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Workshop Series for
Comprehensive Plan Updates

Water Management Tools: Going Beyond the Comprehensive Plan

September 12, 2017

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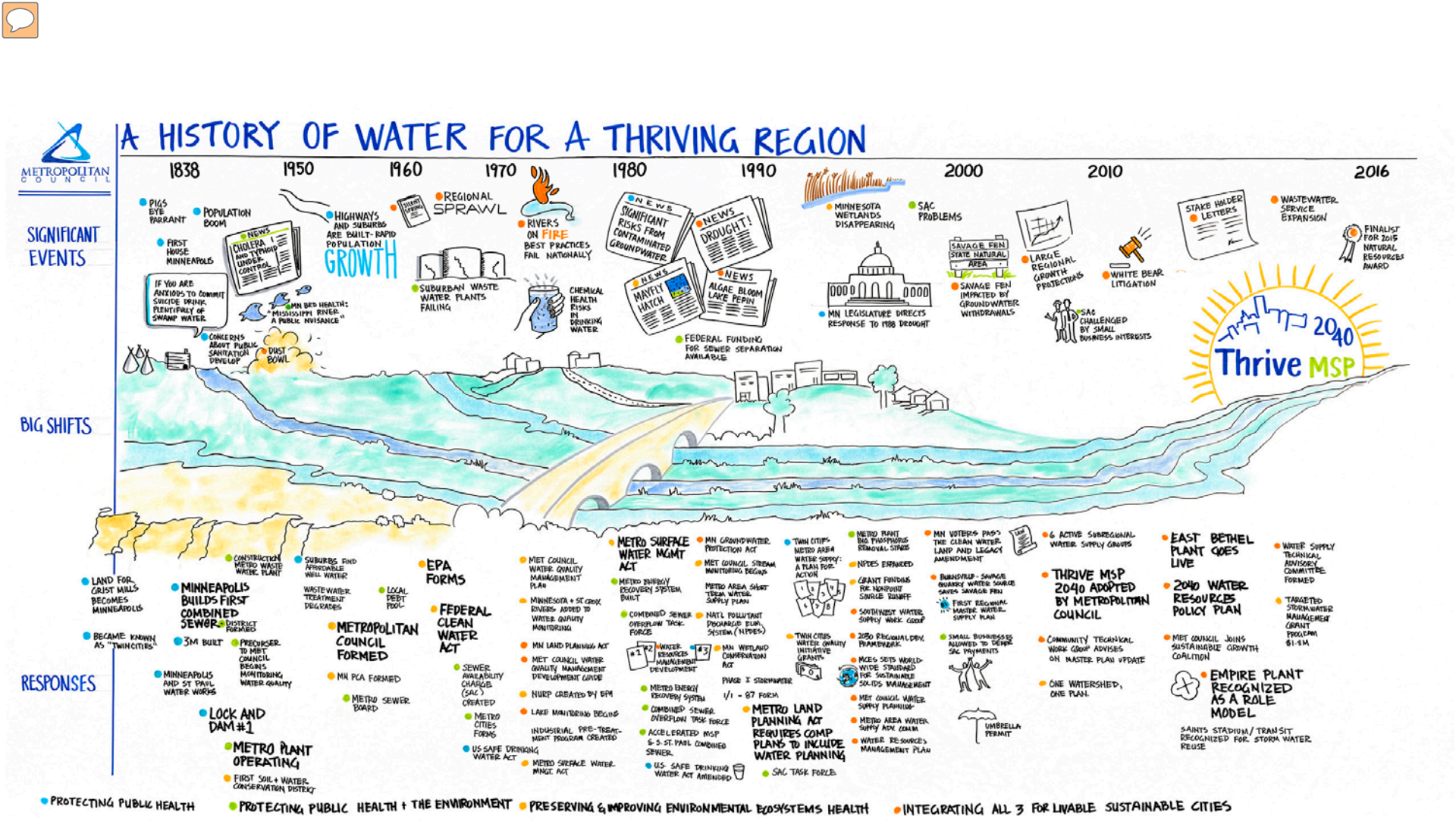

