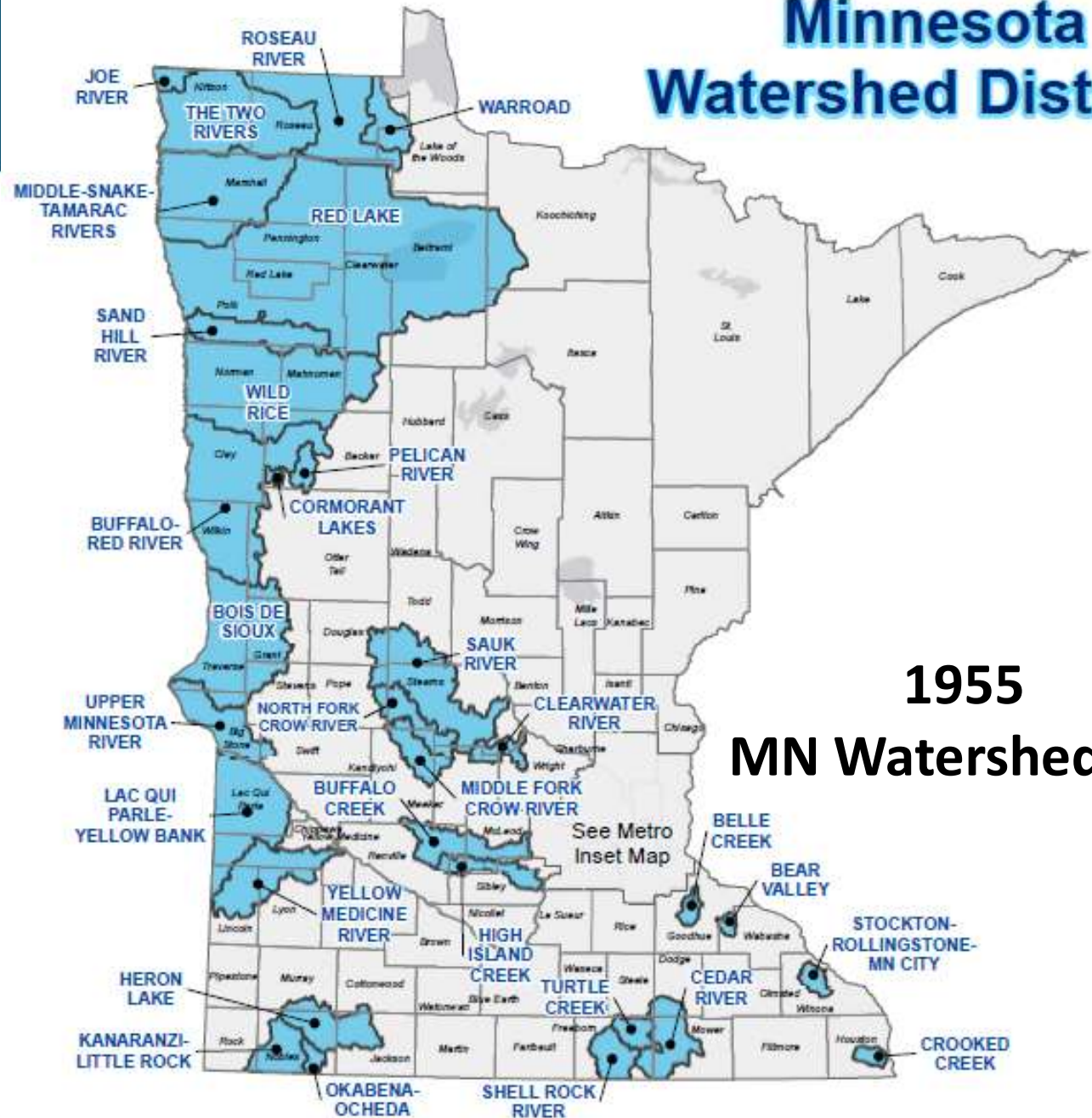
- File a petition to create, expand or combine watershed district with Board of Water and Soil Resources (BWSR)
- Petition can be filed by residents, county(s), or City(s).
- Petition is certified by BWSR
- MN DNR prepares a map
- Public Hearing
- BWSR approves or denies petition
 - If approved by Order, name, boundary, place of business and first Board of Managers



Minnesota Watershed Districts

45 Watershed Districts in the State of Minnesota

- 12 Red River Valley
- 19 Greater MN
- 14 Metro



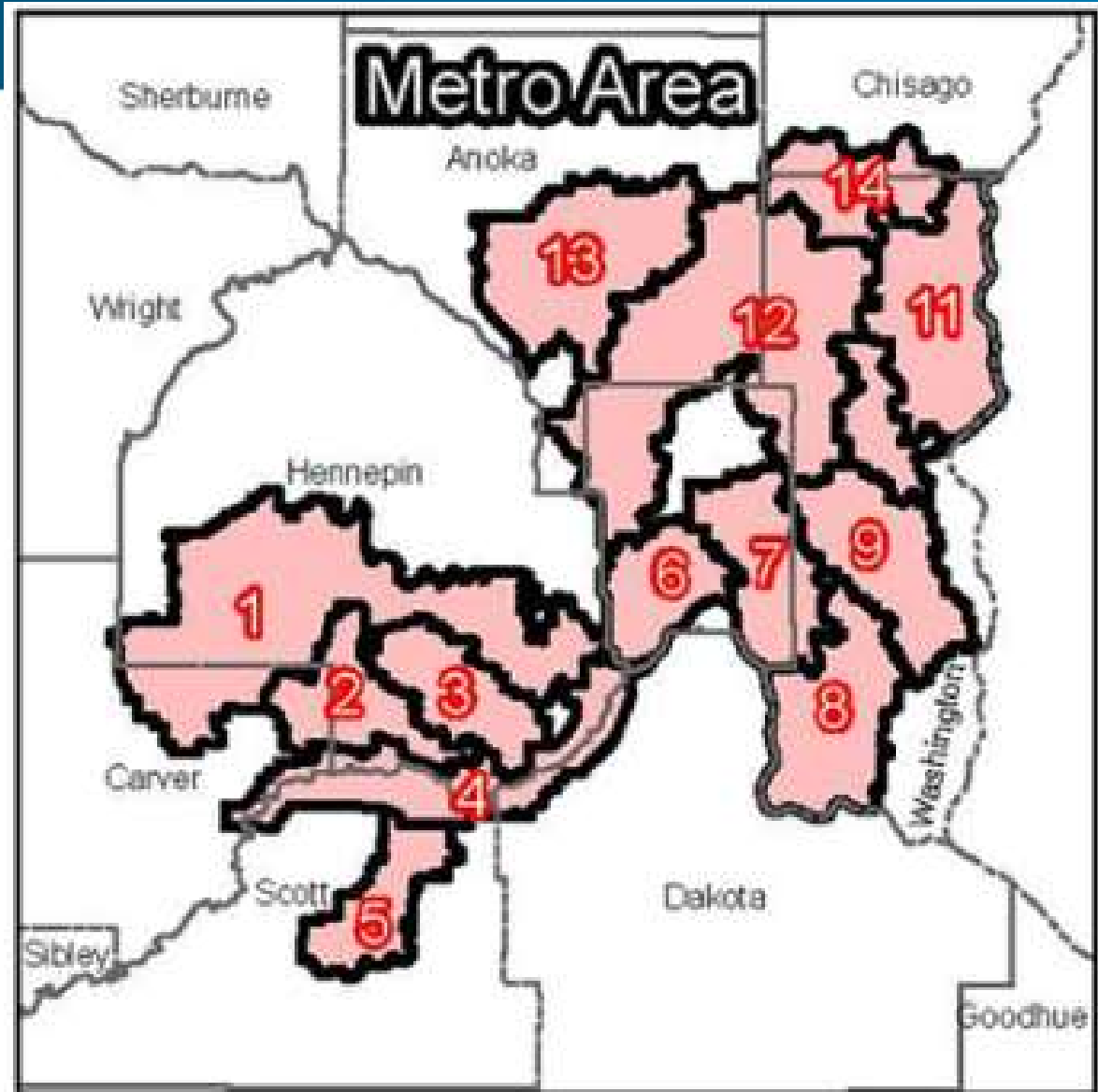
1955
MN Watershed Act



Metro Watershed Districts

Metro Watershed Districts

- | | |
|---|--|
|  1, MINNEHAHA CREEK |  8, SOUTH WASHINGTON |
|  2, RILEY-PURGATORY-BLUFF CREEK |  9, VALLEY BRANCH |
|  3, NINE MILE CREEK |  10, BROWNS CREEK |
|  4, LOWER MINNESOTA RIVER |  11, CARNELIAN-MARINE-ST. CROIX |
|  5, PRIOR LAKE-SPRING LAKE |  12, RICE CREEK |
|  6, CAPITOL REGION |  13, COON CREEK |
|  7, RAMSEY-WASHINGTON-METRO |  14, FOREST LK-COMFORT LK |



Watershed District Powers

M.S. Chapter 103D.355

- Sue and be sued,
- Incur debts, liabilities, and obligations,
- Exercise the power of **eminent domain**,
- **Levy property taxes** and special assessments,
- Issue certificates, warrants, and bonds,
- **Acquire and dispose of property**,
- Hire staff and consultants, and
- **Regulate development.**

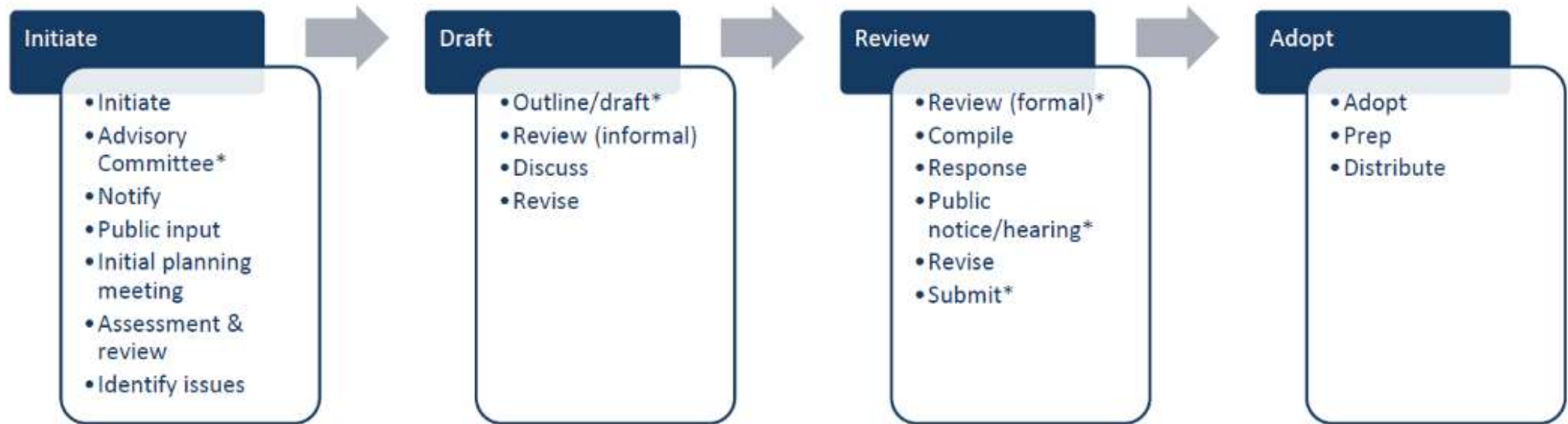


Watershed District Governance

- Governed by a Board of Managers
- Manager must be a watershed resident
- County or Counties appoint Board Managers
- Watershed District may have 3, 5, 7 or 9 Managers
- “Fairly represent the hydrologic regions”
- May not be a county, state, or federal government public officer, except a SWCD supervisor can be a manager
- Terms set by County, typically 3-year terms up to 3 terms



Watershed Planning



Districts actual work is guided by:

- **What the law allows**
- **Petition forming District**
- **Issues and actions identified in the watershed Management plan**

Watershed Regulations

MN Statute 103D.341 Rules

Subdivision 1. **Requirement.** The managers must adopt rules to accomplish the purposes of this chapter and to implement the powers of the managers.

