



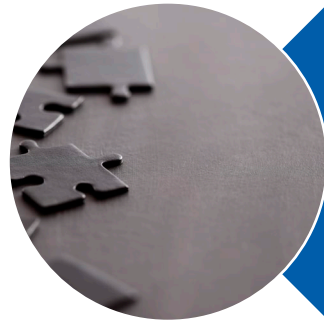
Water Policy Research Project

Environment Committee Informational Item

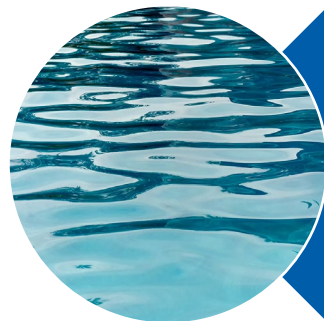


July 25, 2023 | Jen Kostrzewski & Judy Sventek

Agenda



Brief Water Planning Overview



Regional Water Context

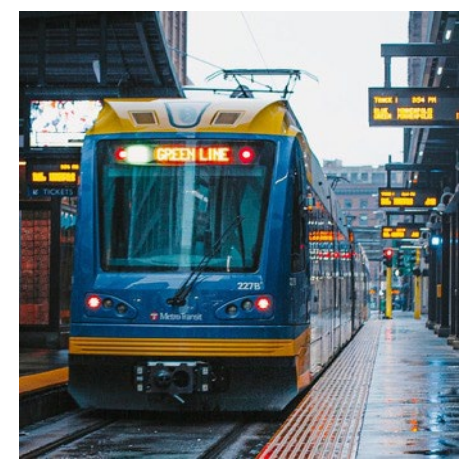
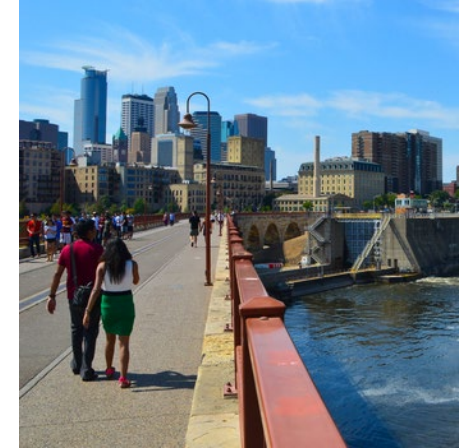


Water Reuse Research Paper

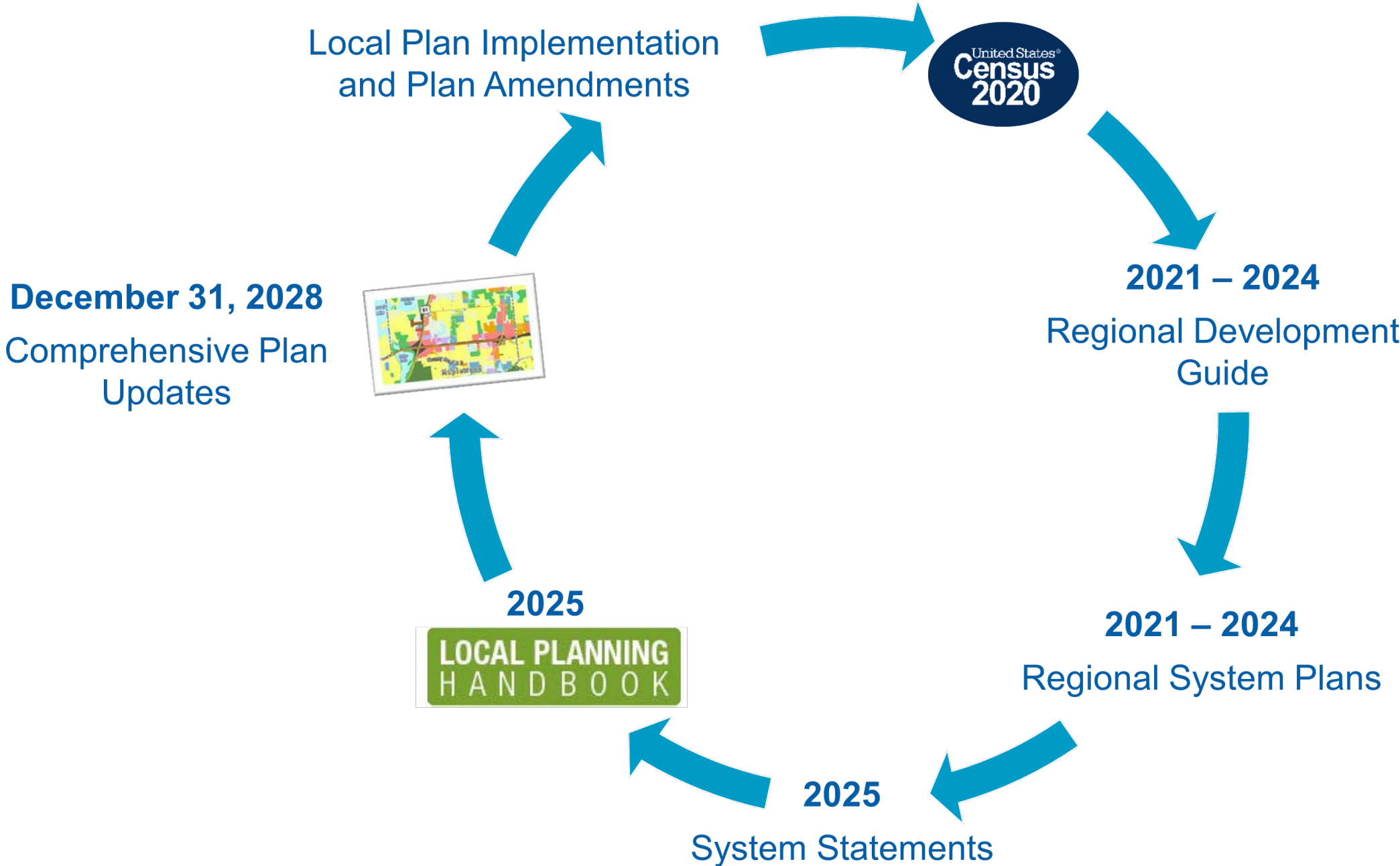
Water Resource Policy Plan (WRPP)

Plan Purpose

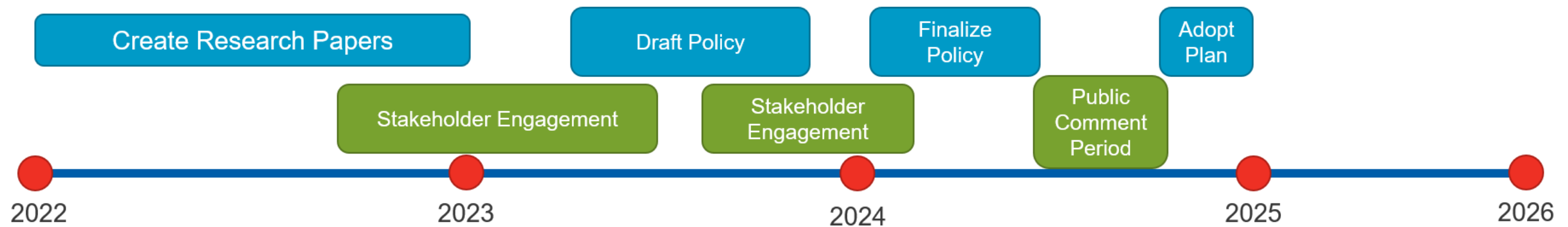
- Met Council is developing the 2050 Water Resources Policy Plan, which **focuses on ensuring sustainable water resources in the region**. It is a part of and informed by the Regional Development Guide.
- The WRPP provides a **framework for integrative water planning** (wastewater, water supply, and water resources) the Metro Area Water Supply Plan, and the Wastewater System Plan.
- It contains water **policies, strategies, and actions** for both the Met Council and our 180+ local governments within the seven-county region.
- WRPP policies **will commit the Council** to take action in the areas of long-range visioning and planning, regional system investments, facility management, technical assistance, research and assessment, and partnerships.



Regional 10-Year Planning Cycle



2050 WRPP Timeline



WRPP Research Topics



1. Protecting Source Water Areas
2. Rural Water Concerns
3. Wastewater Concerns
4. Water and Climate
5. Water Availability, Access, and Use
6. Water Quality
7. Water Reuse