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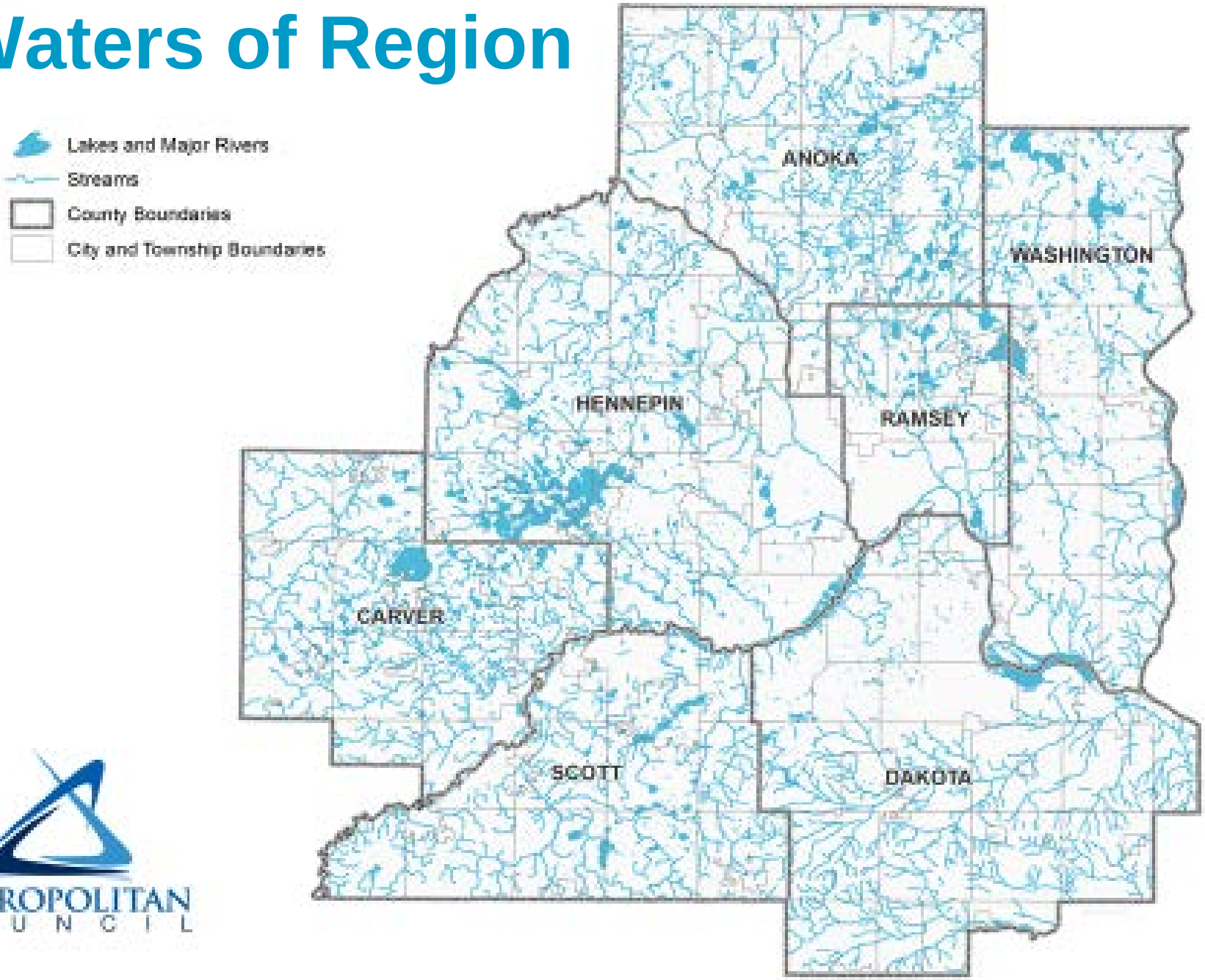
Waters of Region