A Watershed District Rule will be a reflection of the water resource issues in the watershed:

- Floodplain Impacts
- Riparian Development
- Urban Development
- Wetland Alternations

Accountability / Transparency

- 45-day review and comment period for agency (BWSR) review
- Public notice required for public hearing
- Public notice required for adopted rules
- Notification requirement for municipalities



Watershed Funding

103D.905 FUNDS OF WATERSHED DISTRICT.

Organizational expense fund.

General fund.

Bond fund.

Construction or implementation fund.

Survey and data acquisition fund.

Project tax levy.

- Most funds are certified with the County(s) annually.
- The County collects an ad valorem tax
- Paid to the District the year following certification

Drainage Law Funds

- Preliminary fund. A preliminary fund consists of funds authorized to be provided. The preliminary fund is to be used for preliminary work on proposed works of the watershed district.
- Repair and maintenance funds. Repair and maintenance funds are established under section 103D.631, subdivision 2.



Financing by Region

- Not all Districts have the same ability to finance projects
- 1975 Red River Watershed Mgt Board
- 1987 Metro Surface Water Mgt Act
- Greater MN often struggles to fund major projects with out grants
- Ultimately up to Board of Managers

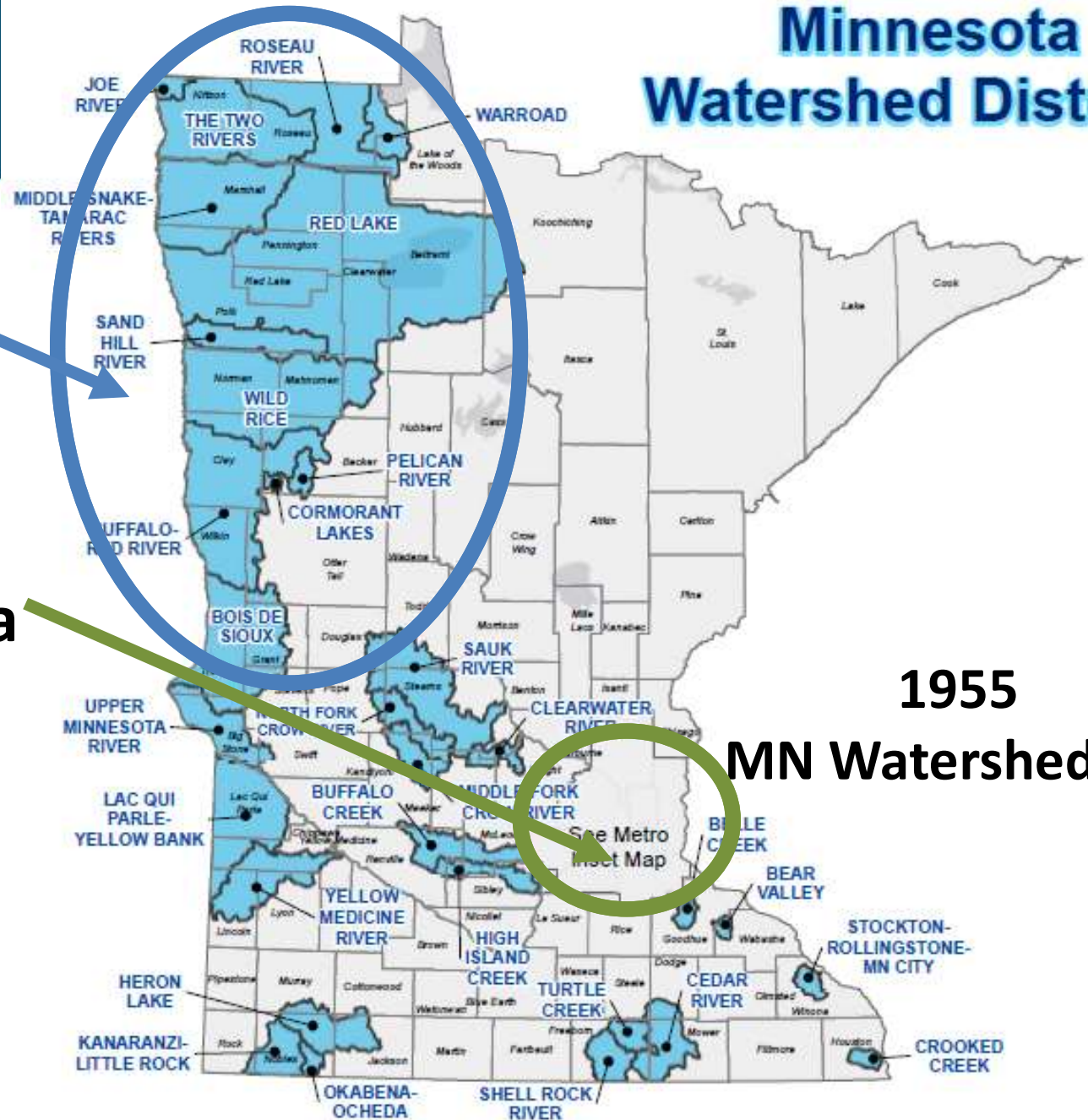


Minnesota Watershed Districts

Red River Valley
-12 Districts

7 County
Metropolitan Area
-14 Districts

Greater
Minnesota
-19 Districts



1955

MN Watershed Act



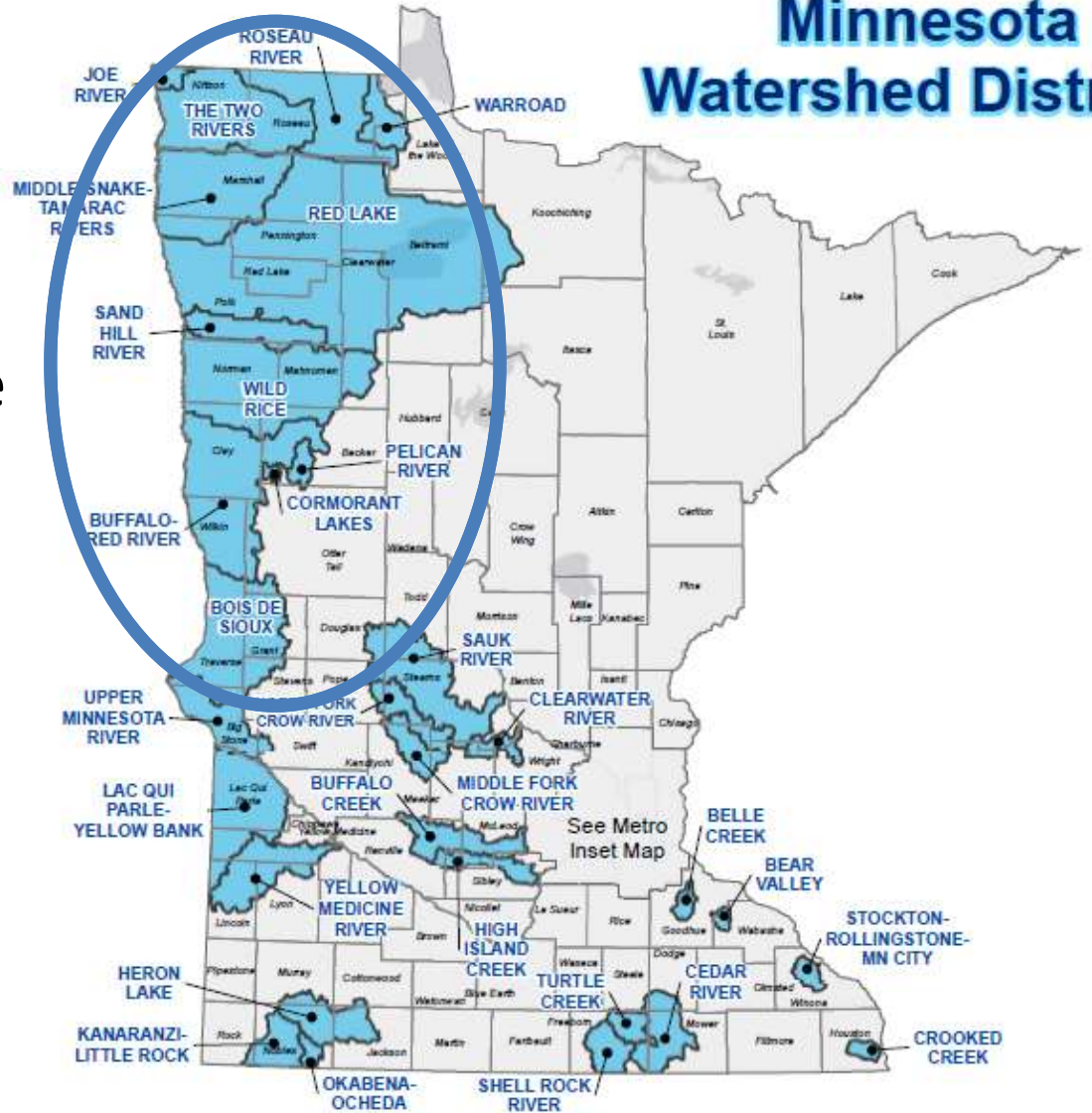
1975 Red River Watershed Management Board

Minnesota Watershed Districts

Each District levy a tax for the RRWMB

50% is returned to the District

50% is used by RRWDB for projects of common benefit



Metropolitan Surface Water Mgt Act

- In 1987, the Minnesota Legislature approved the Metropolitan Area Surface Water Management Act
- **Requires** local units of government in the seven-county Metro Area to **prepare and implement comprehensive surface water management plans**
- Through membership in a Watershed Management Organization (WMO).



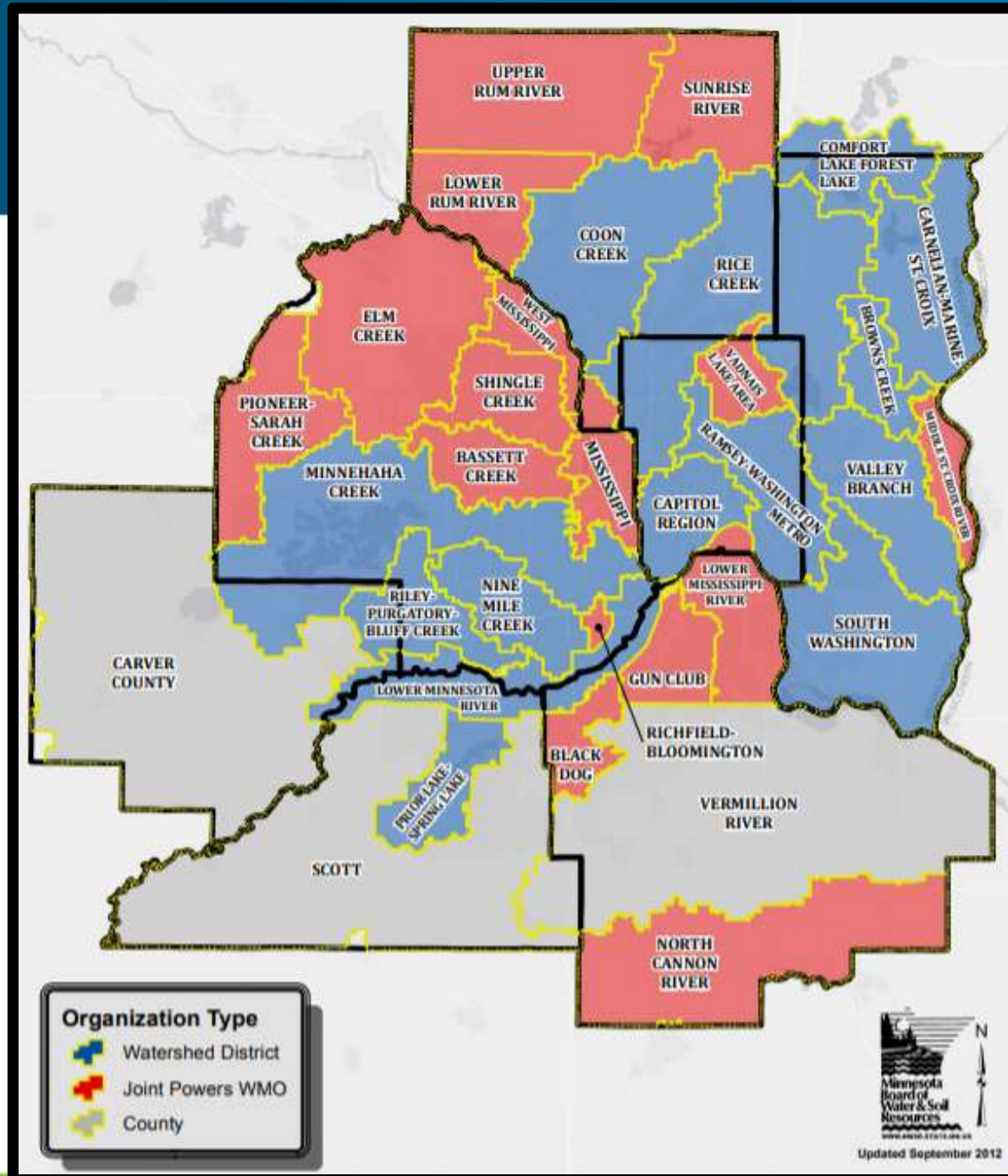
Watershed Management Organization

- 32 “Watershed Management Organizations”
 - Watershed District (14)
 - Generally, more active, better funded, regulatory program
 - Joint Powers Agreement (Cities) (15)
 - More City driven, typically lower budgets
 - County (3)
 - Generally adequate funding and better planning given the county perspective



Water Management Organizations (WMOs)

1987 Metro Surface Water Management Act



Watershed Funding - Metro

103B.241 LEVIES.