Process of Setting Regional Water Objectives

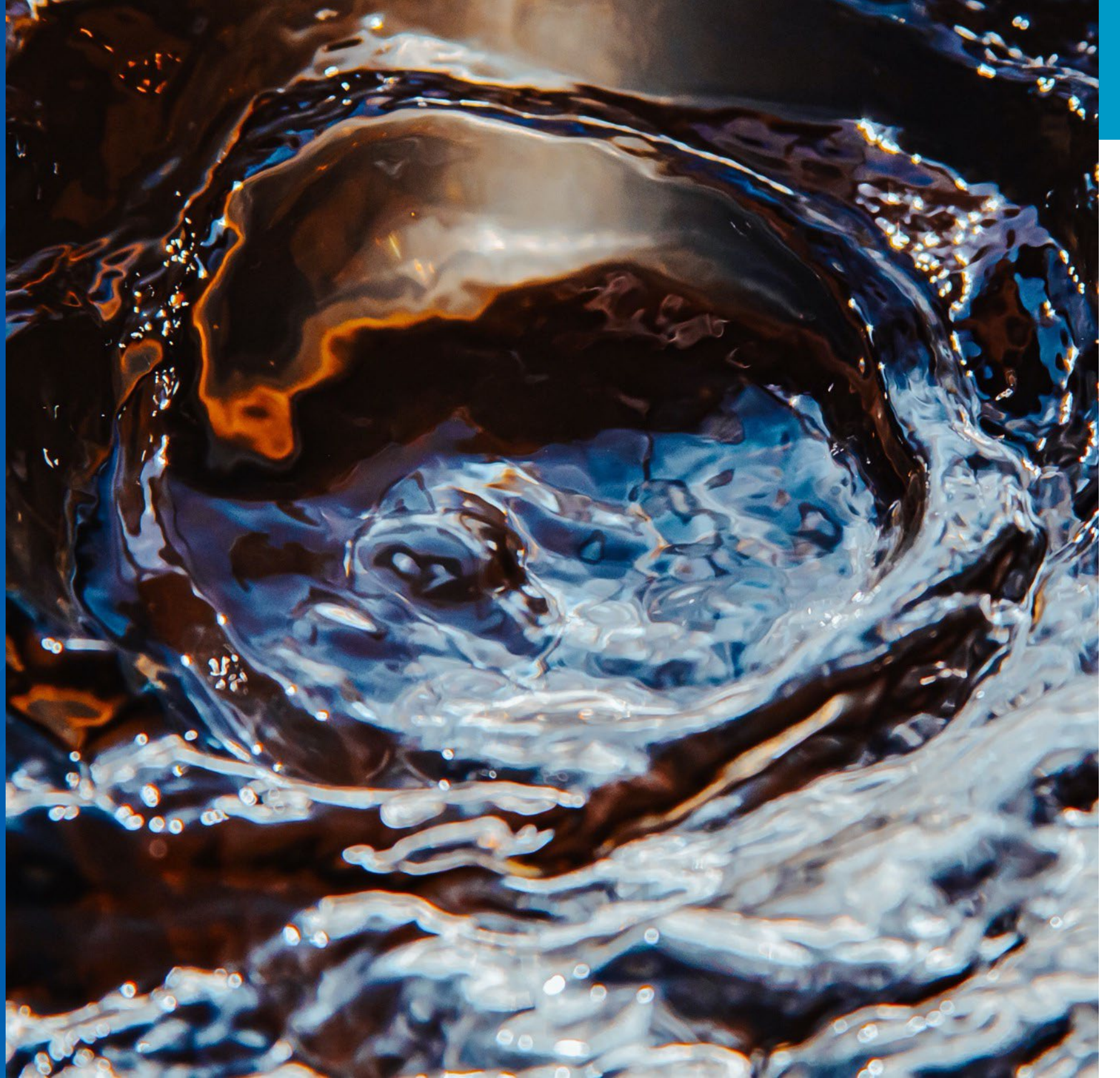
Multi-factor Process

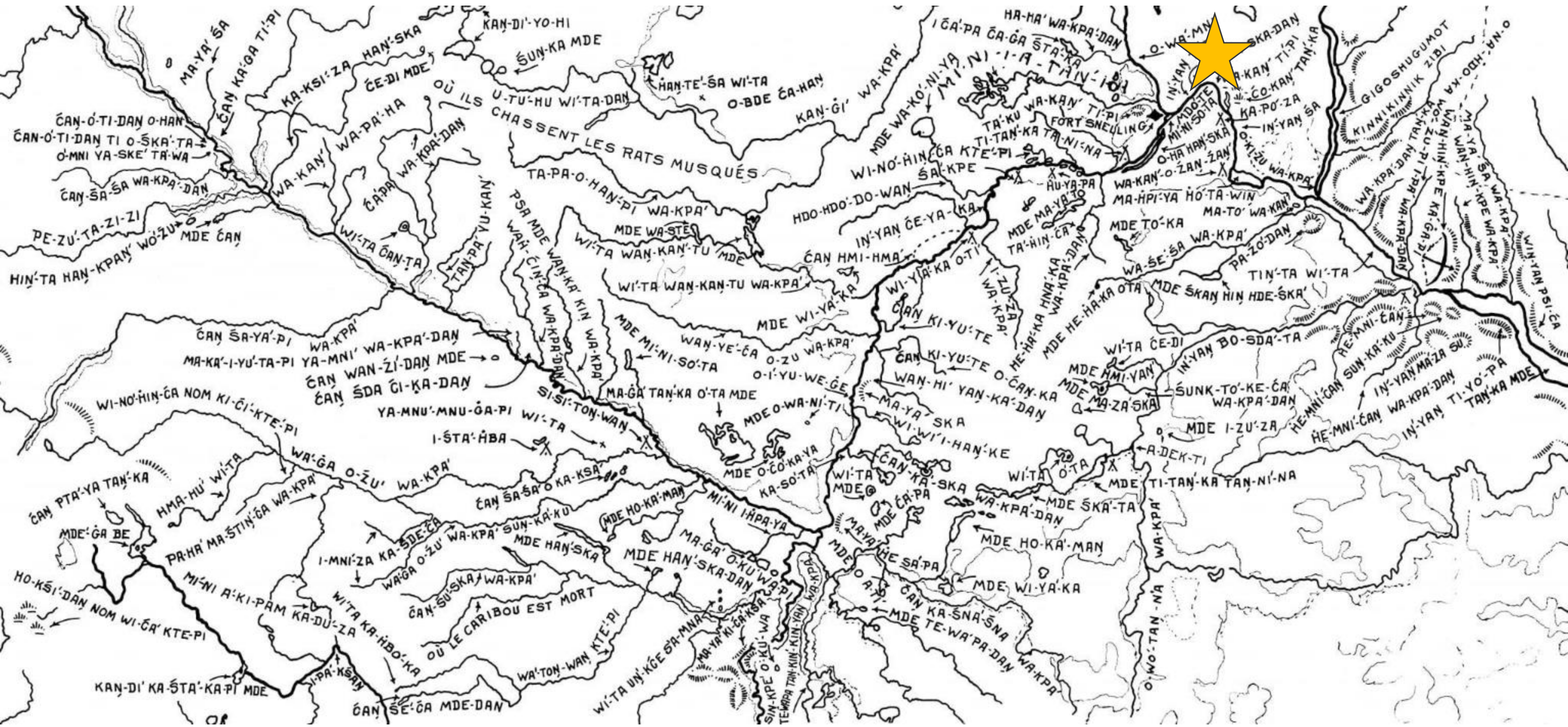


Fall in love with the process,
and the results will come.

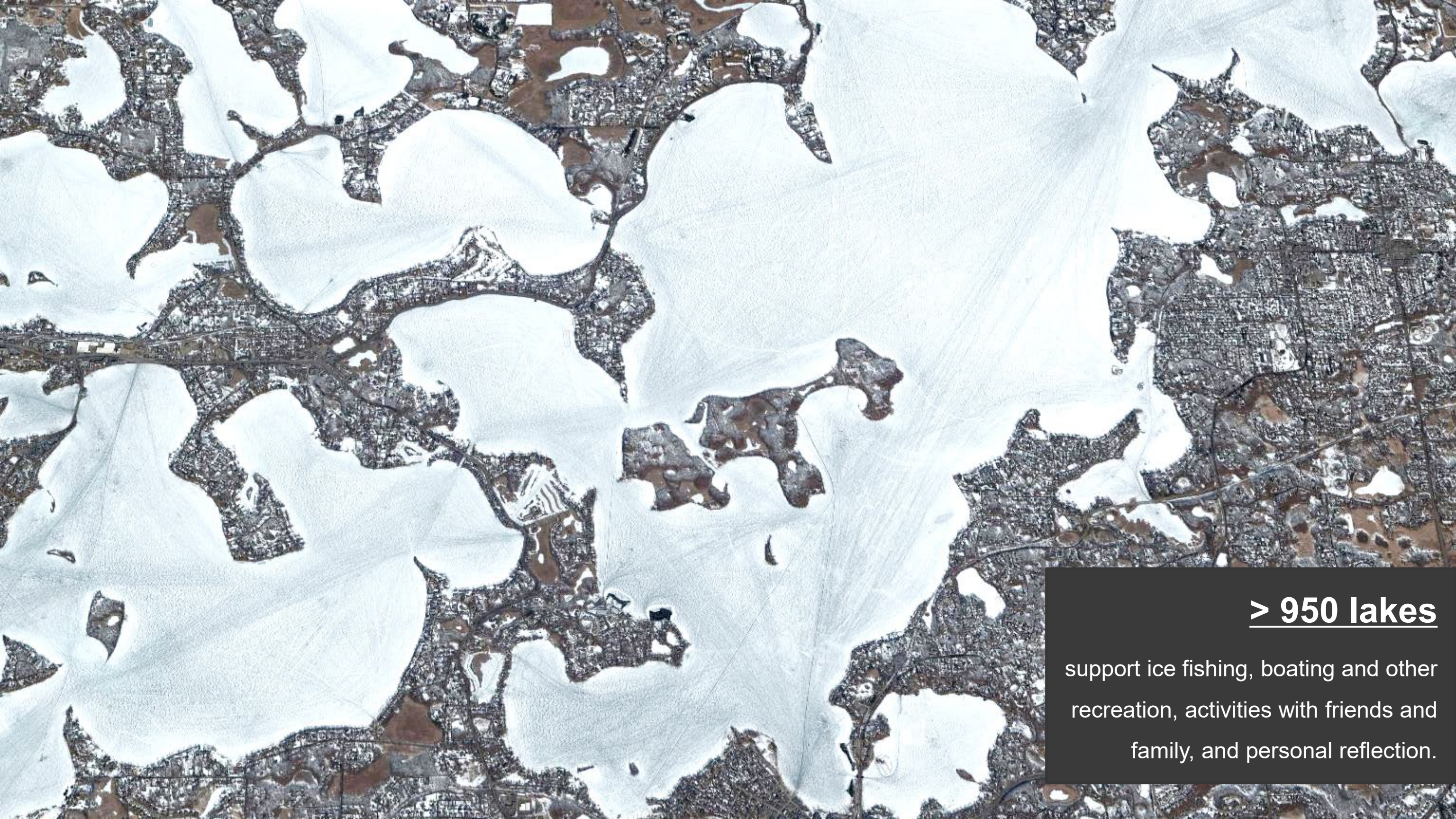
-- Eric Thomas

Regional Water Context





Okizu Wakpa (Where the Waters Gather and the Rivers Meet: An Atlas of the Eastern Sioux) by Paul Durand, 1982



> 950 lakes

support ice fishing, boating and other recreation, activities with friends and family, and personal reflection.





➤ **3 million tons of grain**

are one of the commodities shipped
down the Mississippi River in 2019.



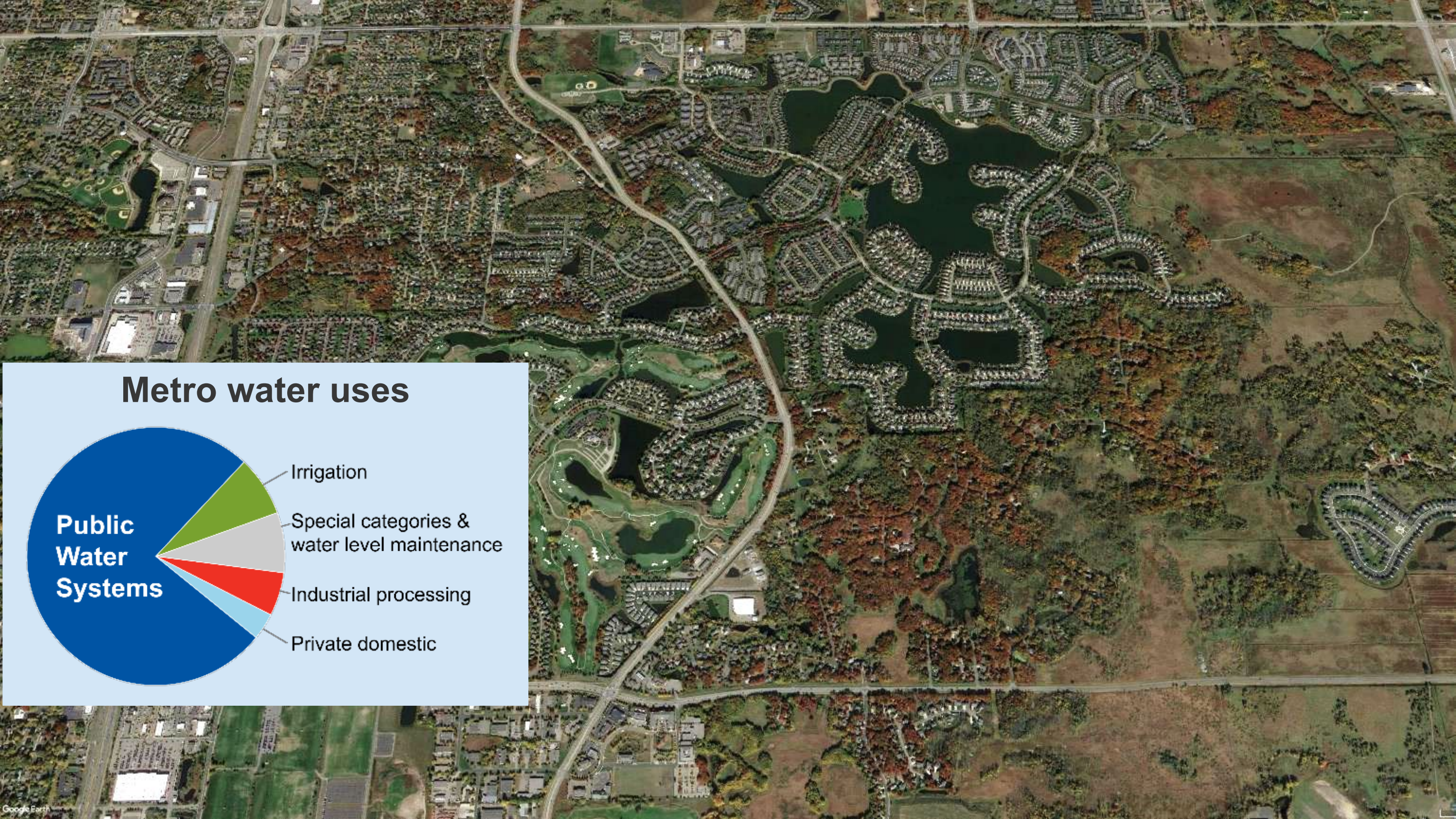
63 million park visitors

to the regional park system annually.