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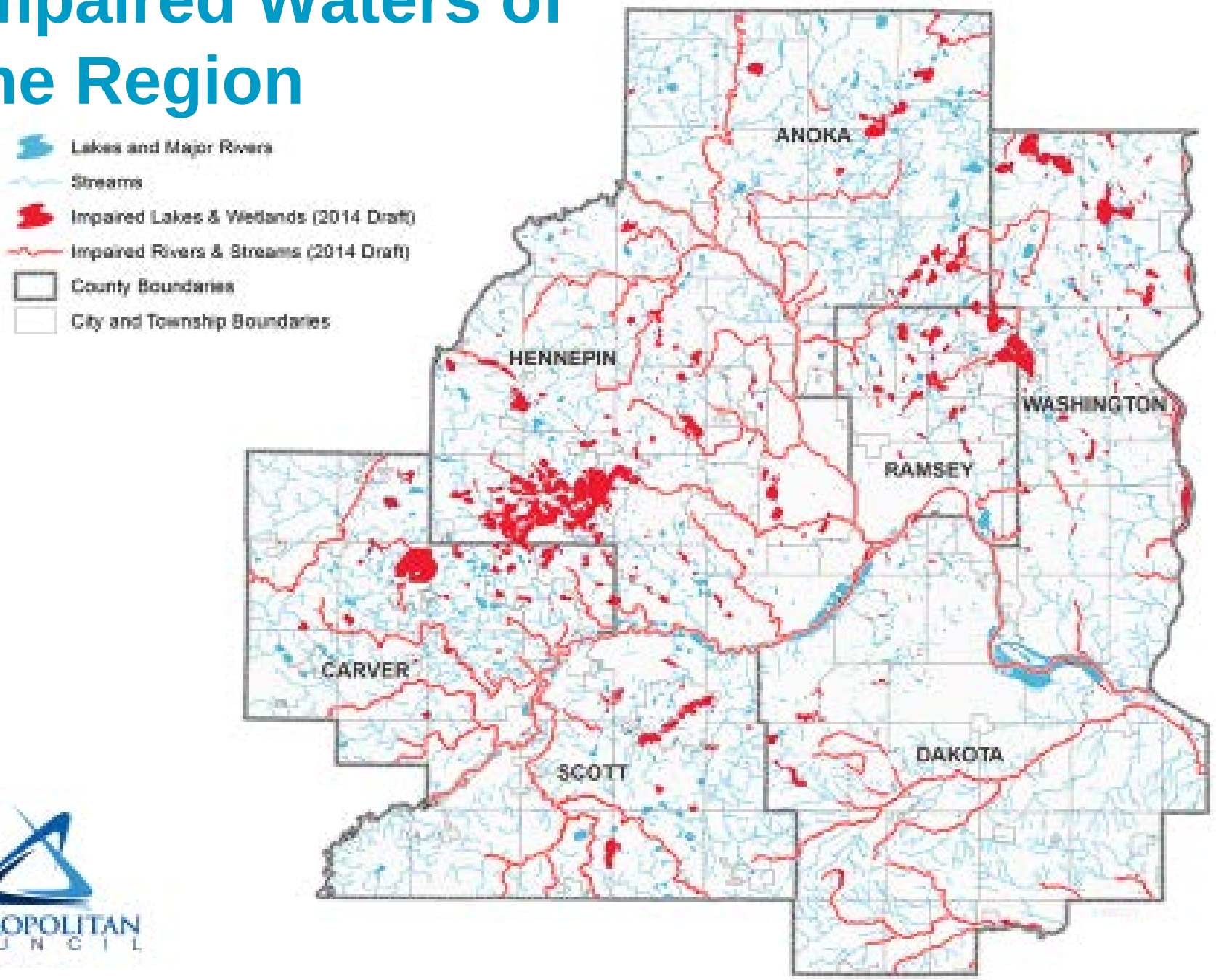
Impaired Waters of the Region