Subdivision 1. **Watershed plans and projects.**

Notwithstanding chapter 103D, a local government unit or watershed management organization **may levy a tax to pay** the increased costs of preparing a plan under sections 103B.231 and 103B.235 or **for projects identified in an approved and adopted plan** necessary to implement the purposes of section 103B.201.



Watershed District Attributes

- Local Government
- Manage water on watershed basis
- State approved 10-year plan
- Financing (Assessment and levies)
- Regulatory authority
- Drainage systems
- Eminent domain
- Nonpartisan, appointed Board



Watershed Reporting and Requirements

- **103D.351 ANNUAL REPORT**
- **103D.355 ANNUAL AUDIT**
- **Open Meeting Law**
- **Public Hearings**
- **Municipal Procurement and Contracting Laws**
- **Data Practices (Public Data)**
- **NPDES Annual Report**
- **Municipal Insurance Requirements**
- **Biennial Progress Report**
- **Grant Reporting**
- **Loan/Debt Management**
- **Required to be part of State Retirement Program**

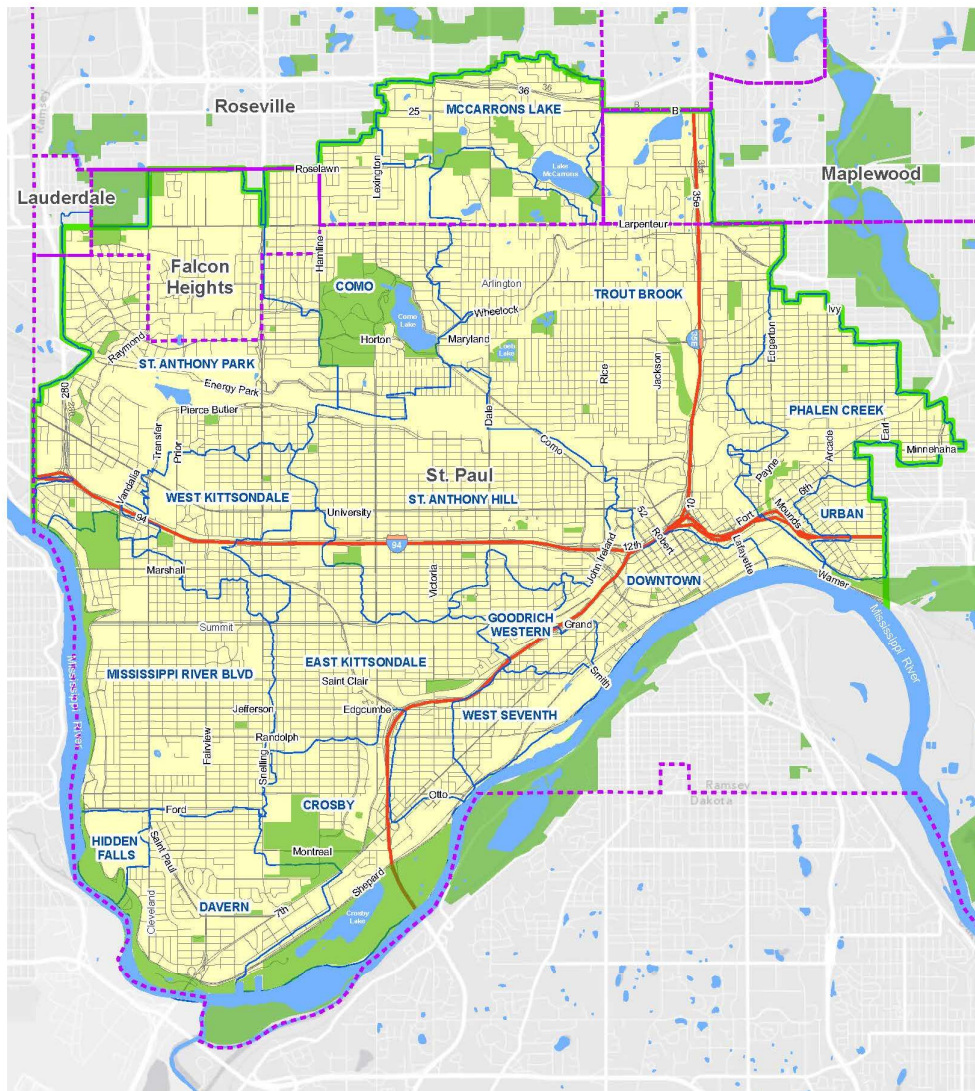


Capitol Region Watershed District

- 5 Board of Managers
- Appointed by Ramsey County
- MS4 – Phase 2
- 12-member Community Advisory Committee
- 25 FTEs
- 2023 Budget ~\$13 mil

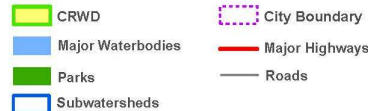


Our Watershed



- 41 Square Miles
- 5 Cities
- Population ~250,000 (1/20th Minnesotans live in CRWD)
- 5 Lakes
- 42% impervious
- Over 500 miles of storm sewers

Capitol Region Watershed District is home to more than 225,000 people and is 42% impervious surfaces.



CAPITOL REGION WATERSHED DISTRICT



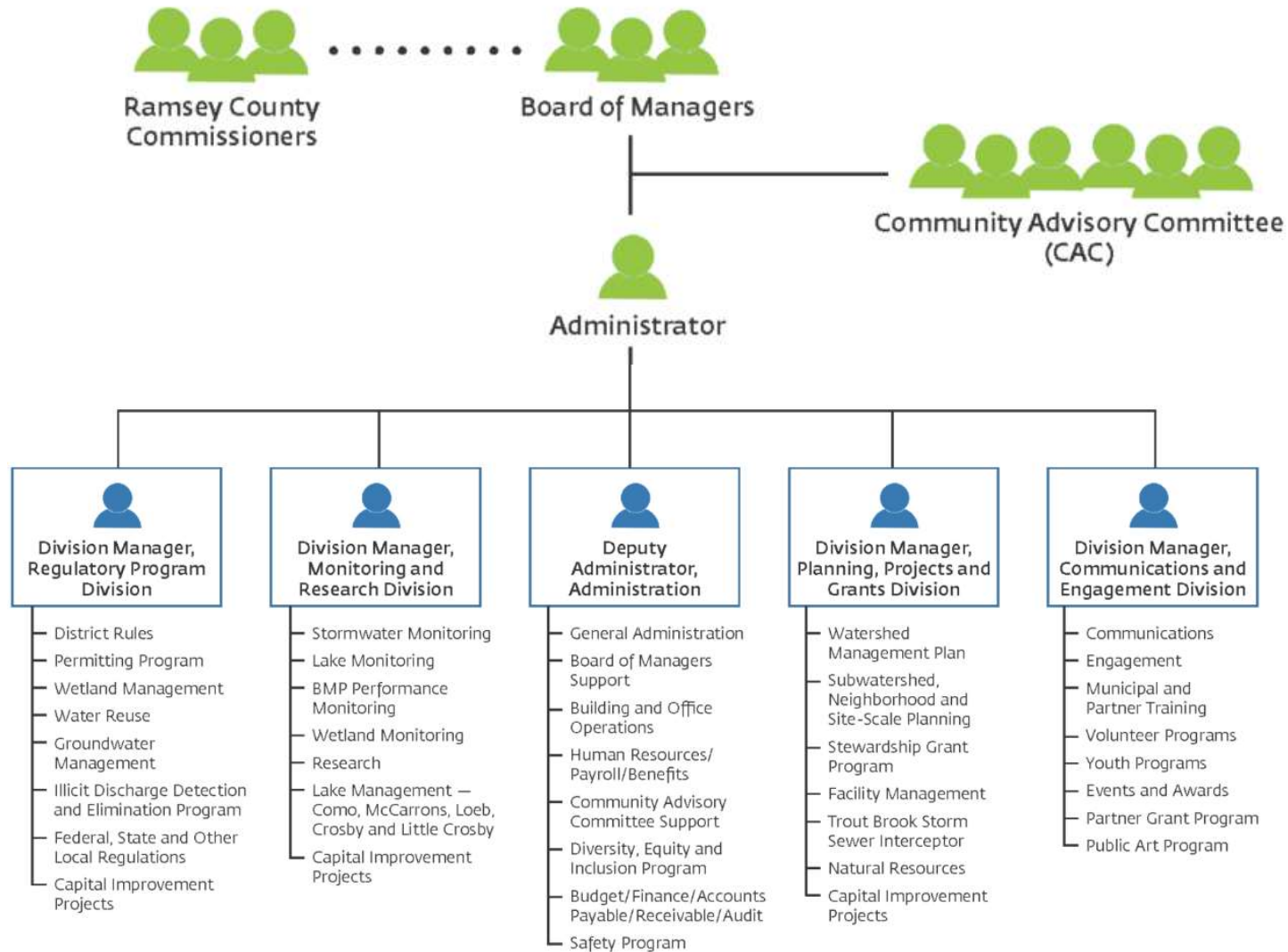
2023 Budget

Fund	2023 Preliminary Fund Total
ADMINISTRATION	\$ 917,300
PROGRAMS	\$ 4,229,958
PROJECTS	\$ 1,539,682
	<hr/>
OPERATIONS TOTAL	\$ 6,686,940
CAPITOL IMPROVEMENT PROGRAM	\$ 6,584,971
TOTAL 2023 BUDGET	\$ 13,271,911

- Operations primarily tax levy
- CIP has been a mix of partner funding, grants and levy
- ~\$55/Year on median value home