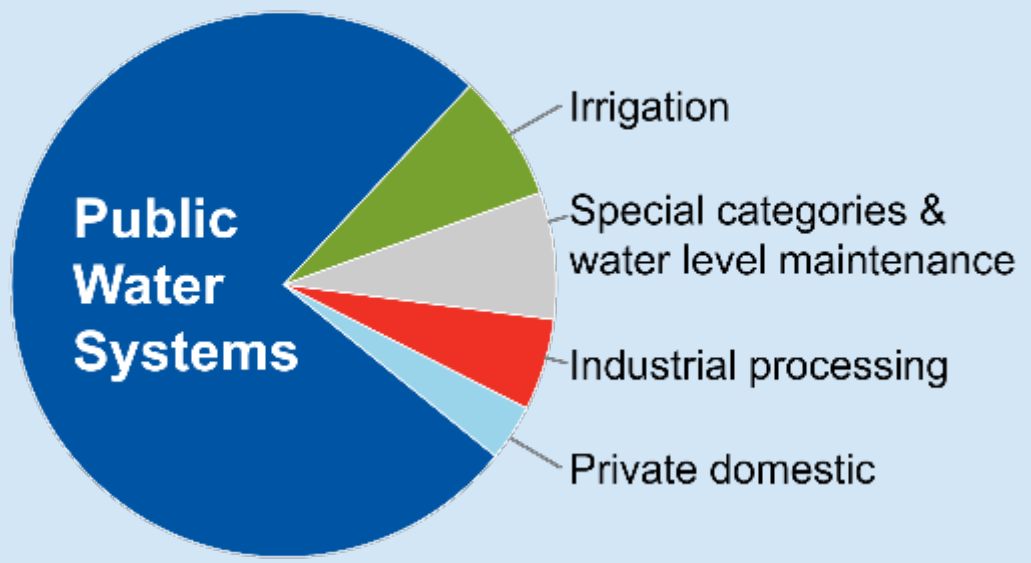


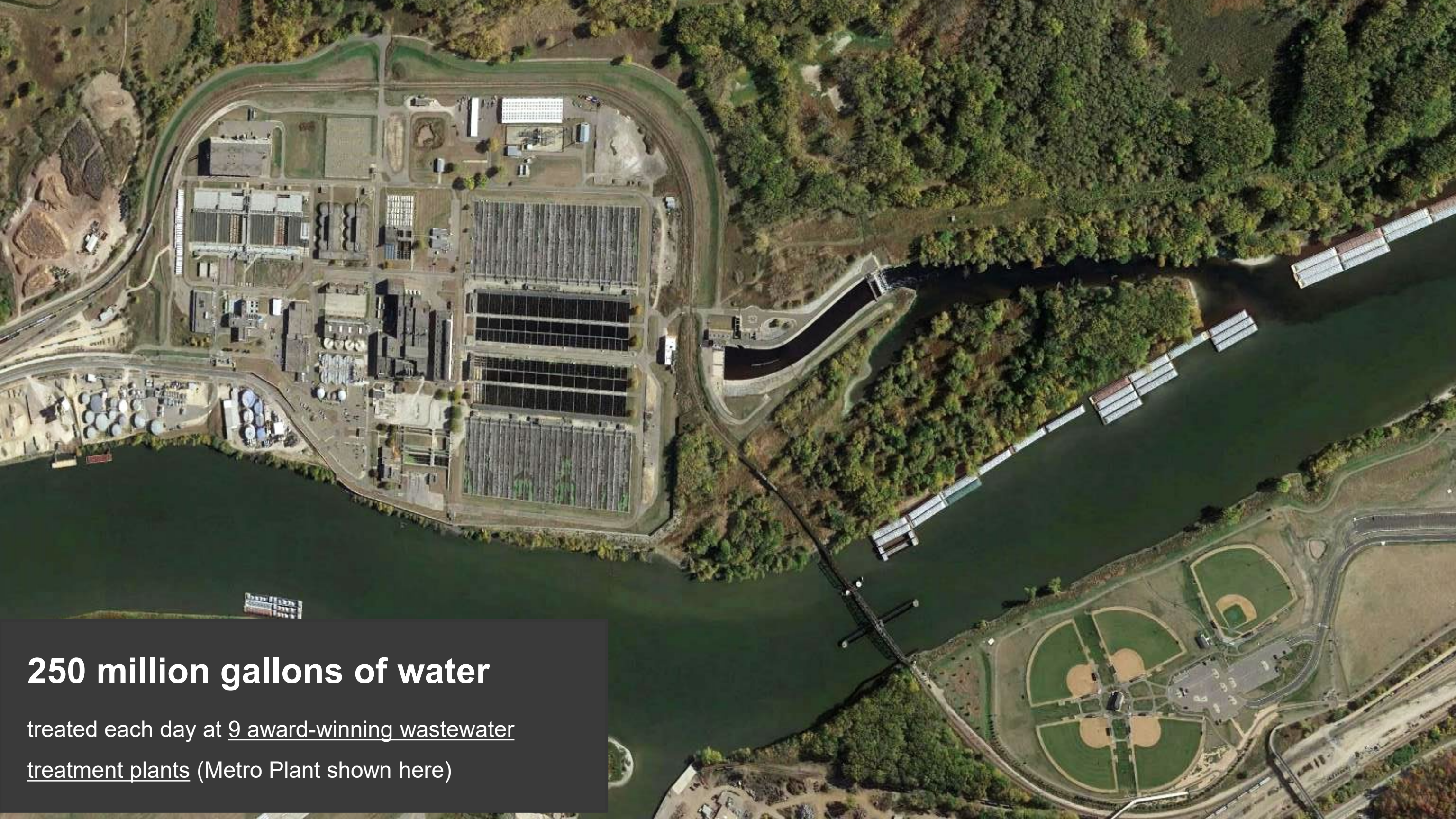
Routine monitoring

verifies that the water coming out of our taps is safe to drink. Results at: <https://data.web.health.state.mn.us/drinkingwater>.



Metro water uses

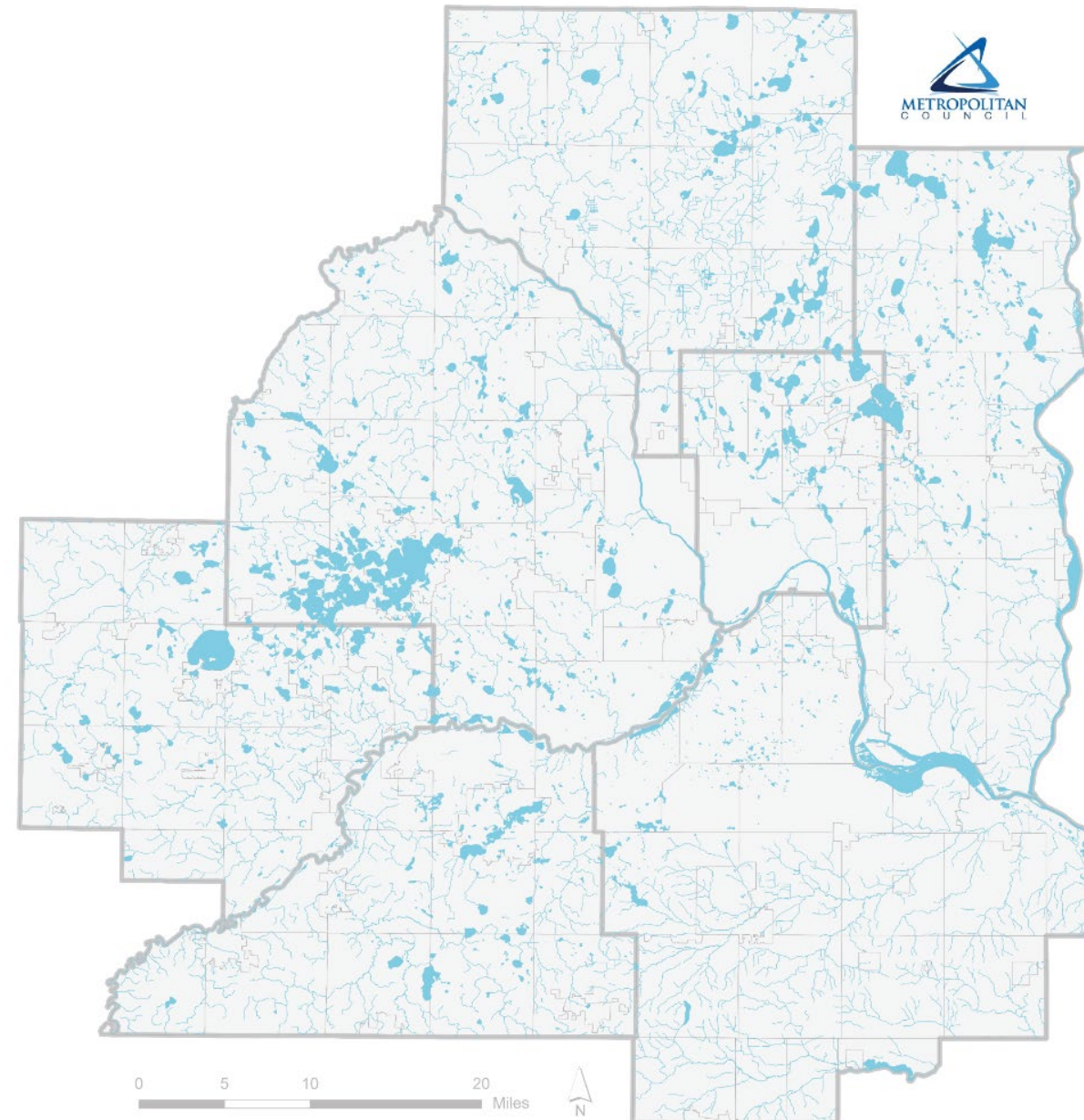




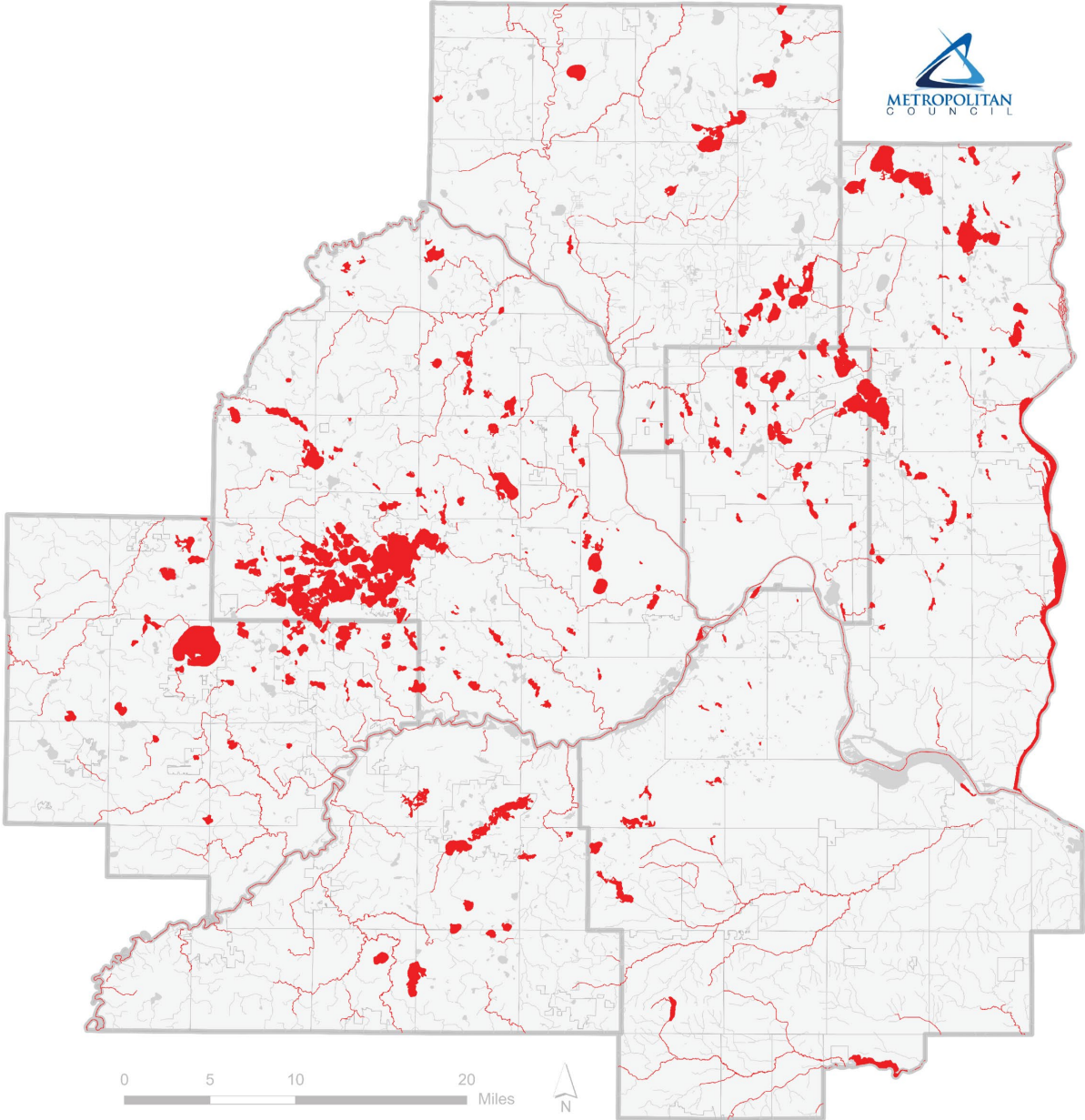
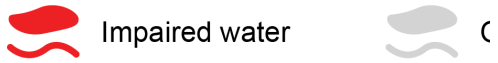
250 million gallons of water

treated each day at 9 award-winning wastewater treatment plants (Metro Plant shown here)

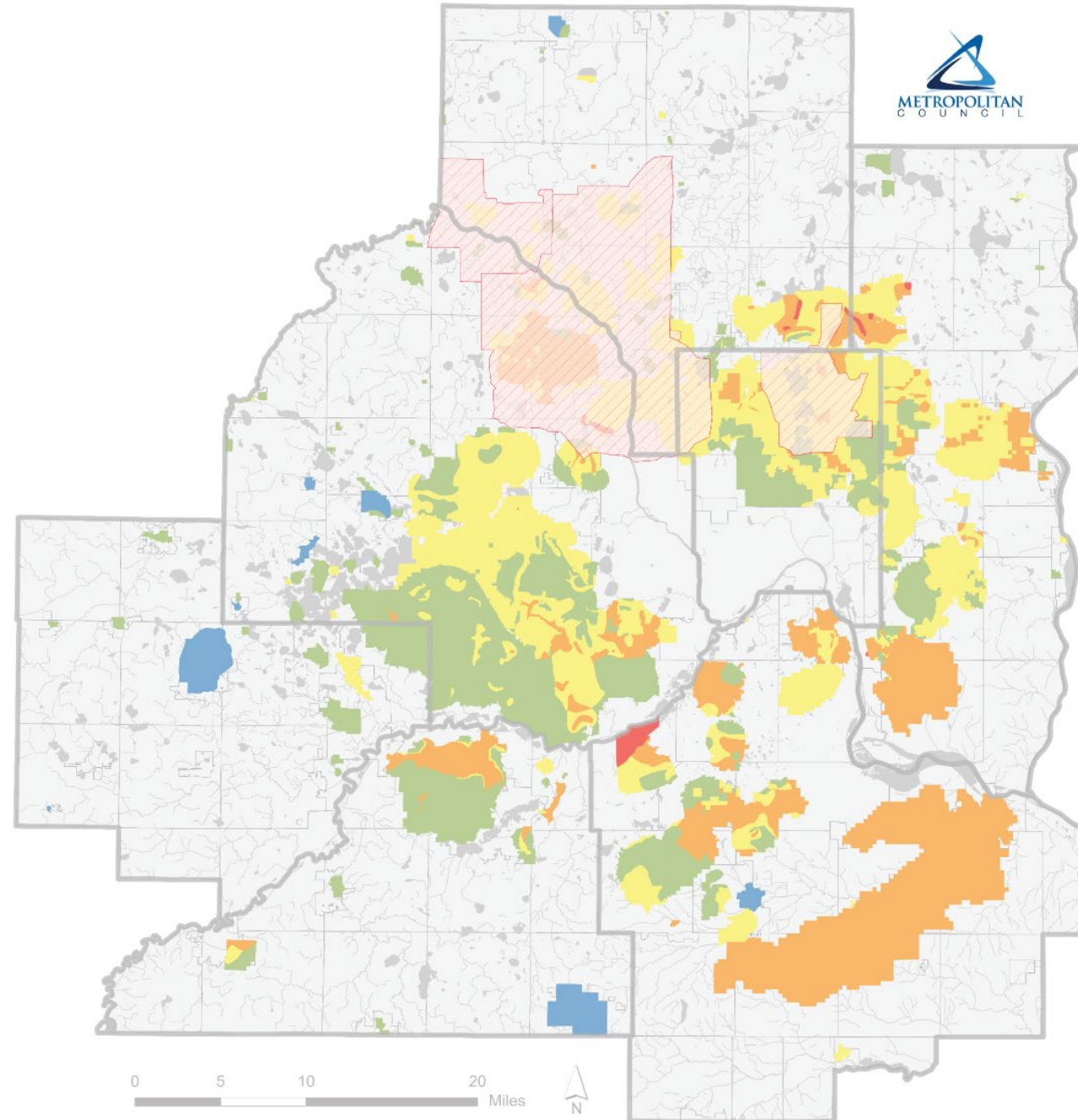
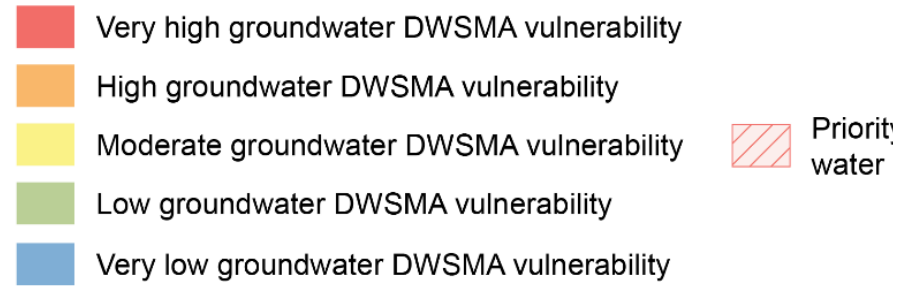
We do have water challenges...