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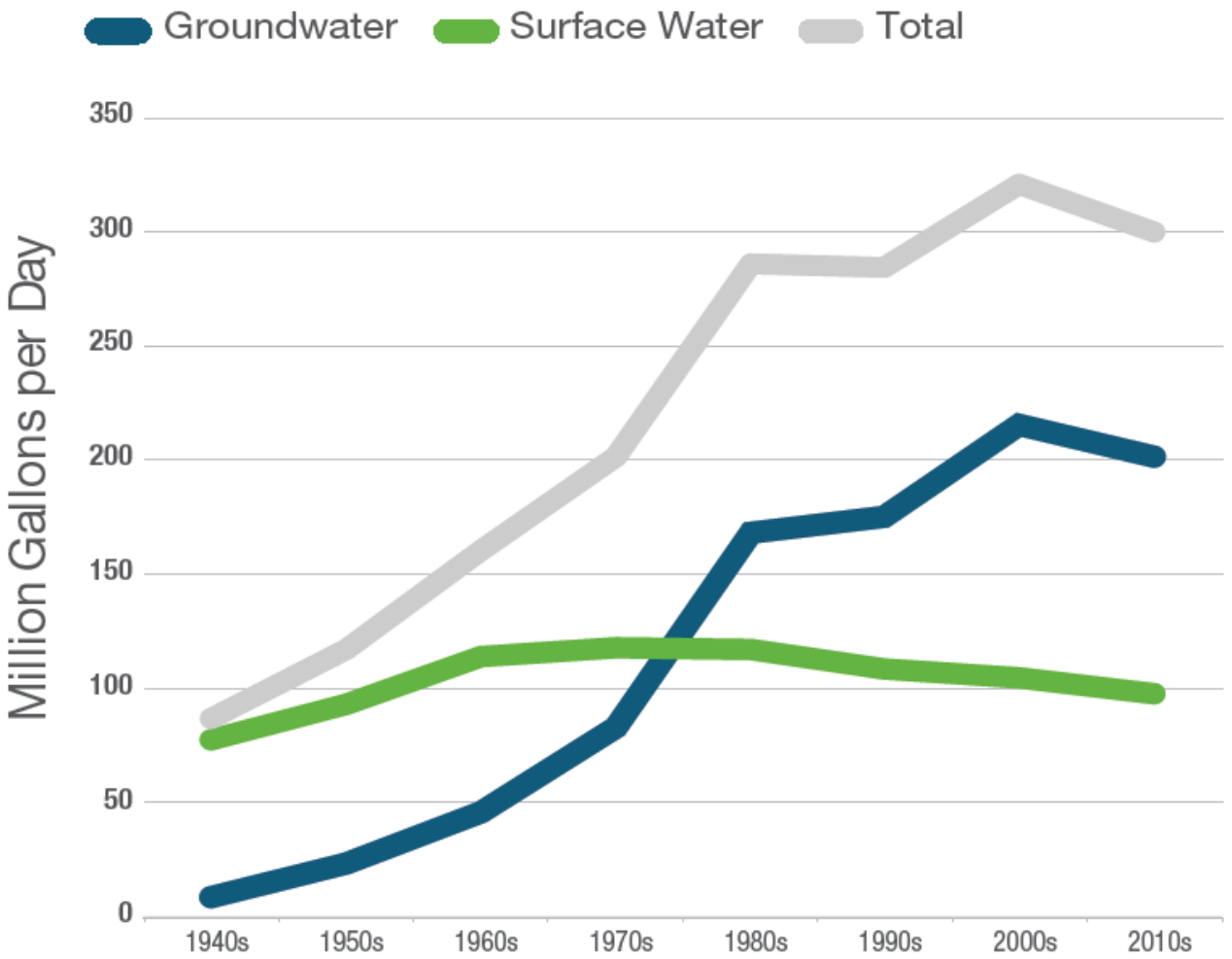
Water Supply Sources