CRWD Organizational Structure

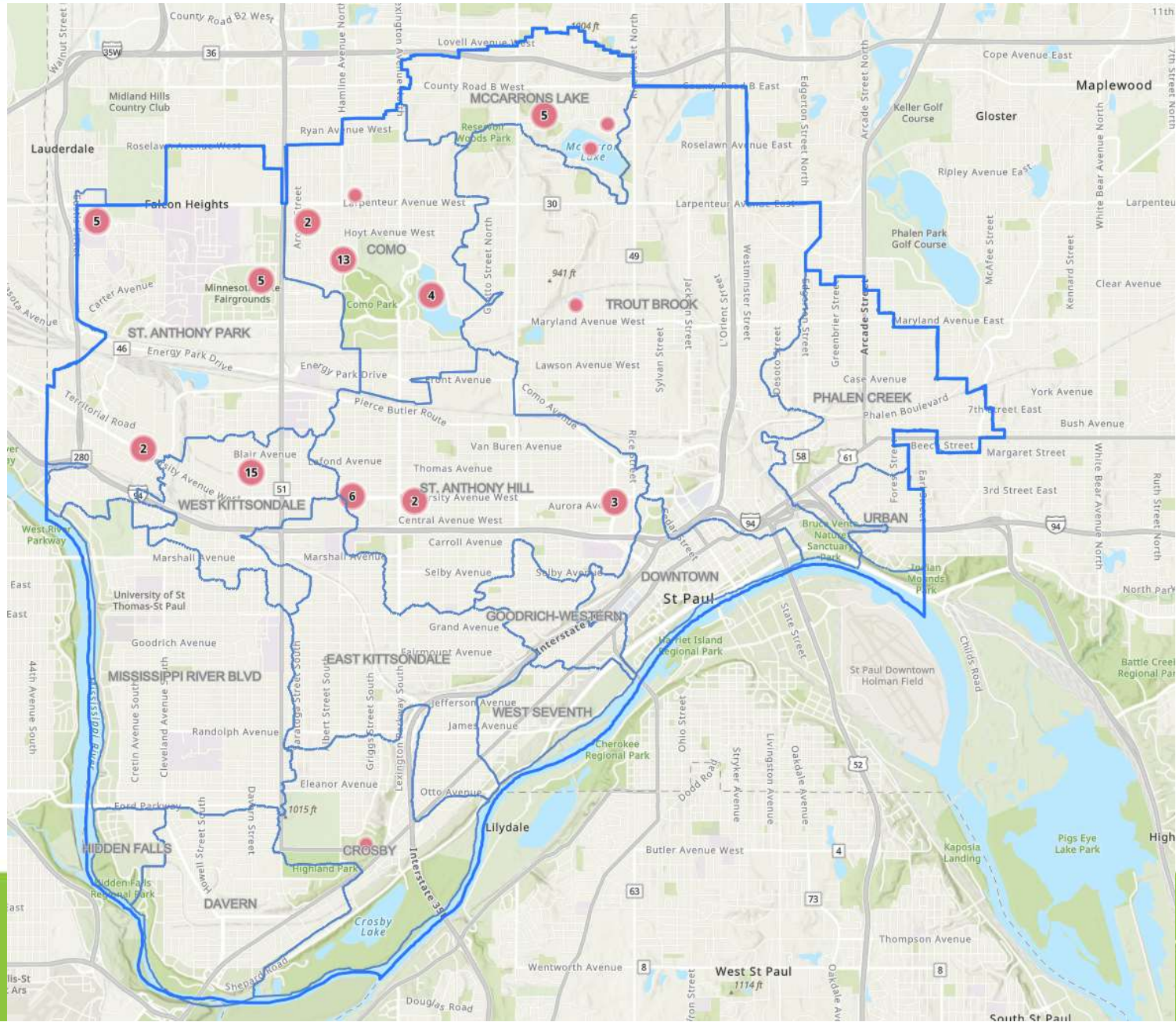


Key Initiatives for CRWD

- Capital Improvement Projects
- Trout Brook interceptor stormsewer system
- Regulatory Program
- Monitoring & Research
- Communications & engagement
- Grants to private property owners and orgs
- Facility Management Program



Capital Improvement Projects



Parkview Center School BMP



Upper Villa SW Reuse and Retention



Seminary Pond Improvement



Highland Ravine Stabilization



Trout Brook Nature Sanctuary



Green Line LRT Green Infrastructure



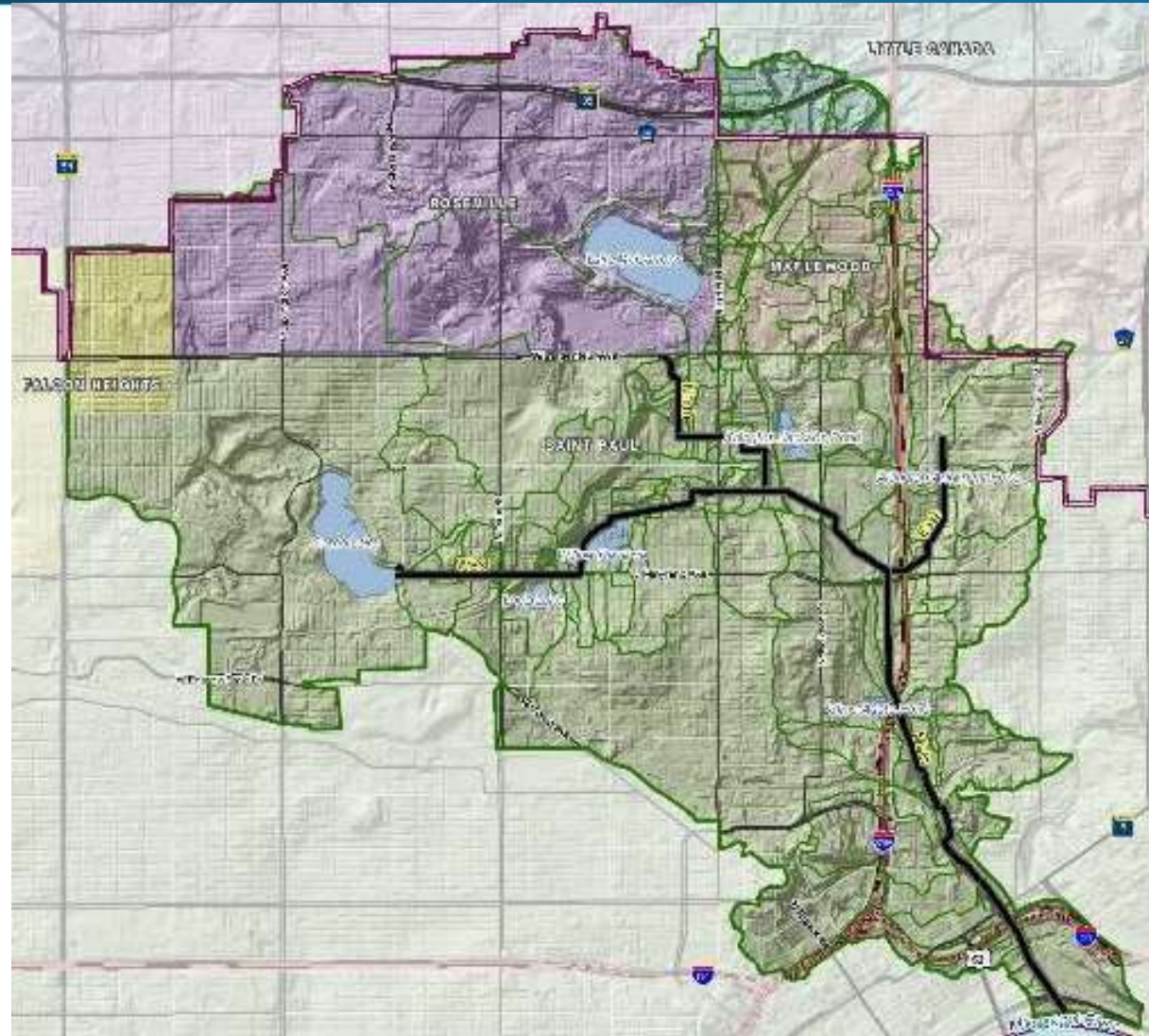
Capital Improvement Projects

- 31 Projects
- 78 Unique BMPs
- \$25 mil invested
- 584 lbs TP Removed Annually
- 290 Tons of TSS Removed Annually
- 1,495 acres treated
- <https://www.capitolregionwd.org/projects/>



Trout Brook Storm Sewer Interceptor

- ~100 Yrs Old
- 6 mile tunnel
- Drains 4 Cities
- Owned since 2006
- 5 Yr CIP
- ~\$10 mil Repairs

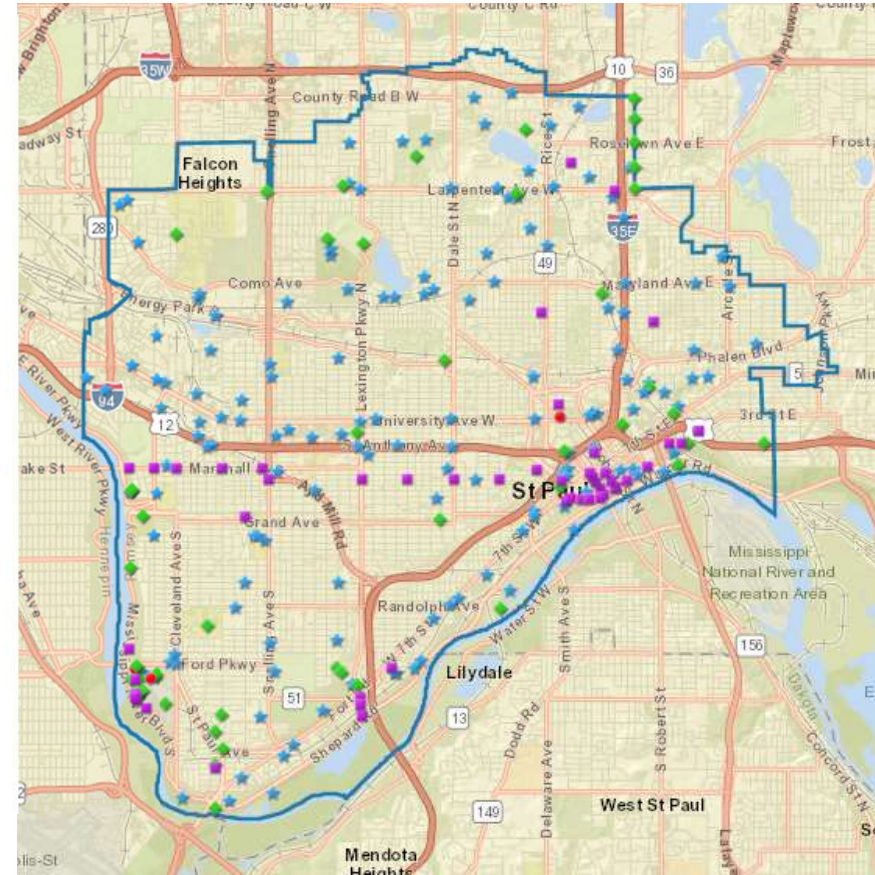


Trout Brook Storm Sewer Interceptor



Regulatory Program

- 2006 Adoption
- Stormwater Quality and Quantity, Flood Protection, Erosion and Sediment Control, Wetland Protection
- Sites > 1 ac require permit
- Stormwater Quality Rule
 - 1.1” Volume Retention Std
 - Alternative Compliance Sequencing
 - Volume Control
 - Filtration (55% or 80% for enhance Filtration)
 - Stormwater Impact Fund



Regulatory Program

- 526 Permits
- 616 BMPs
- 905 # TP
- 86 tons of TSS
- 1,255 acres treated
- Inspections
- O&M Agreements
- <https://www.capitolregionwd.org/permits/>



Benefits of a Regulatory Program

- Every project >1 acre walks through your door!
- Significant treatment provided
- Optimize treatment areas (Volume Bank)
- Connect above and beyond treatment with the underpinnings of a regulation
- Better connects watershed district with private sector



Volume Bank

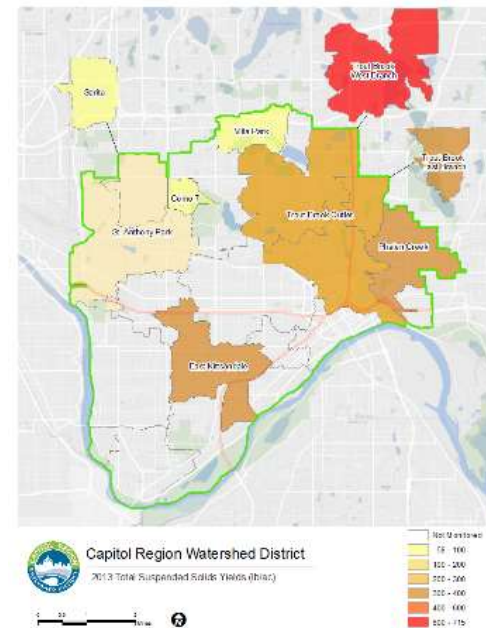
- Currency is Cubic Feet
- Debit/Credit part of permit
- Provides flexibility
- Creates more efficient systems
- Cities, County, MNDOT, Schools, Port Authority, HRA, Colleges and Universities have accounts, some private sector
- Example:
 - St. Paul Public Works has 51 transactions
 - 355k CF deposited, 377k withdrawn