Impaired Regional Waters

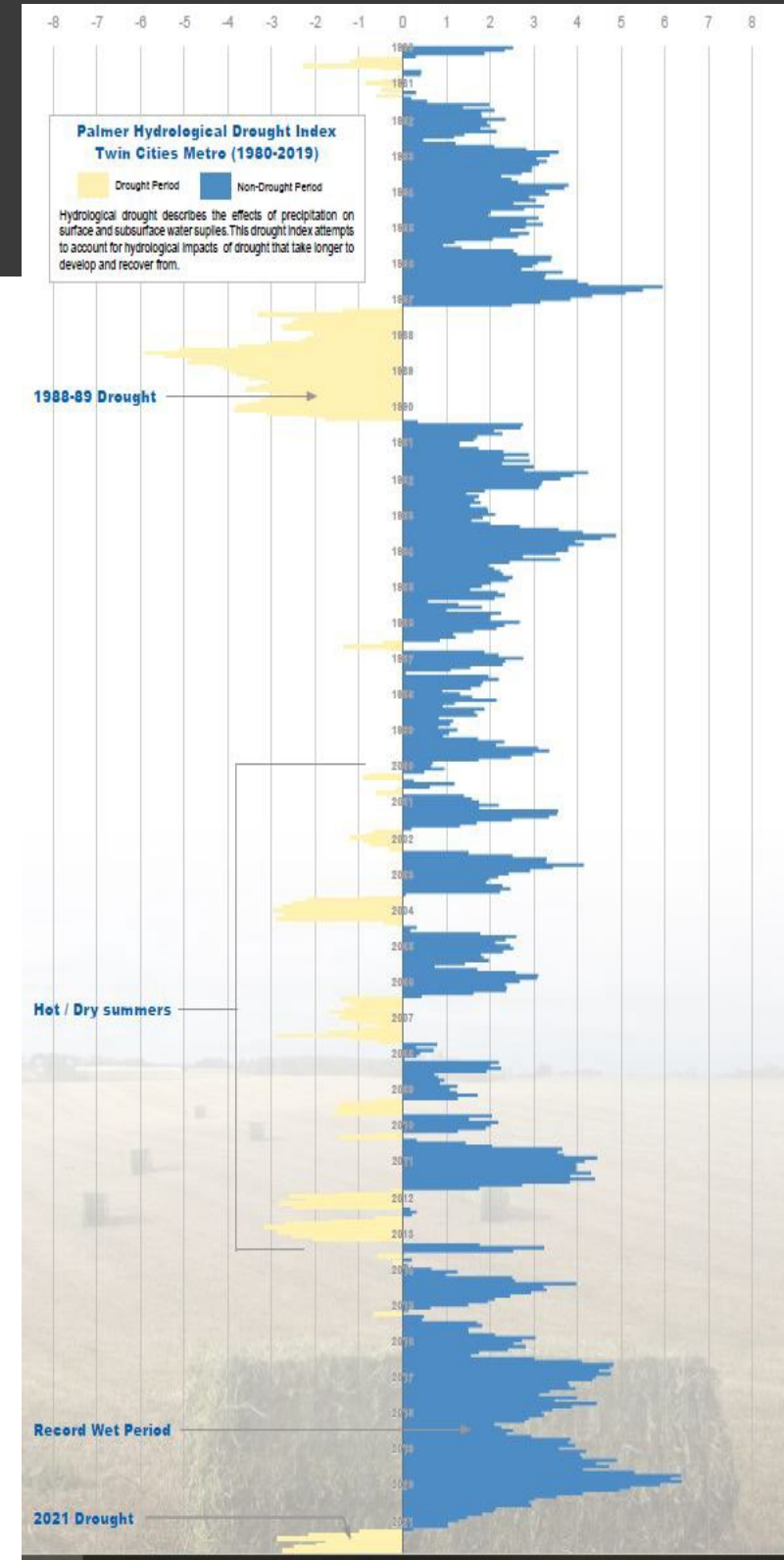
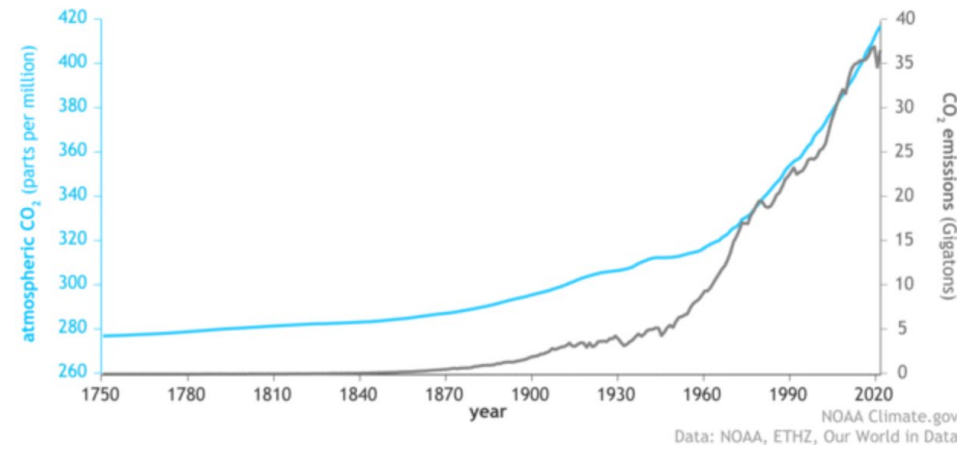


Drinking Water Supply Management Areas

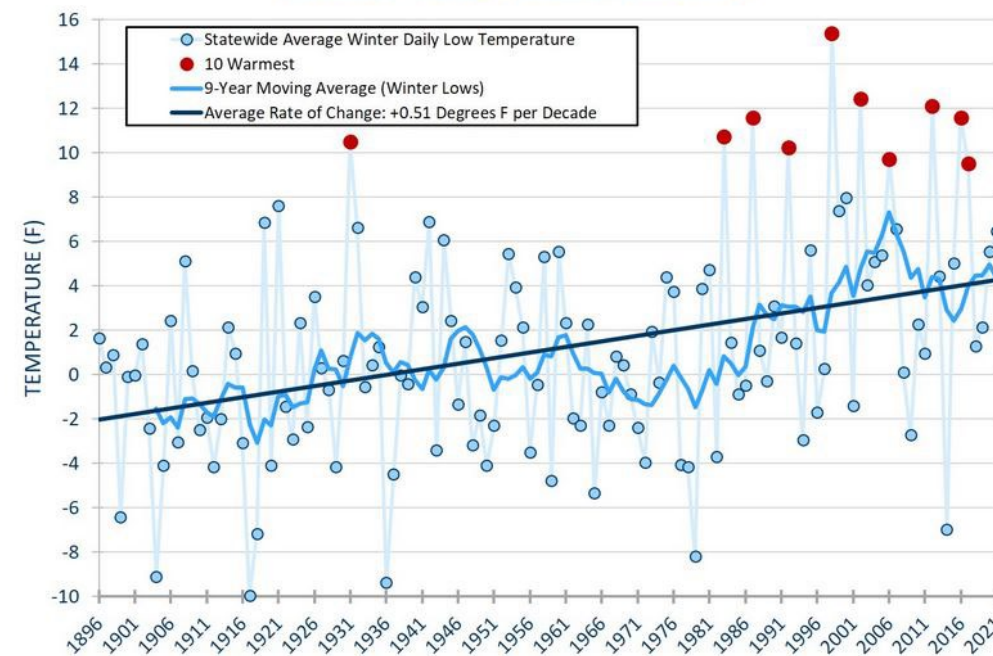


Climate challenges

Atmospheric carbon dioxide amounts and annual emissions (1750-2021)

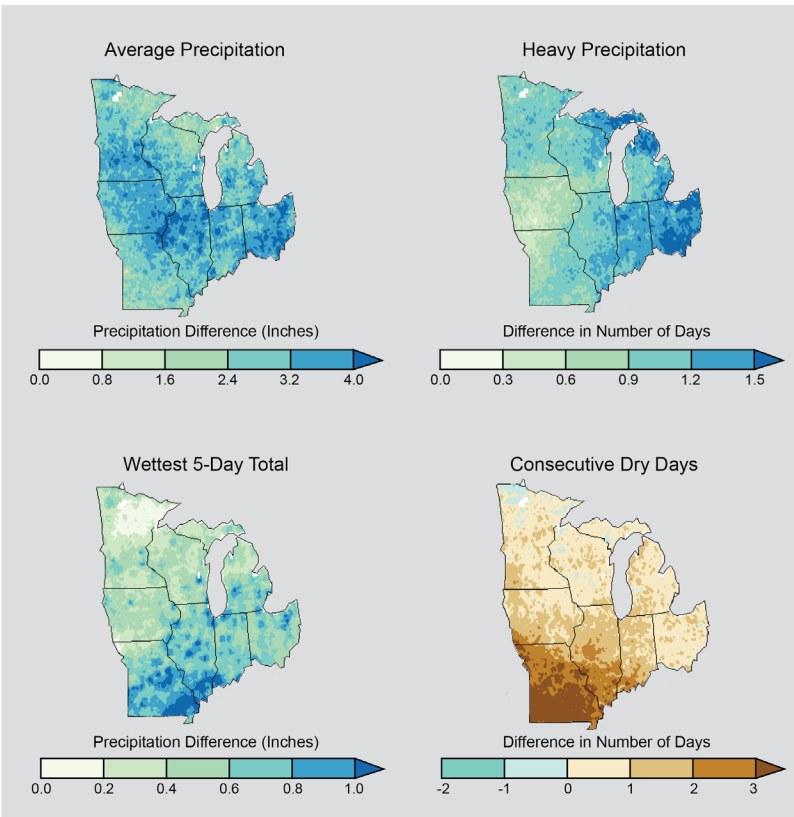


Minnesota Average Winter Daily Minimum Temperatures (December through February, 1896-2021)