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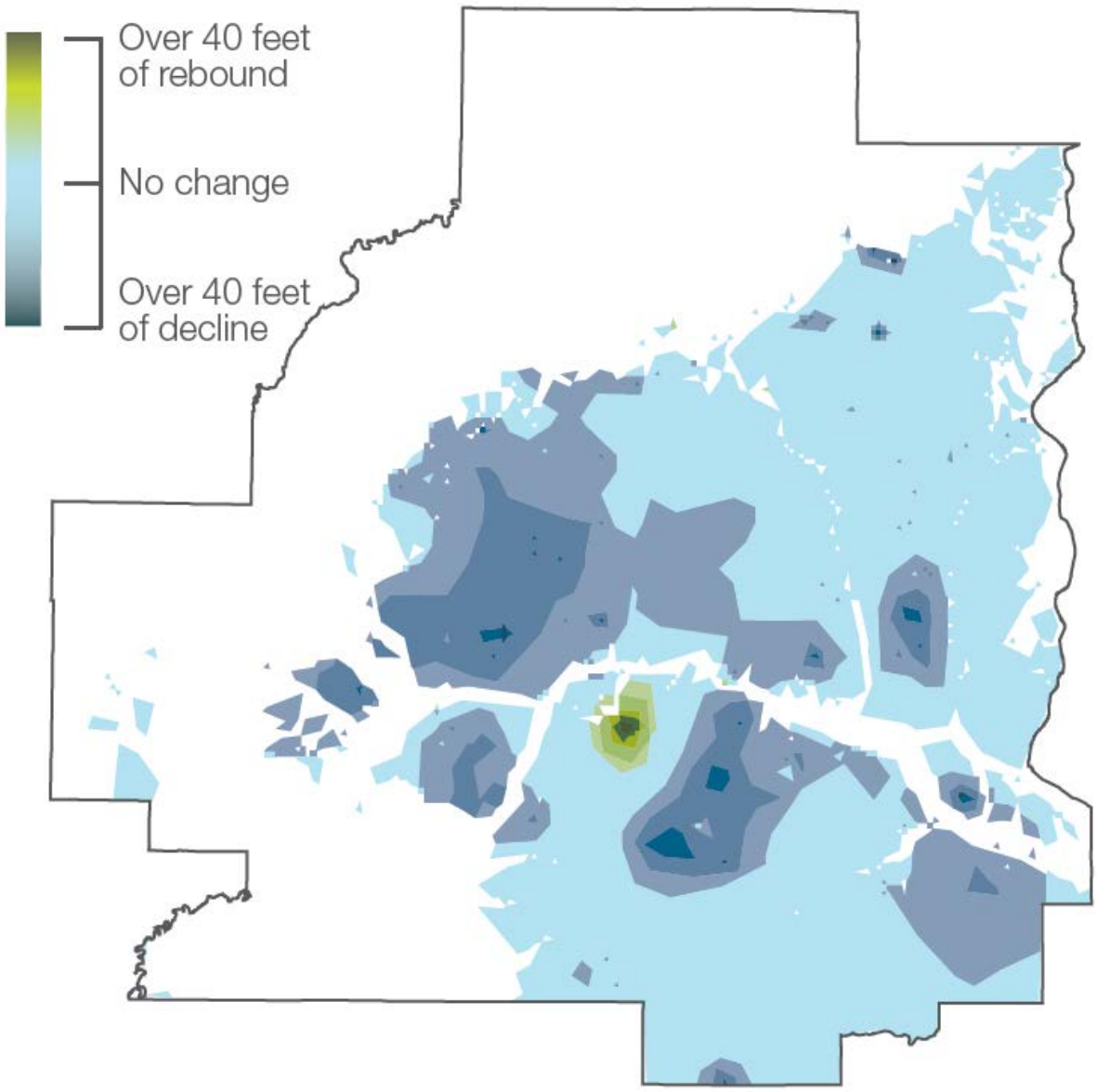
Change in Prairie du Chien-Jordan Aquifer Levels from 2040 Pumping



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One Water
Water Cycle City

- Total Water Cycle Management
- Integrated Water Systems

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Regional Goals

Adequate water quality and supply to support:

- Economic development
- Drinking water needs
- Quality of life for all residents
- Tourism

> *"Water is sustainable when the use does not harm ecosystems, degrade water quality or compromise the ability of future generations to meet their own needs."*