		Volume Banking Credits					
		Account: Saint Paul Public Works					
Transaction	Requested	Approved	Permit	Project	Deposit	Withdrawal	Balance (cf)
Deposit	4/4/2007	NA		Chatsworth-Goodrich	10,532		10,532
Withdrawal	4/4/2007	07-009		Davern	0	5,717	4,815
Withdrawal	1/22/2008	08-001		Selby Avenue	0	3,790	1,025
Deposit	Pending	07-008		Hubbard-Griggs	5,947		6,972
Withdrawal	8/20/2008	08-003		Seventh-Bay	0	8,278	-1,306
Withdrawal	8/20/2008	08-004		Ashland-Pascal	0	20,069	-21,375
Deposit	7/10/2019	08-016		Payne Avenue	1,204		-20,171
Withdrawal	3/18/2009	09-004		East Sixth Street	0	6,044	-26,215
Deposit	10/17/2018	09-009		Victoria Street	1,991		-24,224
Withdrawal	6/3/2009	09-011		Magnolia-Earl	0	18,012	-42,236
Deposit	6/5/2019	09-017		Knapp-Ramond	2,141		-40,095
Withdrawal	3/16/2010	5/5/2010	10-005	Seventh-Douglas	0	17,462	-57,557
Withdrawal	4/14/2010	5/19/2010	10-011	Davern-Jefferson	0	39,308	-96,865
Deposit	5/26/2010	9/19/2018	10-014	Front-Victoria	15,059		-81,806
Withdrawal	2/2/2011	2/2/2011	11-002	Fairview		18,034	-99,840
Deposit	2/25/2011	6/5/2019	11-004	Blair-Griggs	7,318		-92,522
Withdrawal	2/25/2011	4/20/2011	11-005	Howell-Goodrich (revised 15,238 to Zero)		0	-92,522
Withdrawal	2/25/2011	4/20/2011	11-006	Davern-Jefferson II		25,611	-118,133
Deposit	9/7/2011	Expired	11-021	College Park (never built, cancelled)	0		-118,133
Transfer	10/14/2011	11/16/2011	09-031	Wells and Russell	116,436		-1,697
Deposit	11/16/2011	Pending	11-027	Hewitt-Tatum	4,067		2,370
Deposit	1/4/2012	1/4/2012	NA	St. Albans-Arundel Trenches	35,710		38,080
Withdrawal	1/4/2012	1/4/2012	11-030	Prior-Goodrich		29,228	8,852
Deposit	5/2/2012	7/19/2017	12-004	Wheelock Parkway Bridge	391		9,243
Deposit	9/19/2012	Pending	12-018	Hamline Library Pervious Alley	7,100		16,343
Withdrawal	12/19/2012	12/19/2012	12-029	Arlington-Rice		28,035	-11,682
Withdrawal	2/6/2013	2/6/2013	13-001	Hatch-Agate		22,137	-33,829
Withdrawal	2/6/2013	2/6/2013	13-002	Hamline Avenue Bridge		6,697	-40,526
Deposit	5/15/2013	Pending	13-014	Trout Brook Nature Sanctuary	103,455		62,929
Withdrawal	7/10/2013	7/10/2013	13-021	Jefferson-Griggs Bike Routes		5,881	57,048
Withdrawal	9/18/2013	9/18/2013	13-018C	Prince Street		7,303	49,745
Deposit	2/19/2014	8/5/2015	14-004	Hampden Park	24,908		74,653
Withdrawal	3/5/2014	3/5/2014	13-033	Fairview-Bohland		16,626	58,027
Withdrawal	3/19/2014	3/19/2014	14-001	Montana-Greenbrier		11,091	46,936
Withdrawal	9/3/2014	9/3/2014	14-028	Highland Village Streetscape		487	46,449
Withdrawal	2/4/2015	2/4/2015	15-002	Raymond Ave Phase II		7,059	39,390
Withdrawal	3/11/2015	4/1/2015	15-017	Kellogg Blvd bridge reconstruction		2,385	37,005
Withdrawal	4/1/2015	4/1/2015	15-009	3rd Street		6,044	30,961
Permit withdrawn		6/3/2015	15-014	East 7th Streetscape	0	0	30,961
Withdrawal	5/20/2015	5/20/2015	15-010	Como-Chatsworth		15,370	15,591
Withdrawal	7/22/2015	7/22/2015	15-016	Franklin Avenue		6,628	8,963
Withdrawal	2/22/2016	2/22/2016	16-001	University Avenue		14,164	-5,201
Withdrawal	1/18/2017	1/18/2017	16-031	Como Avenue		8,914	-14,115
Withdrawal	4/19/2017	4/19/2017	17-009	Jackson at University		6,271	-20,386
Deposit	8/2/2017	Pending	17-003	Como Park Senior High	19,120		-1,266
Withdrawal	4/18/2018	4/18/2018	18-007	Woodlawn-Jefferson		12,961	-14,227
Withdrawal	6/17/2020	6/17/2020	20-016	Ayd Mill Road		8,345	-22,572
					355,379	377,951	-22,572

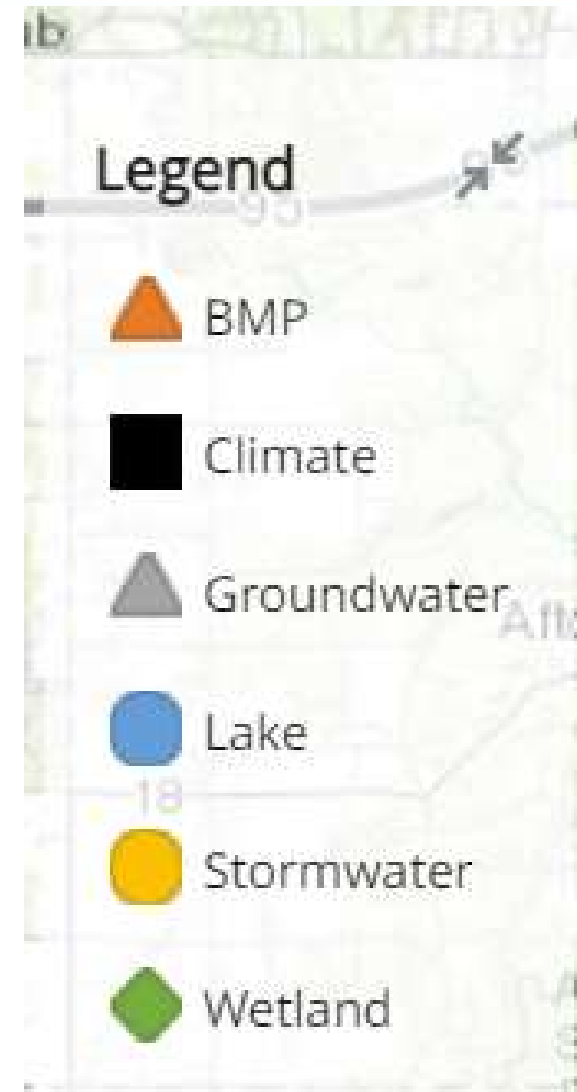
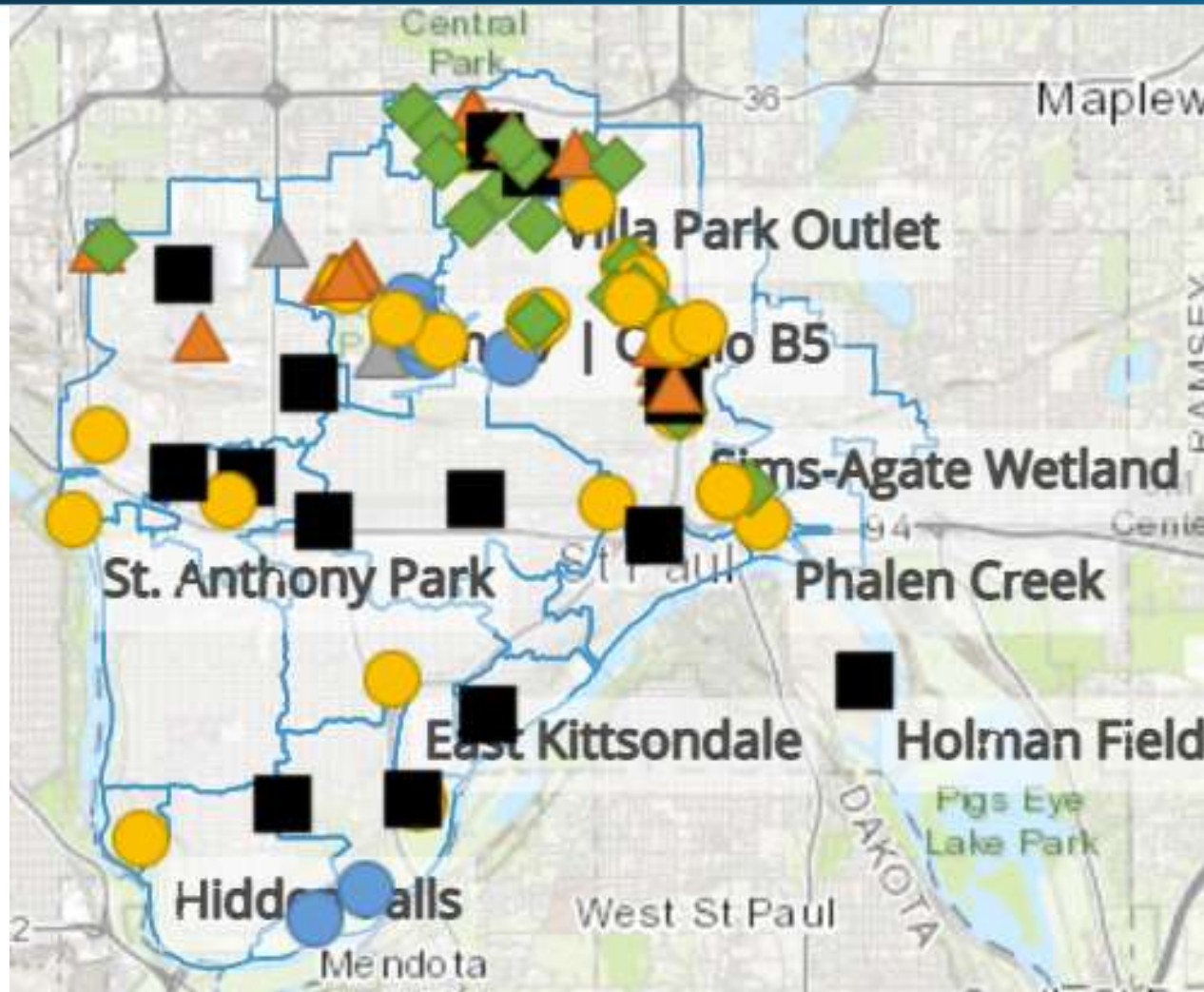


Monitoring and Research

- 95 Stations
- Stormwater
- BMPs
- Lakes
- Wetlands
- Climate
- Fisheries
- AIS



Monitoring and Research



<https://www.capitolregionwd.org/monitoring-research/data/>

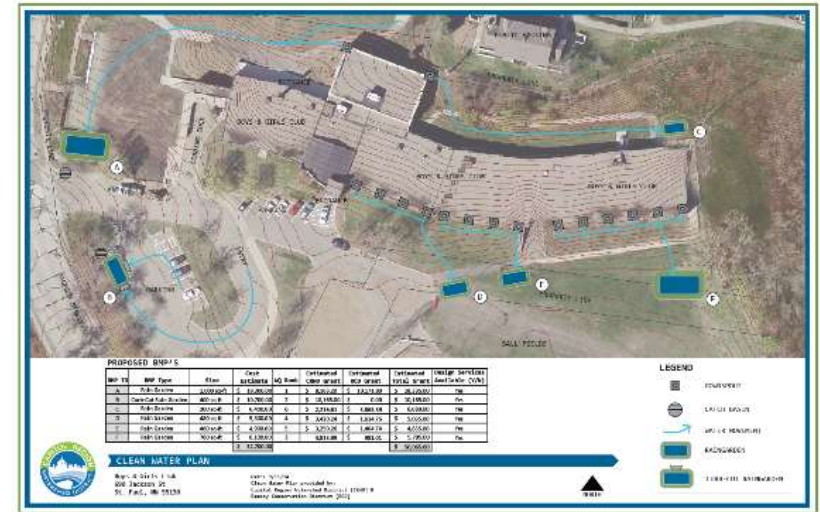
Communications & Community Engagement

- Most populated and most diverse watershed district in MN
- Community Events
- Minnesota Water Stewards
- Adopt a Drain
- Metro Watershed Partners
- Winter Roads & Turfgrass Maintenance Workshops
- Project communications
- Social Media/Website



Cost-Share Grants

- CRWD residents, cities, partners, schools, businesses, and others
- Design/technical assistance
- Grant Award varies by program, range from \$5k \$30K
- Most rolling application
- Water Quality Grant amounts are based on water quality benefits.