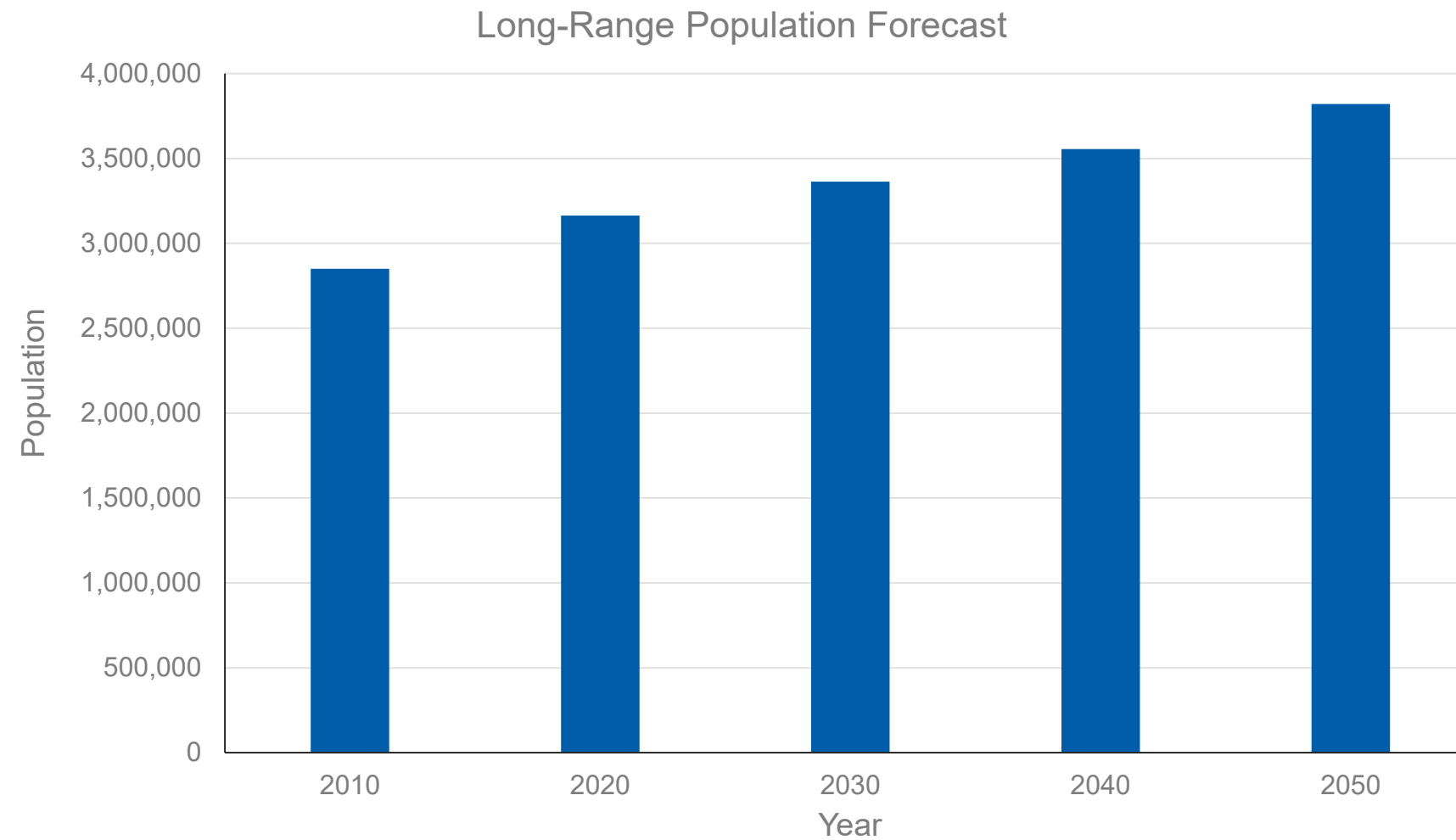


mi DEPARTMENT OF NATURAL RESOURCES
State Climatology Office

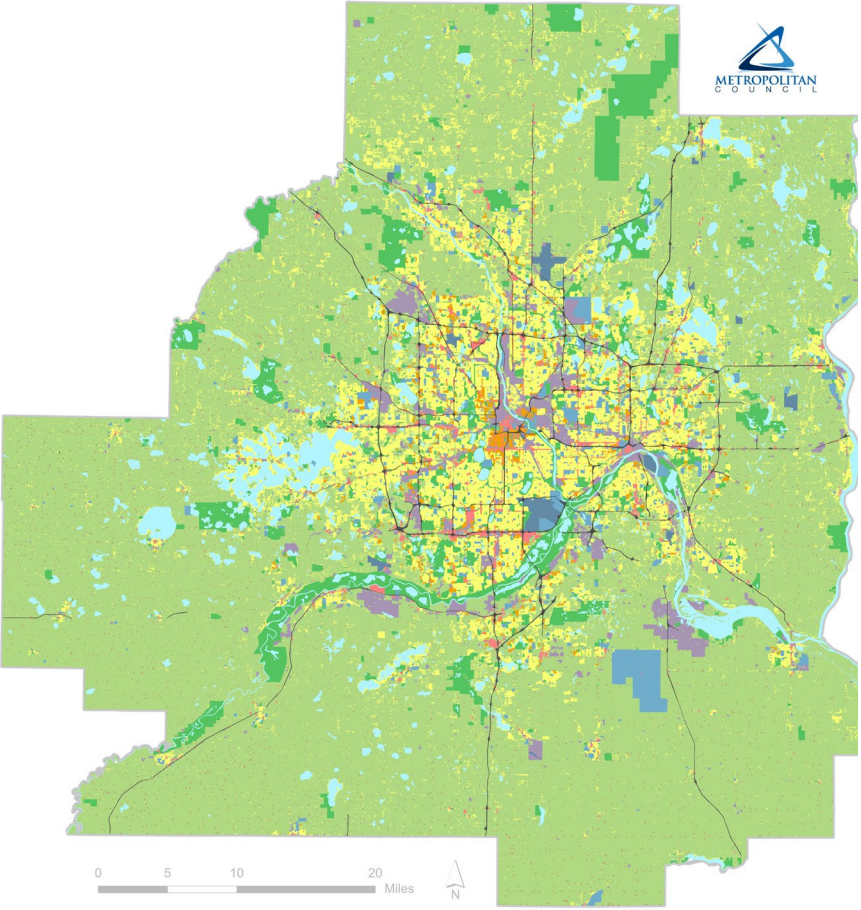
All data from NOAA and accessed as state-averaged values via Minnesota Climate Explorer (<https://arcgis.dnr.state.mn.us/ewr/climateexplorer/main/historical>)