“One Water”

Stormwater

Drinking Water

Wastewater

Integrated Water Resource Management

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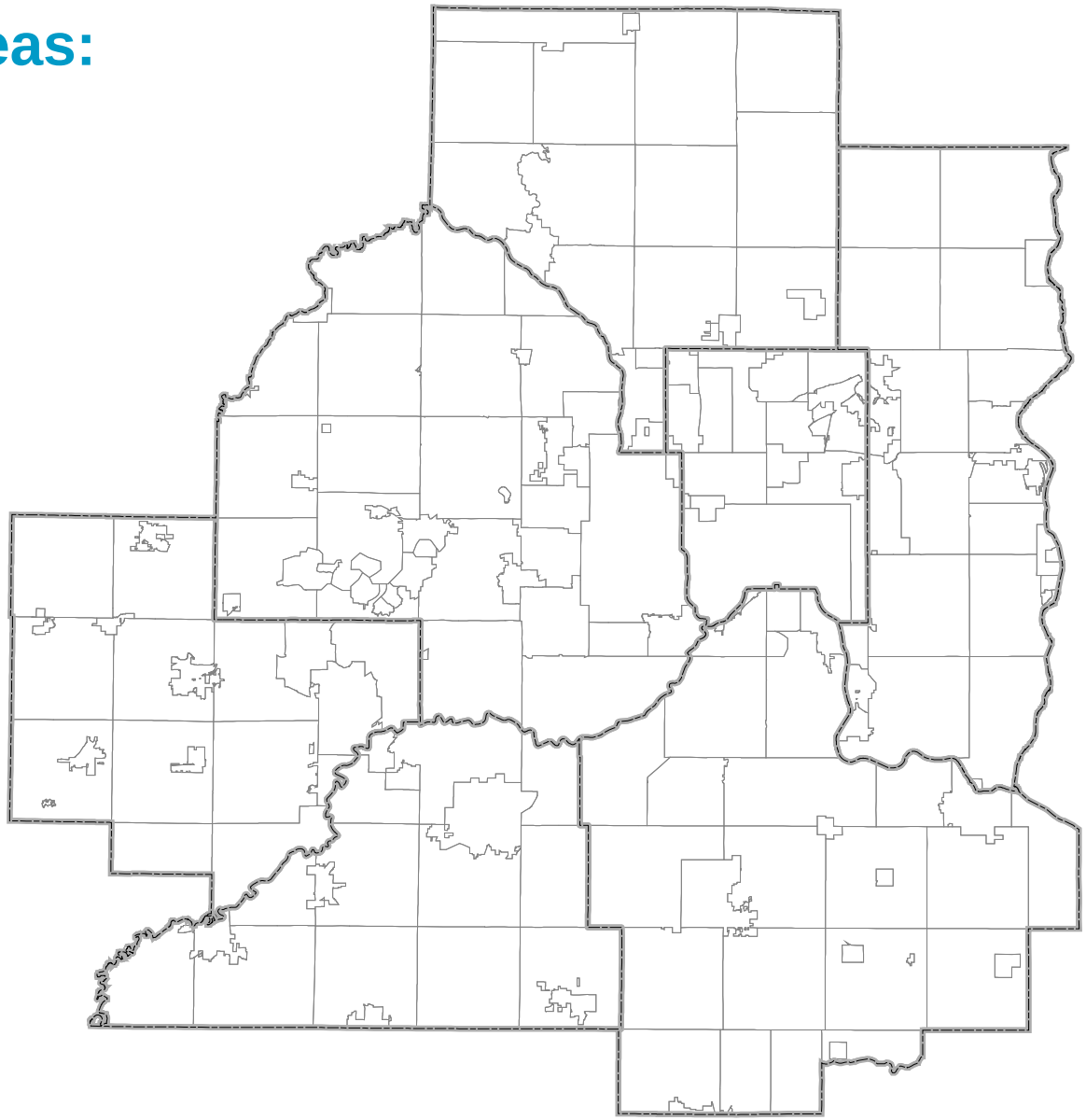