Cost-Share Grants

- **Partner Grants** fund programs led by schools, arts, environmental or faith groups that educate residents and promote clean water actions.
- **Clean Water Project Grants** help residents, non-profits, schools, businesses, and public agencies build projects that prevent stormwater pollution.
- **Planning Grants** fund feasibility or design costs for projects that improve water quality and have high visibility or educational value.
- **Clean Water Project Maintenance Grants** help eligible clean water project grantees to ensure the projects continue to provide water quality benefits.
- **Native Landscapes Grants** provide assistance in select areas in the watershed, CRWD's Focus Area, to build native landscaping projects.
- **Rain Barrel Workshop Grants** provide assistance to neighborhood groups who organize a community rain barrel construction workshop.
- **Well Sealing Grants** are used for sealing abandoned wells that are within the District.



Case Studies

- Como Lake TMDL
- Cooperative Construction Agreements
- Ecosystem Management
- Facility Management

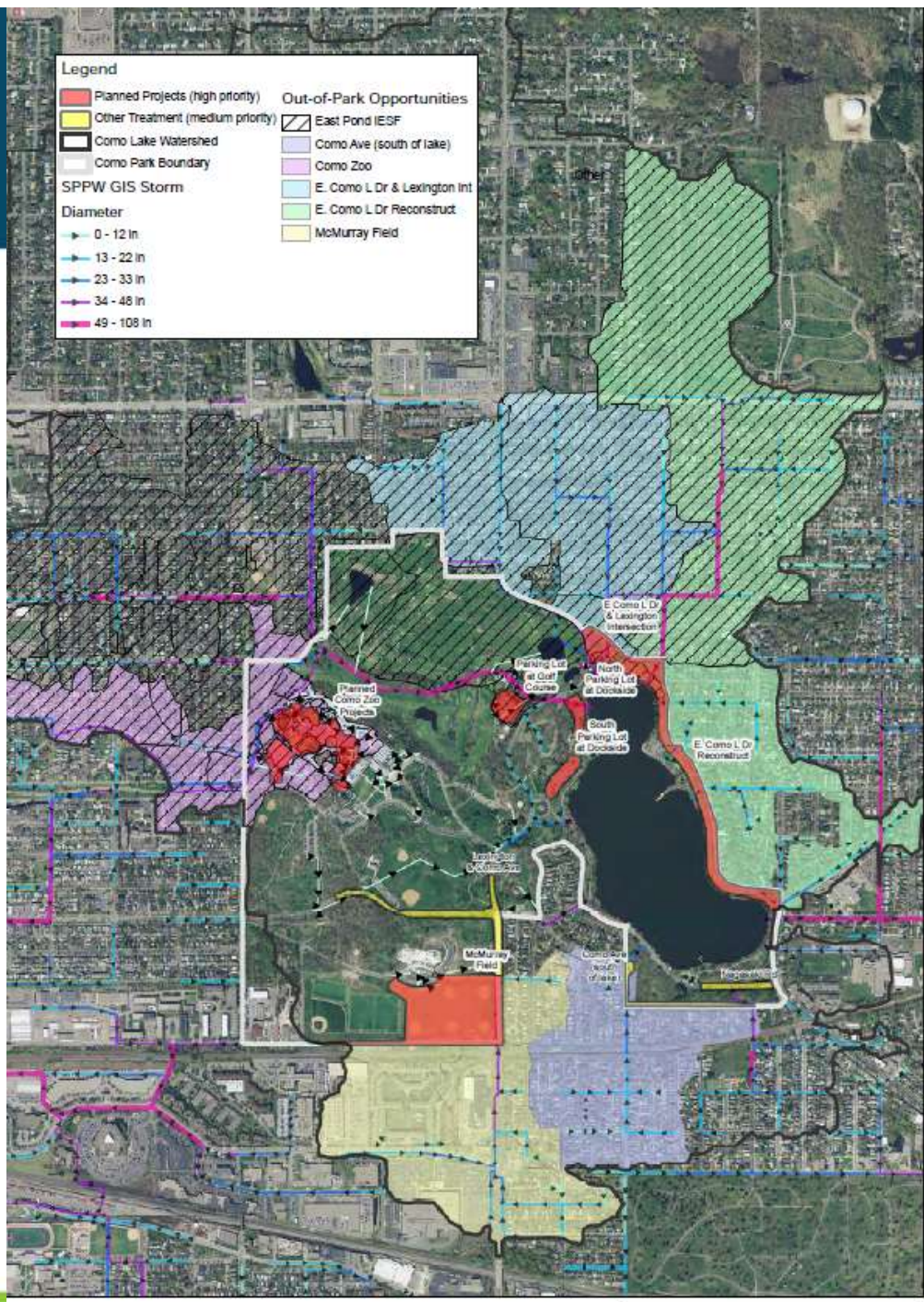


Como Lake TMDL

6E. TMDL Allocation Summary

Table 15. TMDL Allocation Summary

Source	TMDL (lbs/yr)	TMDL (lbs/day)
Load Allocation	57	0.15
Wasteload Allocations		
<u>MS4 or other source</u>		
<u>NPDES Permit #</u>		
<i>City of Falcon Heights</i>		
<i>City of Saint Paul</i>		
<i>City of Roseville</i>		
<i>Ramsey County</i>	248.92	0.68
<i>Capitol Region Watershed District</i>		
<i>Construction stormwater</i>		
<i>Industrial site stormwater</i>		
<i>Minnesota Department of Transportation</i>	0.08	0.00022
Total TMDL	306	0.83



Legend

■ Planned Projects (high priority)	 East Pond IESF
■ Other Treatment (medium priority)	■ Como Ave (south of lake)
 Como Lake Watershed	■ Como Zoo
 Como Park Boundary	■ E. Como L Dr & Lexington Int
SPPW GIS Storm	■ E. Como L Dr Reconstruct
Diameter	■ McMurray Field
→ 0 - 12 in	
→ 13 - 22 in	
→ 23 - 33 in	
→ 34 - 48 in	
→ 49 - 108 in	

PRELIMINARY

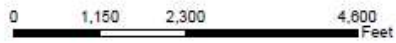


Figure 4 - Out-of-Park Treatment Opportunities

Scale: AS SHOWN	Drawn by: AJL	Checked by: JAL	Project No.: 6475-014	Date: 2/22/2017	Sheet: 1 of 1
			Maple Grove		
			P: 783.453.4322 F: 783.492.5572		

WATERSHED DISTRICT



Regional Approach

Table 3: Regional approach potential Volume Reduction within Como Park

	Impervious Area (acres)	High Priority Areas		Medium Priority Areas		Low Priority Areas		Totals	
		1.1" VR (ac-ft)	2" VR (ac-ft)	1.1" VR (ac-ft)	2" VR (ac-ft)	1.1" VR (ac-ft)	2" VR (ac-ft)	1.1" VR (ac-ft)	2" VR (ac-ft)
Anticipated Park Improvement Projects									
Dockside North Lot	1.02	0.09	0.09 ^c	-	-	-	-	0.09	0.09
Dockside South Lot - Regional	13.48	0.13	0.13 ^c	0.75	0.75 ^c	0.19 ^d	0.19 ^{d,c}	1.06	1.06
Golf Course Parking	1.69	0.15	0.28	-	-	-	-	0.15	0.28
Lexington & Como Blvd Intersection ^f	0.55	0.07 ^b	0.07 ^{b,c}	-	-	-	-	0.07	0.07
Como Blvd Reconstruct ^f	4.25	0.39	0.39 ^c	-	-	-	-	0.39	0.39
Como Zoo Projects - Regional ^f - East Golf Ponds IESF ^{e,f}	13.93	0.48	0.87	0.28	0.51	0.17 ^d	0.59 ^d	0.93	1.97
McMurray Field Project ^{a,f}	4.00	0.37	0.67	-	-	-	-	0.37	0.67
Anticipated Park Projects Sum:	38.92	1.68	2.50	1.03	1.26	0.36	0.78	3.07	4.54
Selected Medium Priority Areas									
Lexington, Como Ave & Horton Ave	2.99	-	-	0.27	0.50	-	-	0.27	0.50
Nagasaki Rd (east side)	0.61	-	-	0.06	0.10	-	-	0.06	0.10
Chatsworth St ^f	0.80	-	-	0.07	0.13	-	-	0.07	0.13
Medium Priority Areas Sum:	4.40	0.00	0.00	0.40	0.73	0.00	0.00	0.40	0.73
Grand Total:	43.32	1.68	2.50	1.43	1.99	0.36	0.78	3.47	5.27

^a Area is currently under construction.

^b Includes 1.1-inch VR from the project's anticipated reduction in impervious area (0.191 acres)

^c Anticipated filtration BMP. Limited to 1.1" VR due to the 1.81 treatment factor for filtration BMPs (1.1" x 1.82 = 2").

^d Runoff from areas that currently receives some level of treatment. The VR amount (ac-ft) was reduced to account for the existing treatment.

^e VRs not tabulated. This project is considered a secondary option to Como Zoo Projects- Regional.

^f Regional project that has opportunity for out-of-park treatment, which is not tabulated in this table.



Como Lake TMDL Reporting

- Como Lake TMDL
- Required TP load reduction
 - 376 lbs/yr
- Reported TP load reduction
 - 214 lbs/yr
- 56% to achieving TMDL goal



Cooperative Construction Agreements

- Capital Projects bring partners together
- Structure agreements to optimize participation
- Mix regulatory requirements and incentives
- Clearly identify responsible parties
- Memorialize long term maintenance responsibilities



Seminary Pond

- Renovate 1990's Stormwater pond
- Armor eroding ravines into pond
- Iron Enhanced sand filter bench
- Modified outlet to reduce downstream flooding



Cooperative Construction Agreement

\$372,000

Partner	Contribution
CRWD	50%
Lauderdale	15%
Falcon Heights	13%
Ramsey County	7%
U of M	15%
	100%



Maintenance Agreement through 2045

Partner	Contribution
CRWD	59%
Lauderdale	18%
Falcon Heights	16%
Ramsey County	7%
U of M	0%
	100%



POST 2045 Maintenance Agreement

Partner	Contribution
CRWD	0%
Lauderdale	45%
Falcon Heights	40%
Ramsey County	15%
U of M	0%
	100%



POST 2045 Maintenance Agreement

Partner	Contribution
CRWD	0%
Lauderdale	45%
Falcon Heights	40%
Ramsey County	15%
U of M	0%
	100%



CRWD Regulatory Volume Credits

9. CRWD Regulatory Volume Credits

9.1. Upon payment of their share of the construction costs, CRWD will transfer stormwater volume banking credits to the Partners as follows:

9.1.1. Falcon Heights: 1,397 Cubic Feet

9.1.2. Lauderdale: 1,521 Cubic Feet

9.1.3. Ramsey County: 739 Cubic Feet



Eco-system Management

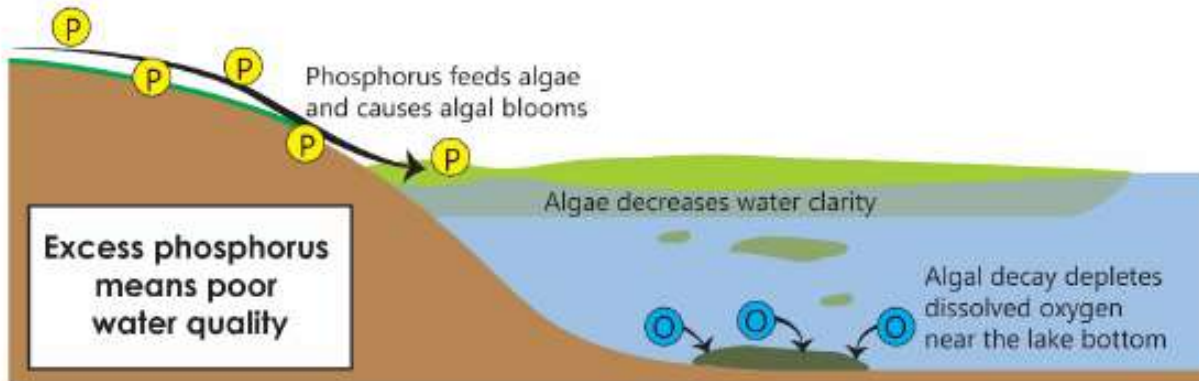


Figure 3-1 Relationship between Phosphorus, Algae, and Dissolved Oxygen

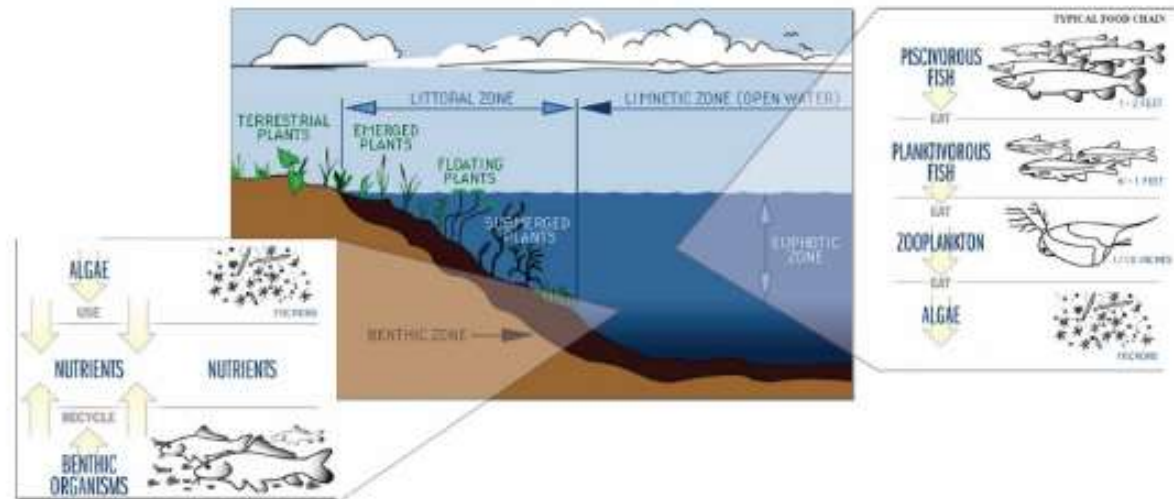
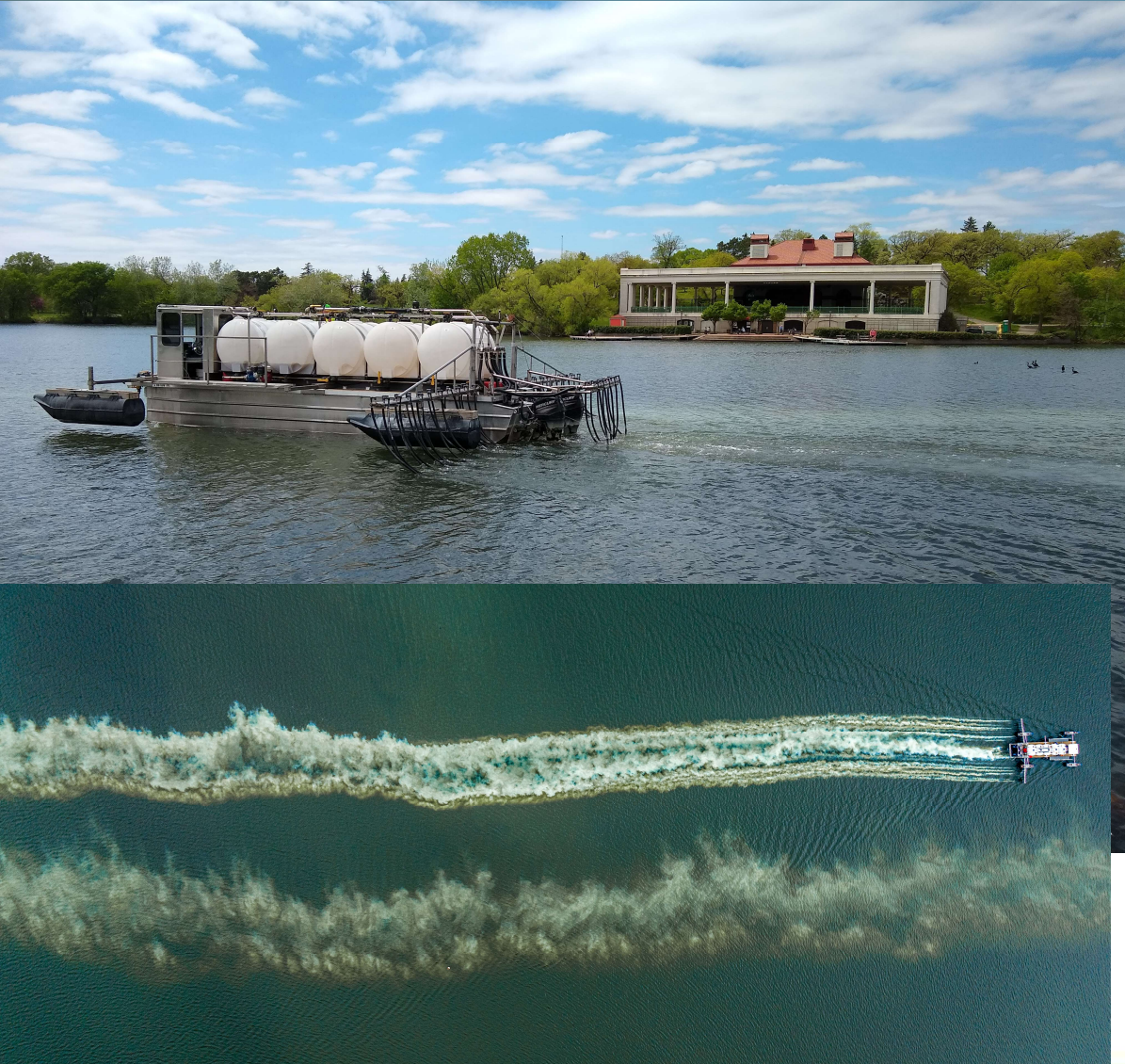


Figure 3-2 Graphic Illustrating Lake Trophic Level Relationships

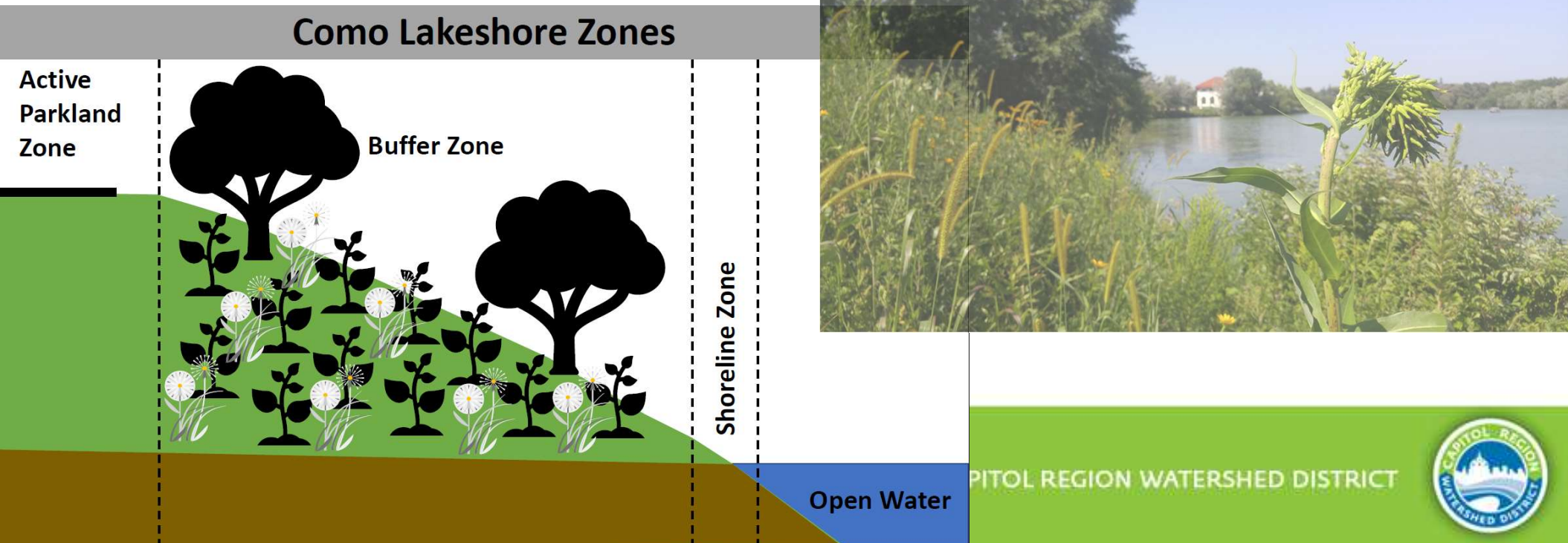
Como Lake Alum Treatment



- 41-ac application area
- Treatment area blanketed twice
- 24,245 gallons alum
- 12,122 gallons sodium aluminate
- pH monitored

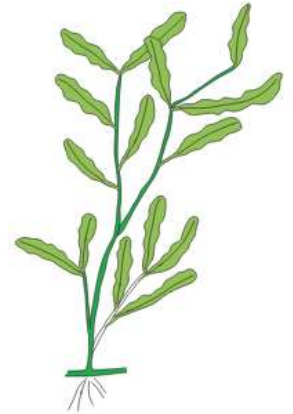
Como Lakeshore Management Plan

1. CLMP Action L11, Goal 2A)– “Develop and implement a shoreline management plan”
2. To prioritize routine shoreline maintenance and plan for larger-scale or site-specific shoreline improvement projects
3. In partnership with City of St Paul