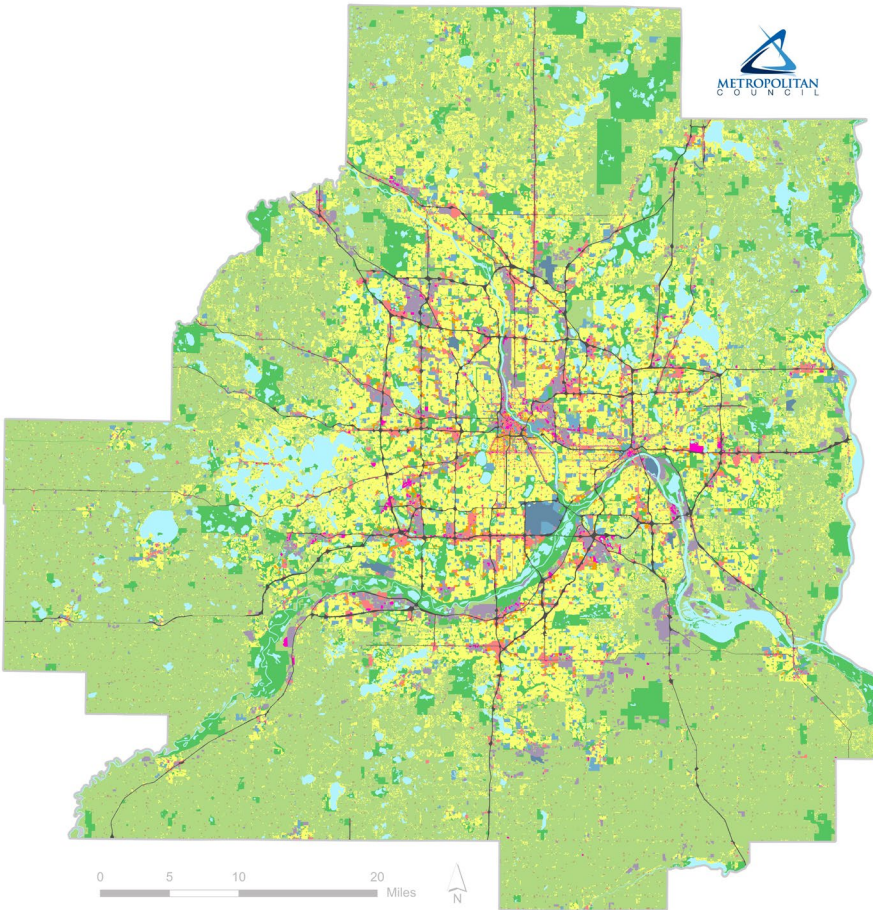
A growing population



Land use change



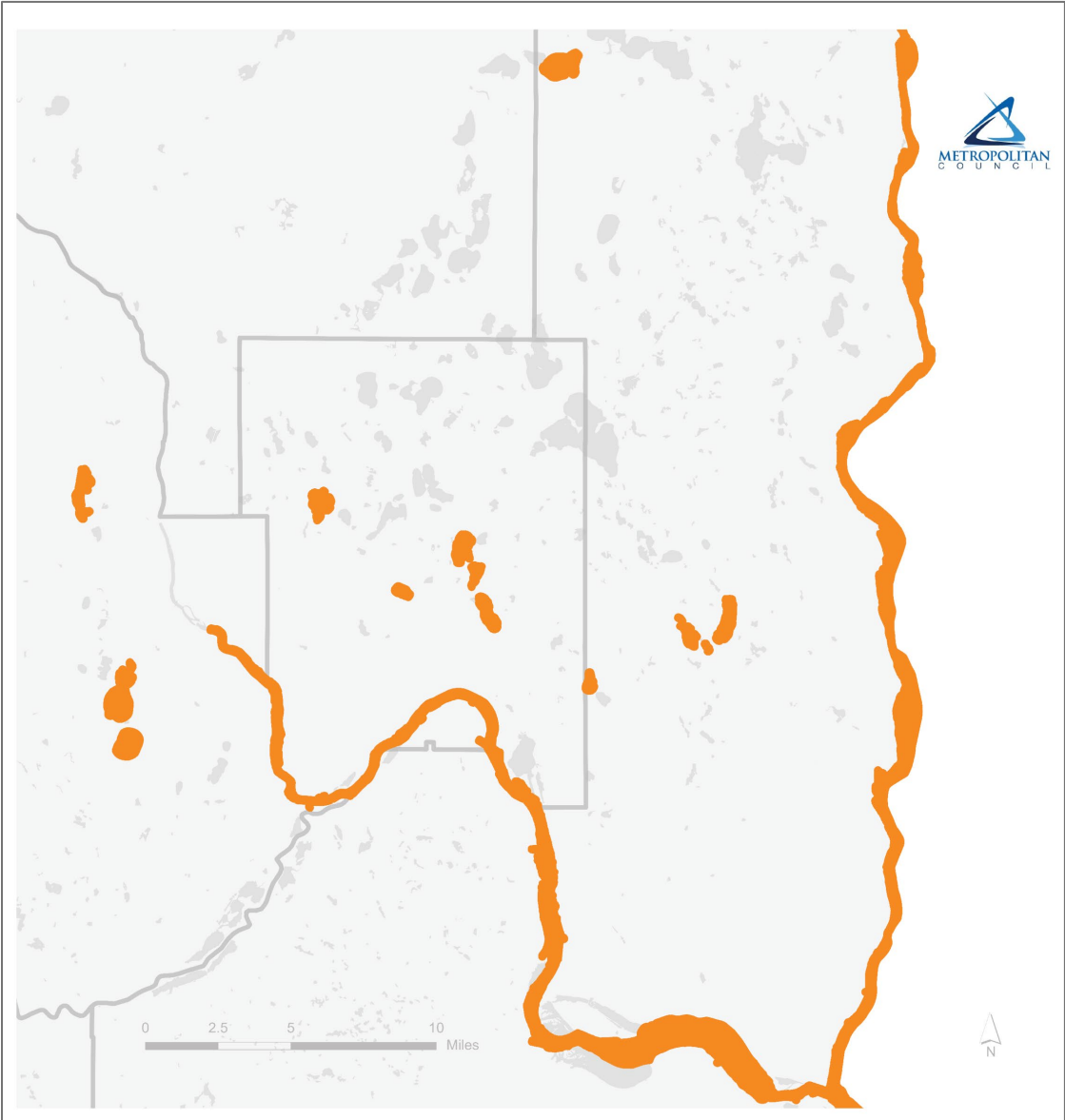
1984 Land Use



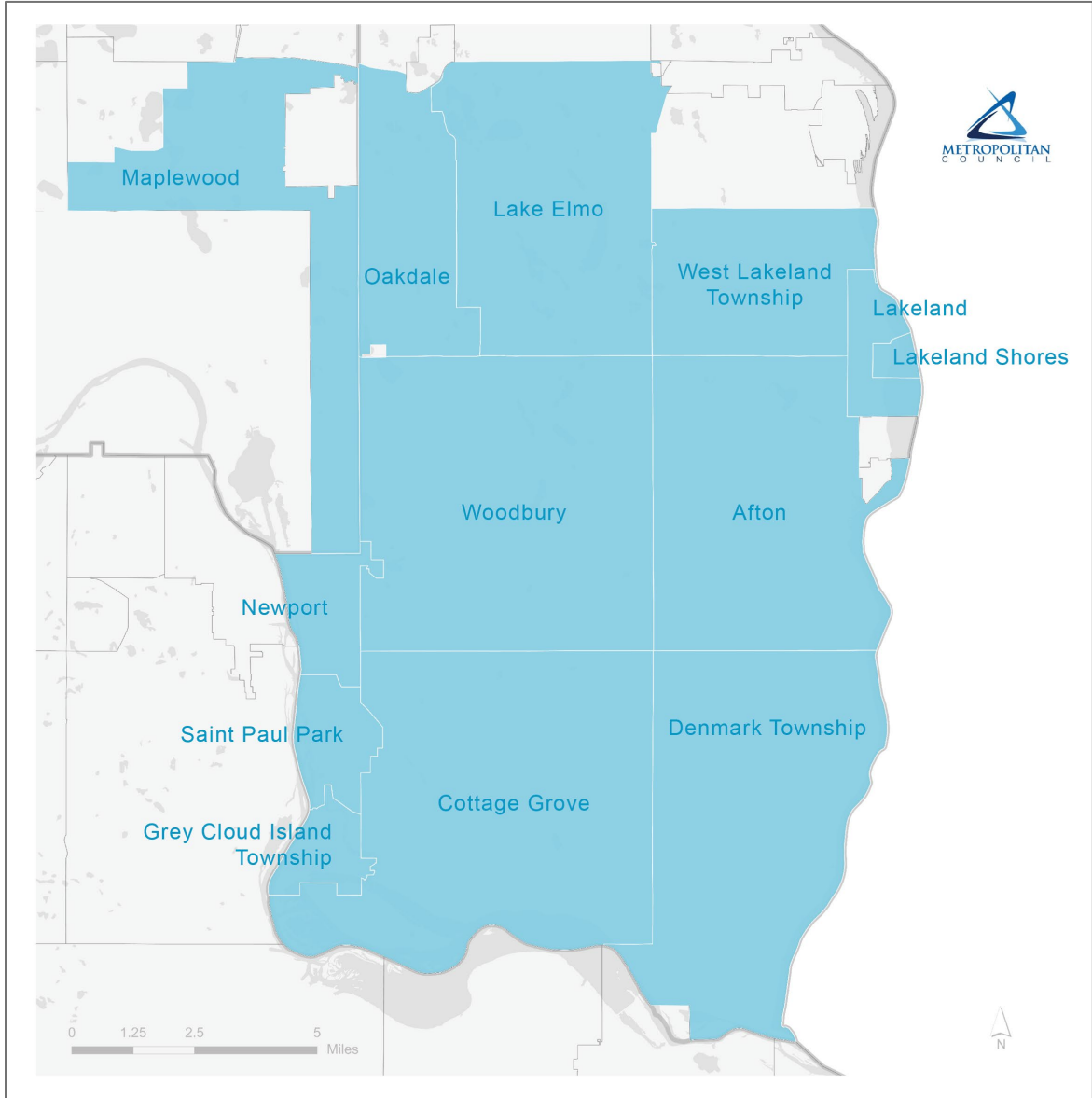
2020 Land Use


color on map	1984 category label	2020 category label
	Farmstead	Farmstead
	Single family residential	Seasonal/vacation Single family detached Manufactured housing park Single family attached
	Multi-family residential	Multi-family
	Commercial	Retail and other commercial Office
		Mixed use residential Mixed use industrial Mixed use commercial and other
	Industrial Industrial parks not developed	Industrial and utility Extractive
	Public/semi-public Public/semi-public not developed	Institutional
	Parks & recreation	Park, recreational, or preserve Golf course
	Major four lane highways	Major highway
		Railway
	Airports	Airport
	Vacant/agricultural	Agricultural Undeveloped
	Open water bodies	Water

Growing contamination risks



 PFOS impaired water (2022)



 East Metro Area community impacted by PFAS contaminated drinking waters

And system shocks

White Bear Lake level down a foot

By Debra Neutkens/Staff Writer May 3, 2023 Updated May 3, 2023 0



DNR rules Elko New Market bottled water plant doesn't need environmental review

Kirsti Marohn March 1, 2023 12:06 PM

WEATHER >

This June was 2nd driest on record in Twin Cities, NWS confirms

BY WCCO STAFF, JEFF WAGNER
JUNE 30, 2023 / 8:46 AM / CBS MINNESOTA

WCCO NEWS

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LOCAL NEWS

Water issues plague a booming Lake Elmo

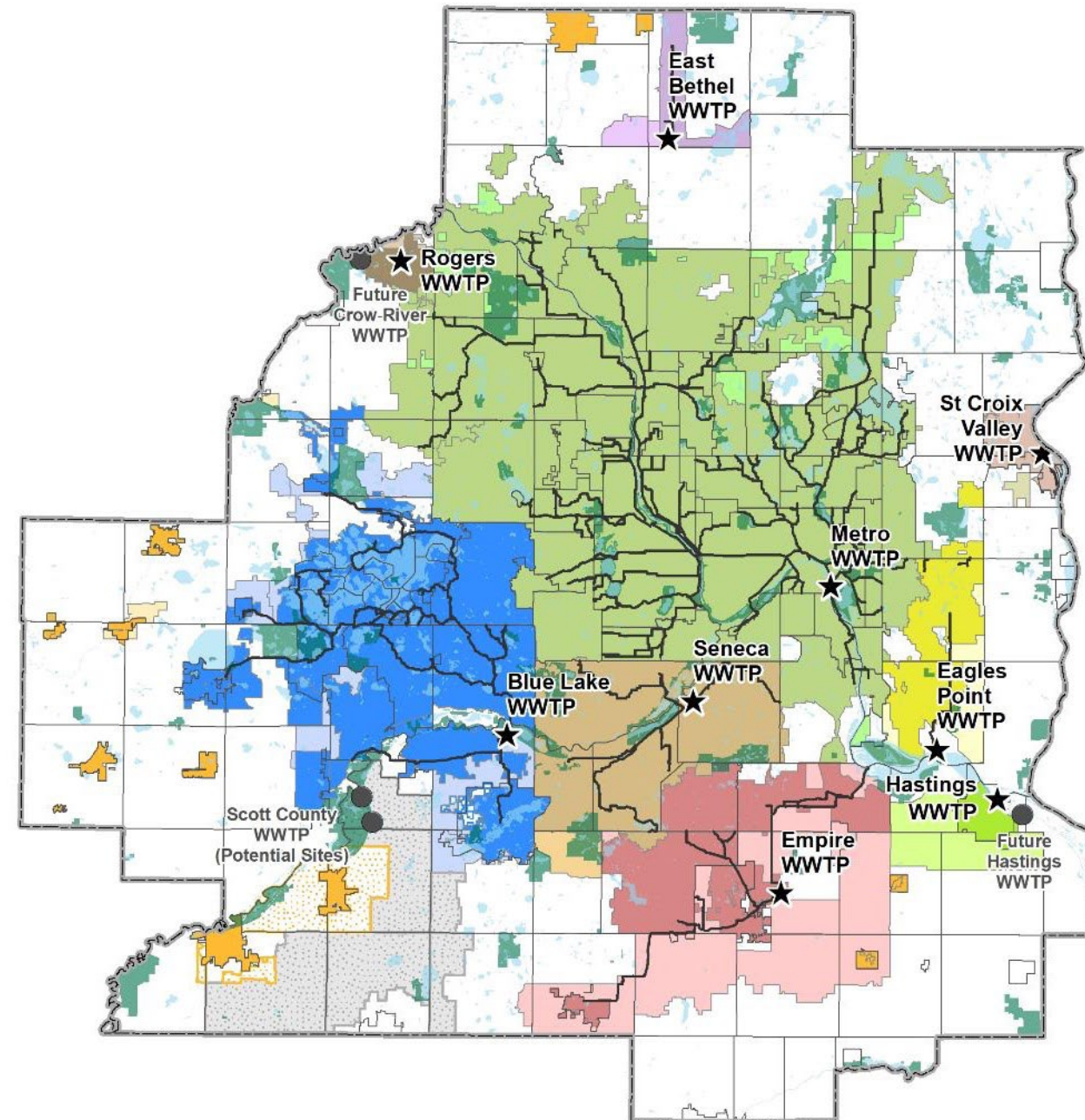
Environmental Services wastewater system

Who

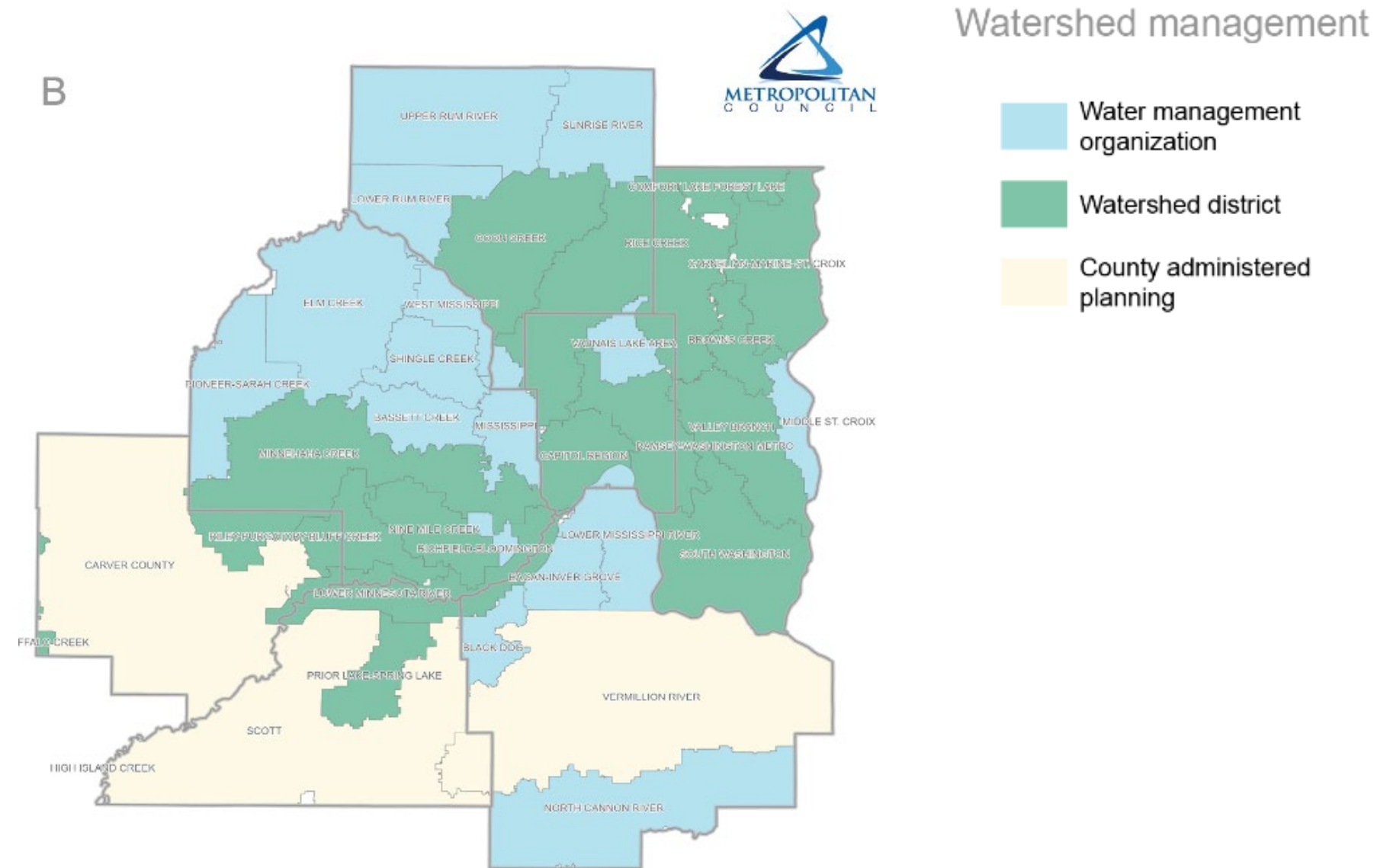
- 111 communities
- 2,800,000+ people

Our facilities

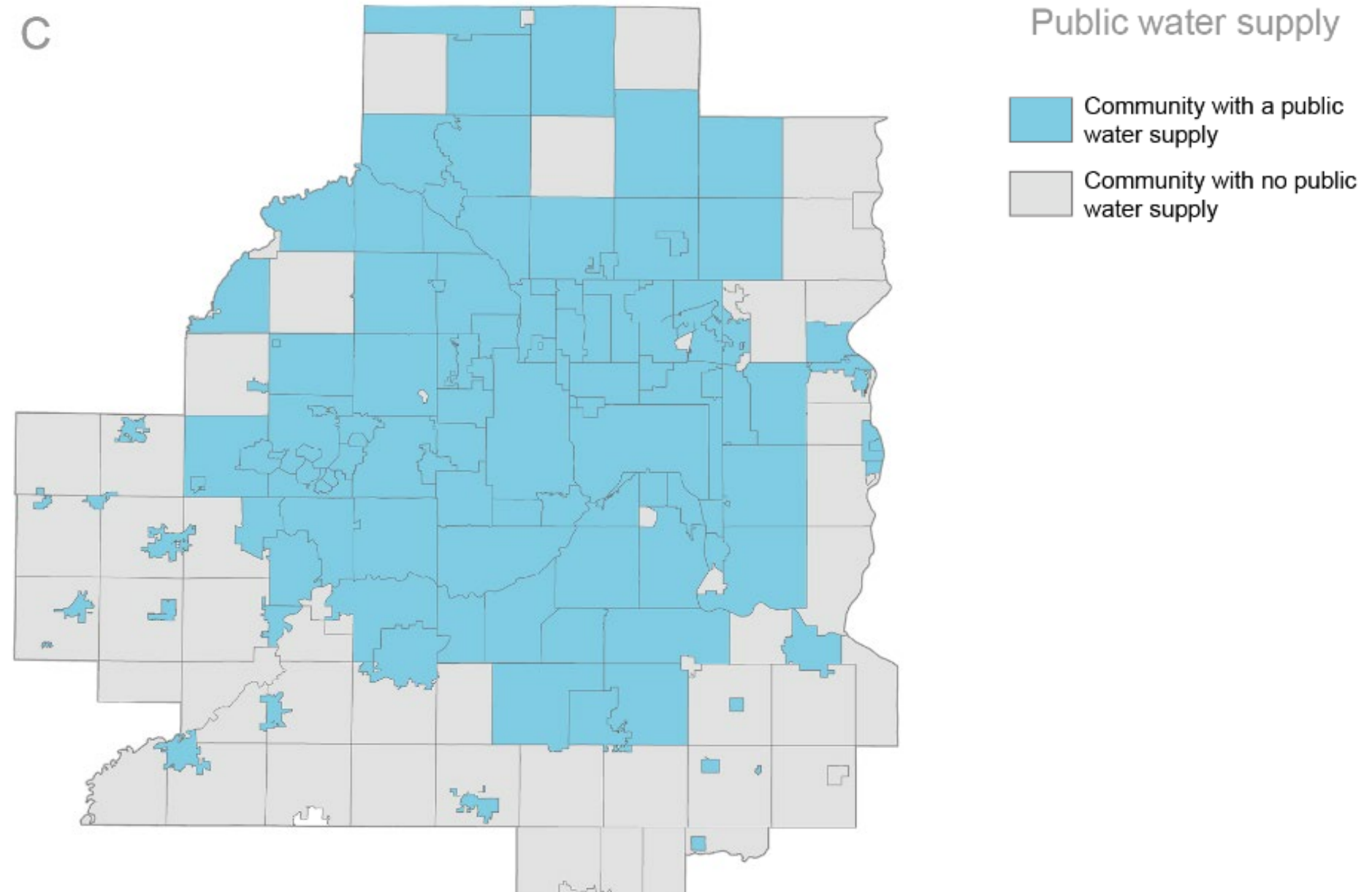
- 9 wastewater treatment plants
- 250 million gallons per day (avg)
- **Our organization**
- 600+ employees
- \$7 billion in valued assets
- \$150 million/year capital program



We are not alone – Watershed Partners

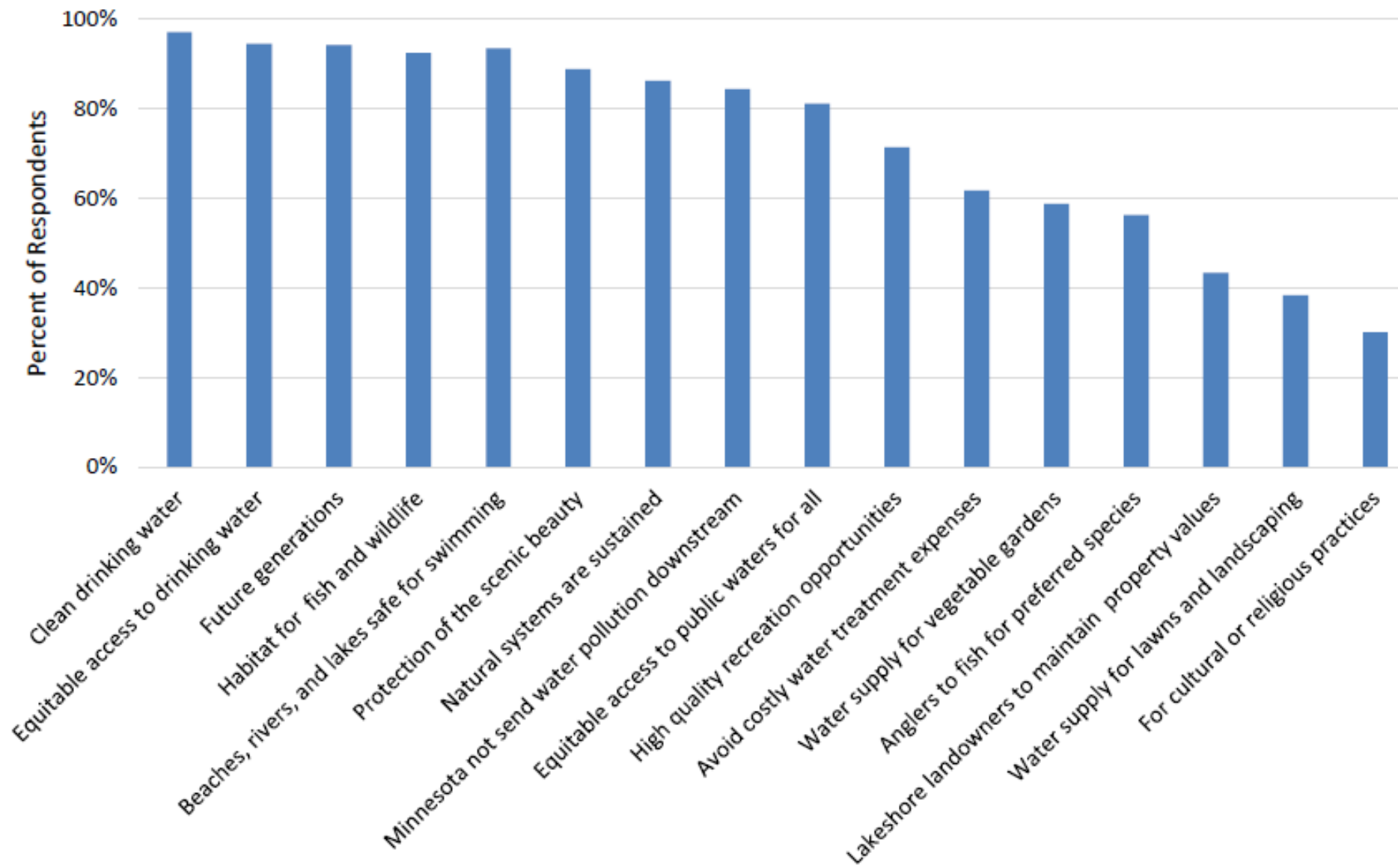


We are not alone – Local Water Suppliers



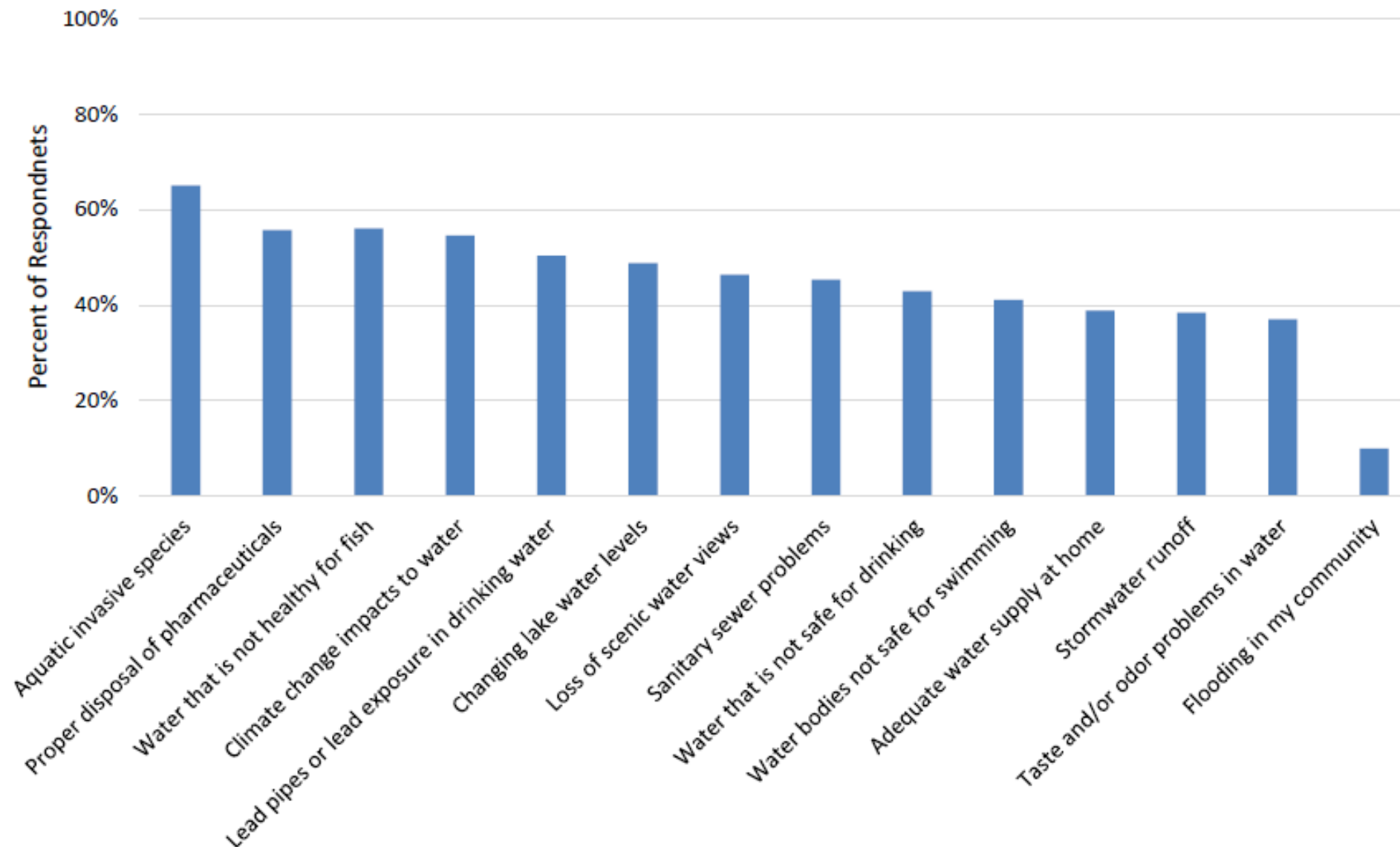
Regional Water Values

Proportion of respondents rating water values or uses as very or extremely important



Regional Water Values:

Percentage of respondents rating local water issues as very or extremely concerning



WRPP Research Topics:



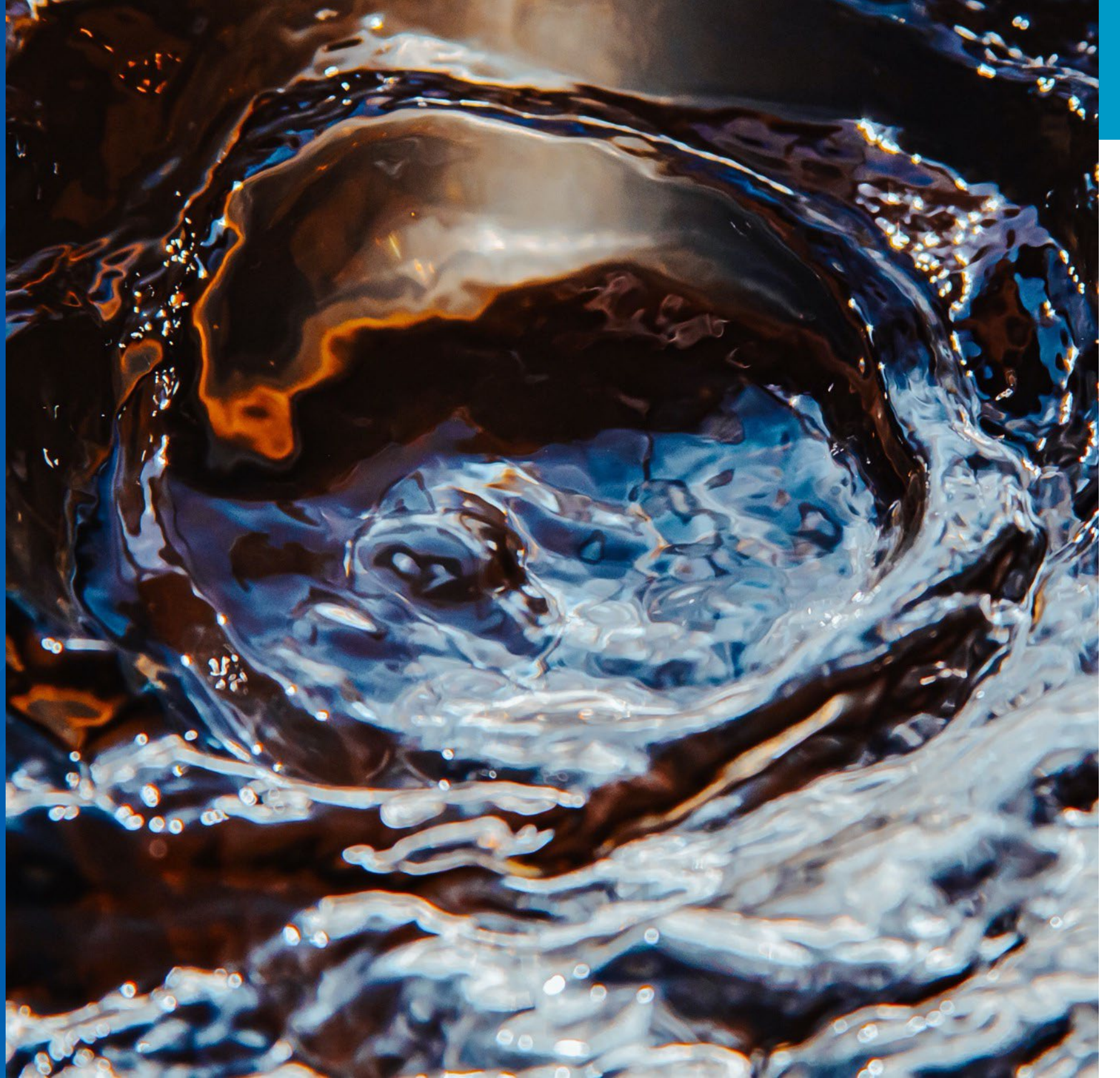
1. Protecting Source Water Areas
2. Rural Water Concerns
3. Wastewater Concerns
4. Water and Climate
5. Water Availability, Access, and Use
6. Water Quality
7. Water Reuse

Regional water context discussion questions



- Have you heard any of your constituents discuss the water challenges that we shared today?
- Are there issues you have heard of or know of that we did not present so far today that we should be aware of?
- Other questions related to our highlighted issues?