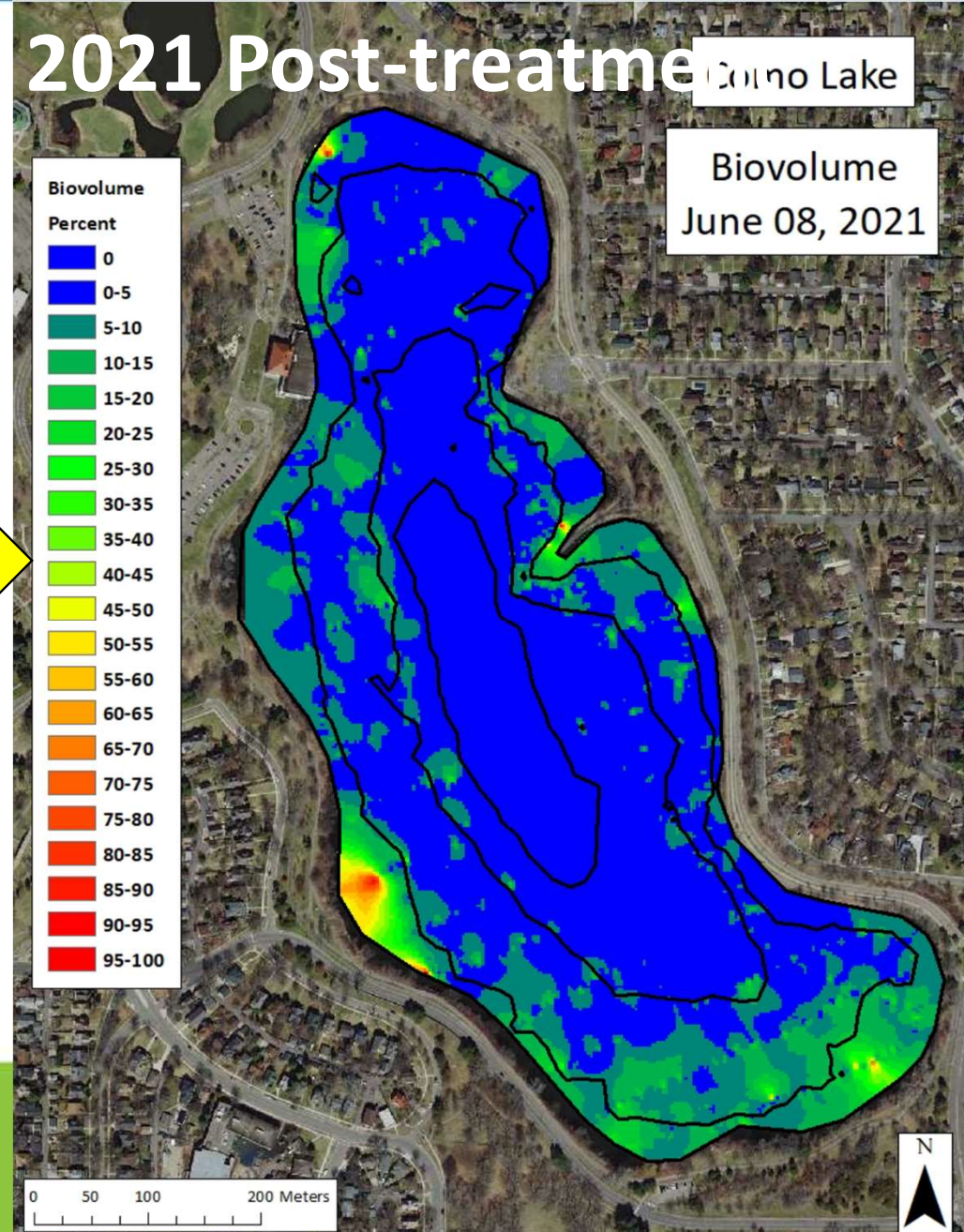
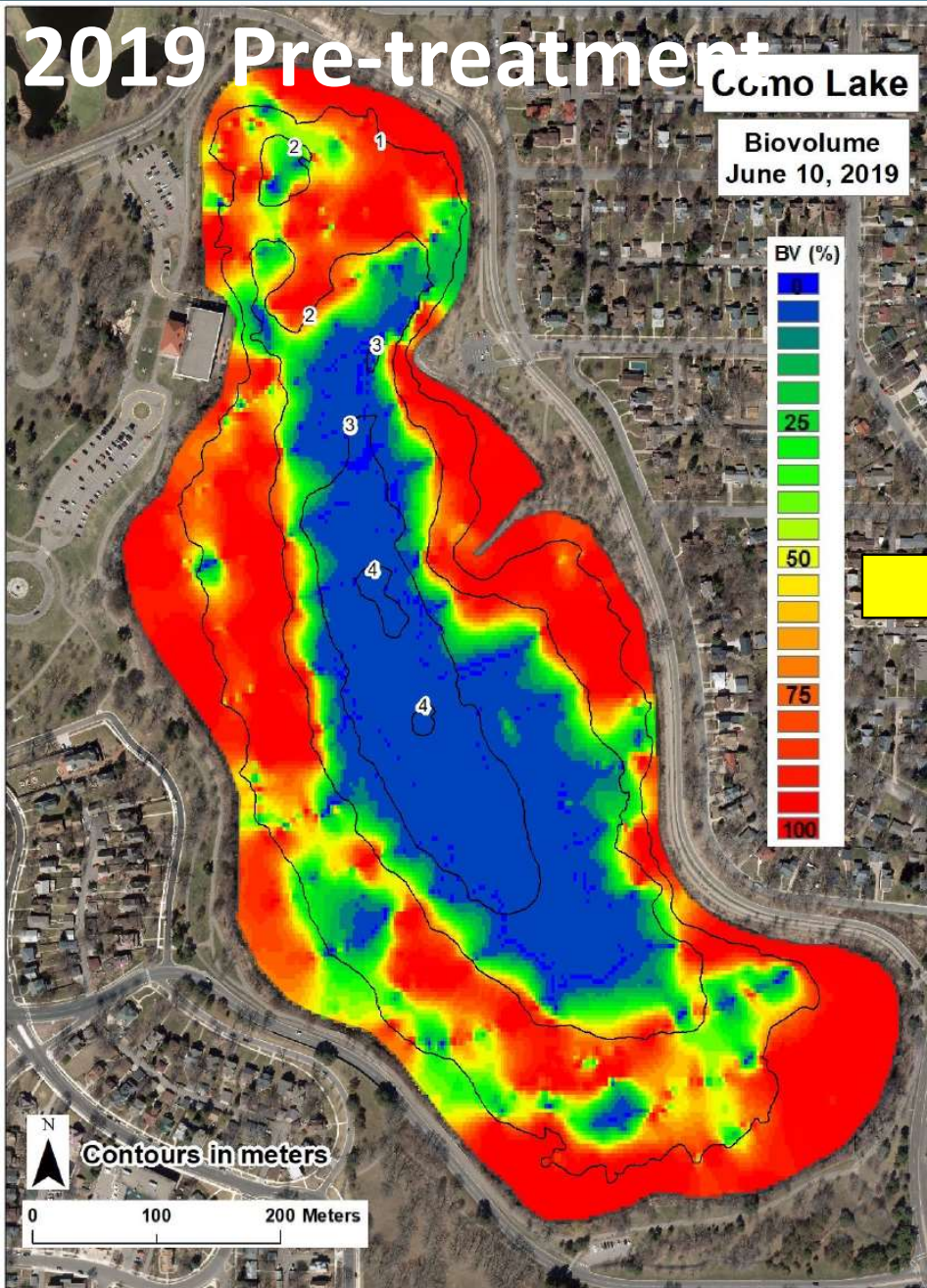


Aquatic Plant Management

- Native aquatic plants are critical to Como Lake's water quality and ecosystem health
- Como Lake Aquatic Plant Management Plan, adopted Feb 2020
 - Action L7 (Goal 1, Objective 1F) of CLMP
 - Goal: To use an adaptive management approach for restoring and enhancing the aquatic vegetation community in Como Lake.
 - **Invasive species control → native plant restoration → long-term monitoring & maintenance**



Curly-leaf Pondweed Herbicide Treatment

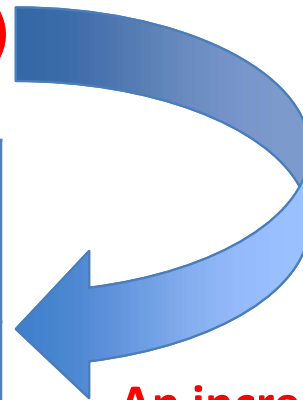


2019-2022 Turion Surveys

2019 Total Viable	2020 Total Viable	% Change from 2019 to 2020
302	63	- 79%

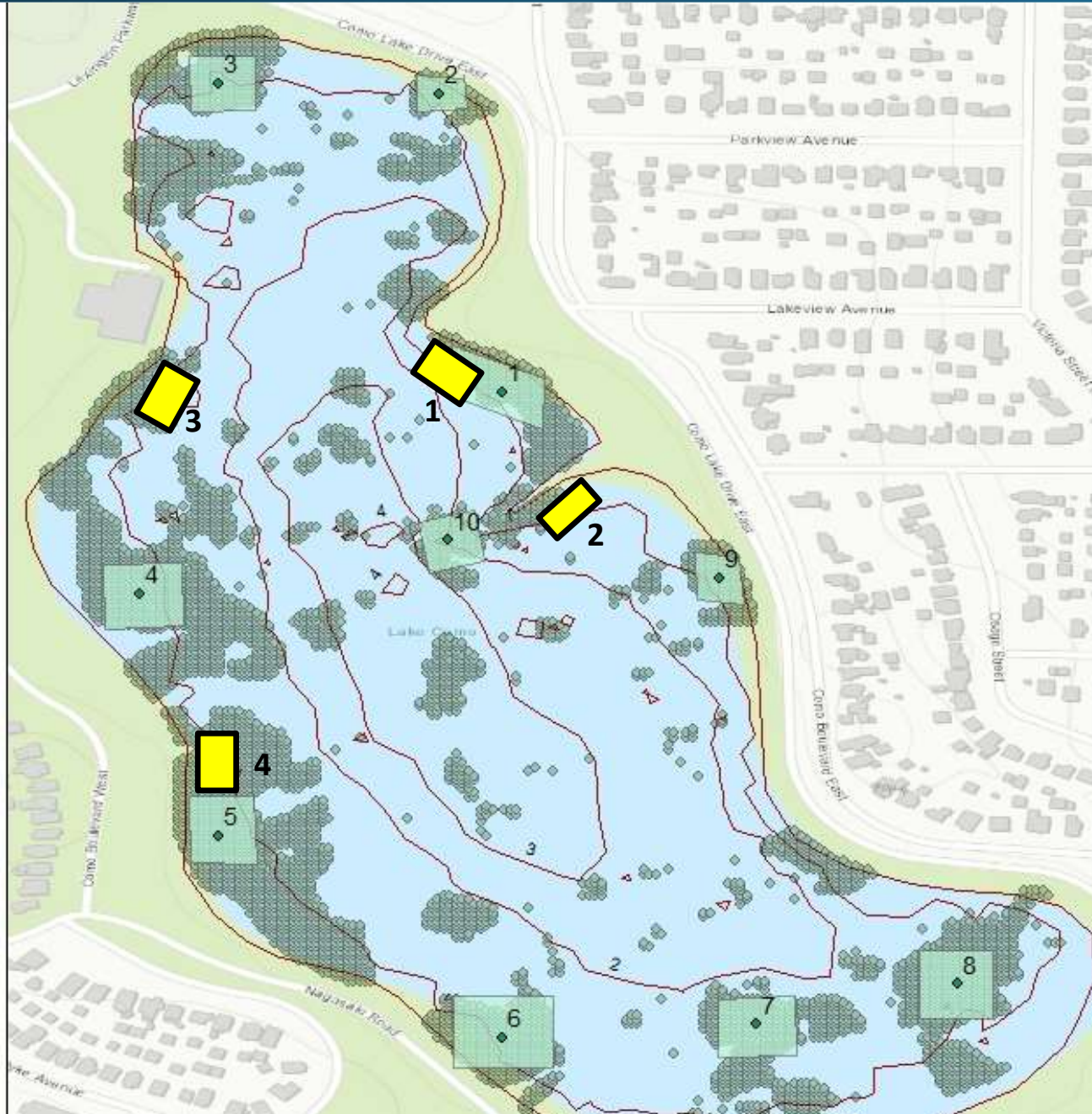
2019 Total Viable	2021 Total Viable	% Change from 2019 to 2021
302	7	- 98%

2019 Total Viable	2022 Total Viable	% Change from 2019 to 2022
302	12	- 96%



An increase in 2022 turions from 2021

Aquatic Plant Transplanting Project



ED DISTRICT



2022 Aquatic Plant Transplanting



Common Carp Removal





Facility Management

- CRWD successfully maintains all BMPs
 - Biofiltration
 - Landscape
 - Underground
 - Filtration
 - Reuse
- Partners are failing to meet O & M Requirements
- Need programming and support to ensure proper function of BMPs
- Developing Facility Management Program



Facility Management Program

- Support Partners with on going O & M
- Identify regional, local and private systems
- Identify support options
- Include fee for service options



Facility Management Program

- **Category 1: Pooled BMP Maintenance Services** - A reoccurring and cooperative facility maintenance service program provided to partners and managed by CRWD.
- **Category 2: Regional Facility Maintenance Assistance** - Ongoing, contractual facility O&M support with partner cooperation for regional facilities.
- **Category 3: Regional Facility** Acquisition and Ownership - In rare cases, CRWD will consider ownership of regional facilities that are of high priority to CRWD.



Watershed Management Results

- Nutrients
 - Statewide 49 Lakes delisted since 2004
 - 36 were due to restoration activities
 - 26 were in the metro (watershed based planning/implementation)
 - 20 were in watershed districts
- Como Lake trending towards delisting



Watershed Management Results

- Changing attitudes
- Addressing climate
- Improving biological integrity
- Grass roots, locally driven approach
- Forefront of emerging issues



Considerations

- Manage water on a watershed basis
- Nonpolitical Governance structure
- Comprehensive Watershed Planning
- Autonomy
- Independent Revenue Stream(s)
- Ability to operate & manage drainage systems
- Regulatory Authority



THANK YOU!

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CAPITOL REGION WATERSHED DISTRICT