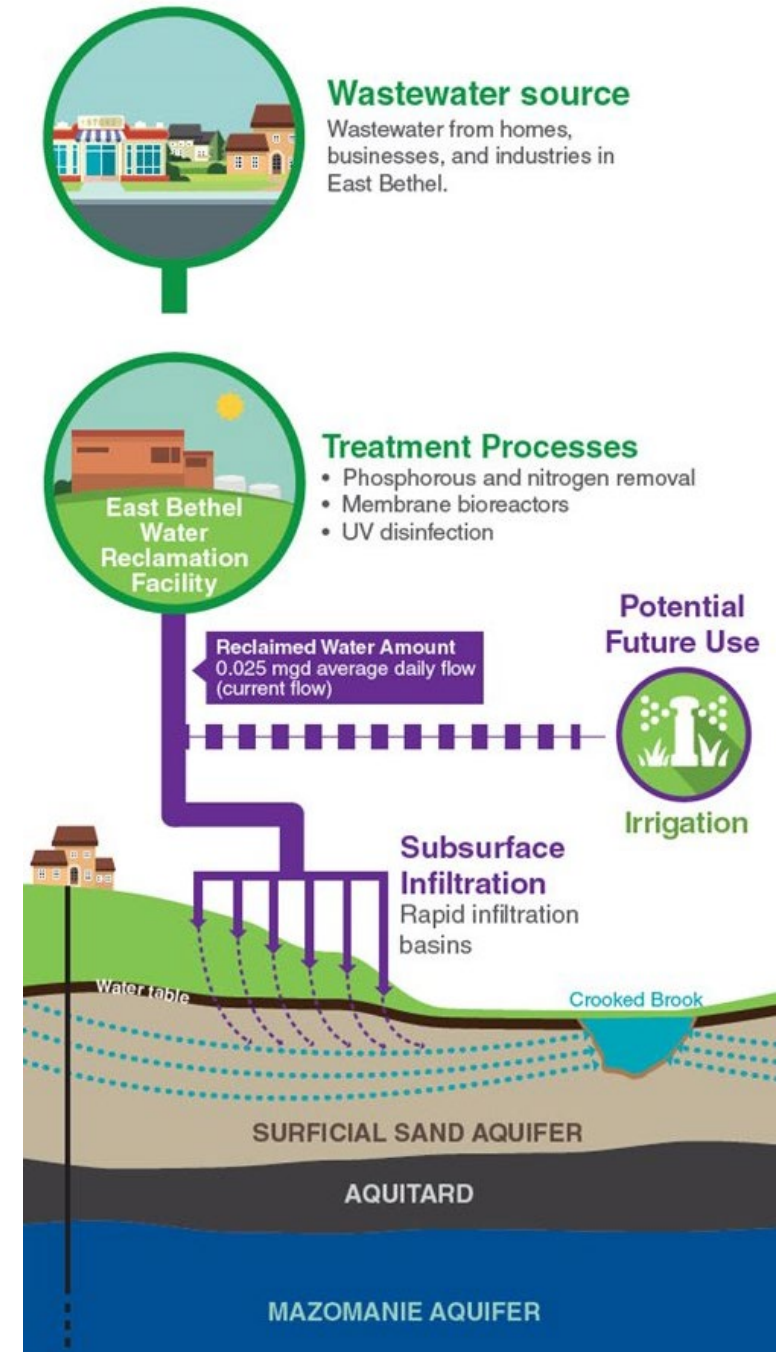
Water Reuse



What is water reuse?

Types of water reuse

- Graywater
- Industrial Process Water
- Rainwater
- Stormwater
- Wastewater



Water reuse issue statement

Sustainable water resources are a necessary component of a growing, prosperous region, and water reuse is one strategy to ensure sustainability.

Contamination, potable water demand, regulatory usage limits, and changes in climate may compromise the availability and quality of regional water resources.

Currently, we lack a clear process to implement non-potable stormwater reuse in Minnesota that is adequately protective of our public health and includes flexible regulatory guidance.

This process needs to be developed by regional stakeholders, the Met Council, and state agencies, to accelerate and expand water reuse in the region.

Strong regional water policies and associated actions are necessary to promote water reuse and set the stage for a future with sustainable water resources.

What is our water reuse role?

Local Planning

We, at the Met Council, have been interested in exploring ways to replenish our water resources through the nonpotable reuse of treated wastewater and stormwater.

We encourage our cities and townships to consider reuse as a potential option.

Wastewater Operations

In 2018, an advisory team researched wastewater reuse at our facilities.

A process is now in place to implement wastewater reuse once the appropriate conditions are met.

Externally, we are open to working with organizations if the opportunity arises.

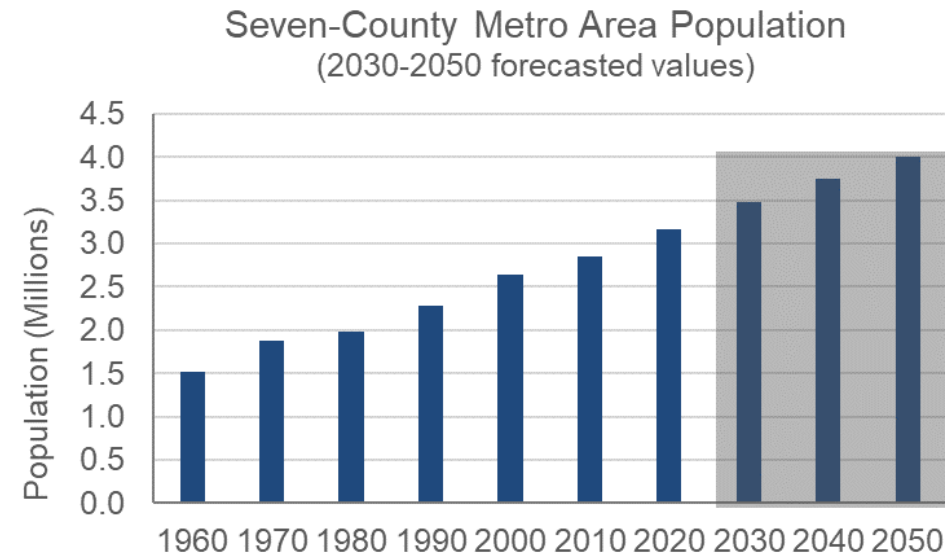
Grant Programs

In the past we have provided grant programs to help offset the cost of implementing stormwater reuse projects in the region.

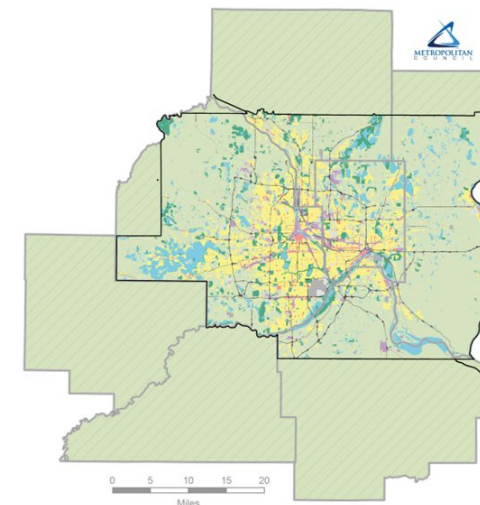
We are open to input on those grants and additional efforts to help offset these costs and support reuse in the future.

Water reuse primary drivers

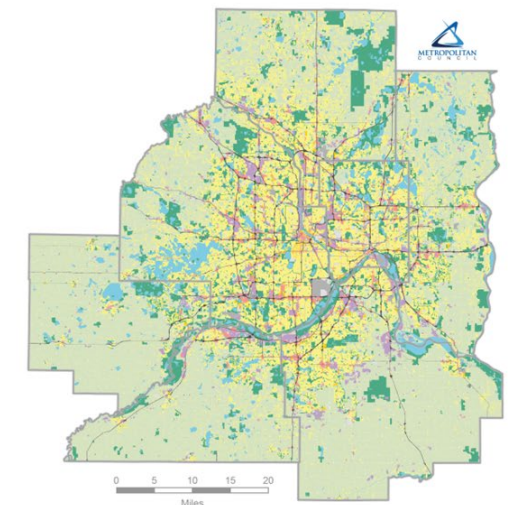
- Population Growth
- Urbanization
- Climate Change
- Increased irrigation
- Increased industry



Metro Area Land Use 1968



Metro Area Land Use 2020



Stormwater reuse crucial concerns



Advantages

- Decrease potable water demand
- Stormwater management
- Reduce stress on existing water infrastructure and expansion
- Saves energy and improves water quality

Barriers

- Lack of clear regulation or guidance
- High cost - potable water is inexpensive by comparison
- Lack of water quality and performance standards for decentralized water systems
- Water appropriation permitting and reporting processes are discouraging
- Operation and maintenance

Wastewater reuse crucial concerns



Advantages

- More advanced regulatory pathway
- Reduces our water demand
- Reduce stress on existing water infrastructure and expansion

Barriers

- High cost for end users - potable water is inexpensive by comparison
- Lack of water quality and performance standards for decentralized water systems creates a barrier for reusing wastewater.
- Water quality needs to match end use
- Spatial constraints

Current policy

Water Conservation and reuse policy

The Met Council will work with our partners to identify emerging issues and challenges for the region as we work together on solutions that include the use of water conservation, wastewater and stormwater reuse, and low-impact development practices in order to promote a more sustainable region.

Implementation Strategies:

- Identify and pursue options to reuse treated wastewater to supplement groundwater and surface water as sources of water to support regional growth, when economically feasible.
- Investigate reusing treated wastewater, and when cost-effective, implement reuse.
- The institutional arrangements and cost of service approach for wastewater reuse are important to the development of wastewater reuse in the region. In implementing wastewater reuse opportunities, the Met Council will use the following approaches:
 - The Met Council shall use a cost-of-service, case-by-case approach to wastewater reuse in cooperation and partnership with local communities.
 - Evaluation of regional benefit to a potential wastewater reuse
 - The Met Council shall hold a public hearing to obtain customer and public input prior to making a final determination
 - The Met Council shall enter into a joint powers agreement with the community in which the reclaimed water user is located
 - The Met Council shall enter into a long-term reclaimed water service agreement with each user
 - The Met Council shall pursue sources of non-Met Council funding to complement Met Council funding of wastewater reuse projects
 - The Met Council shall report about the wastewater reuse pilot program at Met Council's annual budget outreach meetings

Recommendations

Stormwater reuse

The Metropolitan Council will work with our state agency partners and impacted stakeholders to advance stormwater reuse to promote a more sustainable region.

- Metropolitan Council staff will share information and resources to help develop guidance for implementing stormwater reuse.
- Metropolitan Council staff, in collaboration with partners, will help to inform the direction on whether further guidance and/or regulation is needed for the various stormwater and rainwater reuse practices being installed in the metro region. This action will include working with partners and agencies to better understand the risks associated with all types of reuse before decisions are made about guidance or regulation.
- Metropolitan Council staff will work with agency partners to better define agency roles and responsibilities for reuse in Minnesota.

Recommendations:

Stormwater reuse

The Metropolitan Council will support stormwater reuse in Minnesota, where feasible, as a means of achieving water sustainability in the region.

- The Metropolitan Council will work in partnership with state and local governments to include internal and public outreach/acceptance campaigns to promote stormwater reuse as a viable water source.
- The Metropolitan Council will seek funding for grant programs to support the reuse of stormwater in the metro region, as appropriate.
- The Metropolitan Council will work with partners to remove obstacles, as appropriate, so reuse can become more commonly used to reach sustainable water resources in the region.
- The Metropolitan Council will implement stormwater reuse at our facilities (including for purposes of demonstration) in accordance with Minnesota Department of Health guidance as it is developed, NPDES permit requirements, and as is economically feasible.

Recommendation

Wastewater reuse

The Metropolitan Council will support the reuse of treated wastewater where feasible and appropriate.

- The Metropolitan Council will work in partnership with state and local governments to include internal and public outreach/acceptance campaigns to promote wastewater reuse as a viable water source.
- The Metropolitan Council will continue to work with partners to identify external opportunities to reuse treated wastewater and assist in the evaluation of this opportunity as one regional alternative to conserve potable water sources.
- The Metropolitan Council will identify criteria for viable wastewater reuse projects including, but not limited to, effluent contaminant concentrations to reduce the likelihood of expensive treatment.
- The Metropolitan Council will clearly identify on our website a contact to work with us on a wastewater reuse project.
- The Metropolitan Council will provide additional treatment to meet MPCA reuse requirements for internal use to advance our practice.

Water reuse discussion questions



- Have any of your district cities or townships discussed water reuse with you?
- The team identified a lack of guidance as an obstacle for stormwater reuse, does this align with your experience?
- Wastewater reuse and stormwater reuse are not currently economical when compared to potable water use, even as we are starting to see hyper-localized situations that might change this.

What can/should the Council do to help overcome these constraints?

Thank you

Jen Kostrzewski

Assistant Manager,
Water Resources Planning and Policy
Jennifer.Kostrzewski@metc.state.mn.us
651-602-1078

Judy Sventek

Water Resources Manager
Judy.Sventek@metc.state.mn.us
651-602-1156