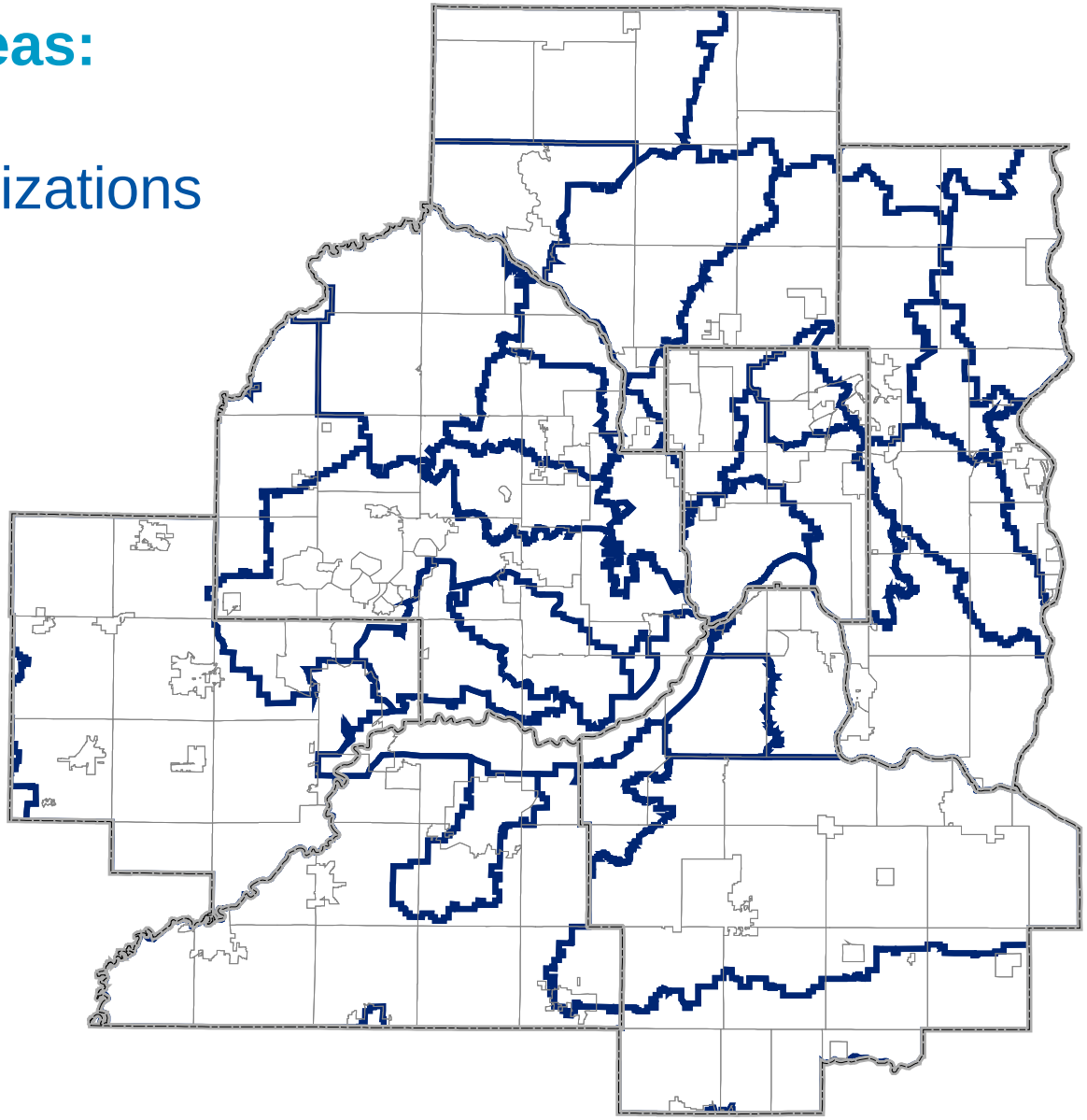
Management Areas:
Cities + Counties



Management Areas:

Cities + Counties

Watershed Organizations

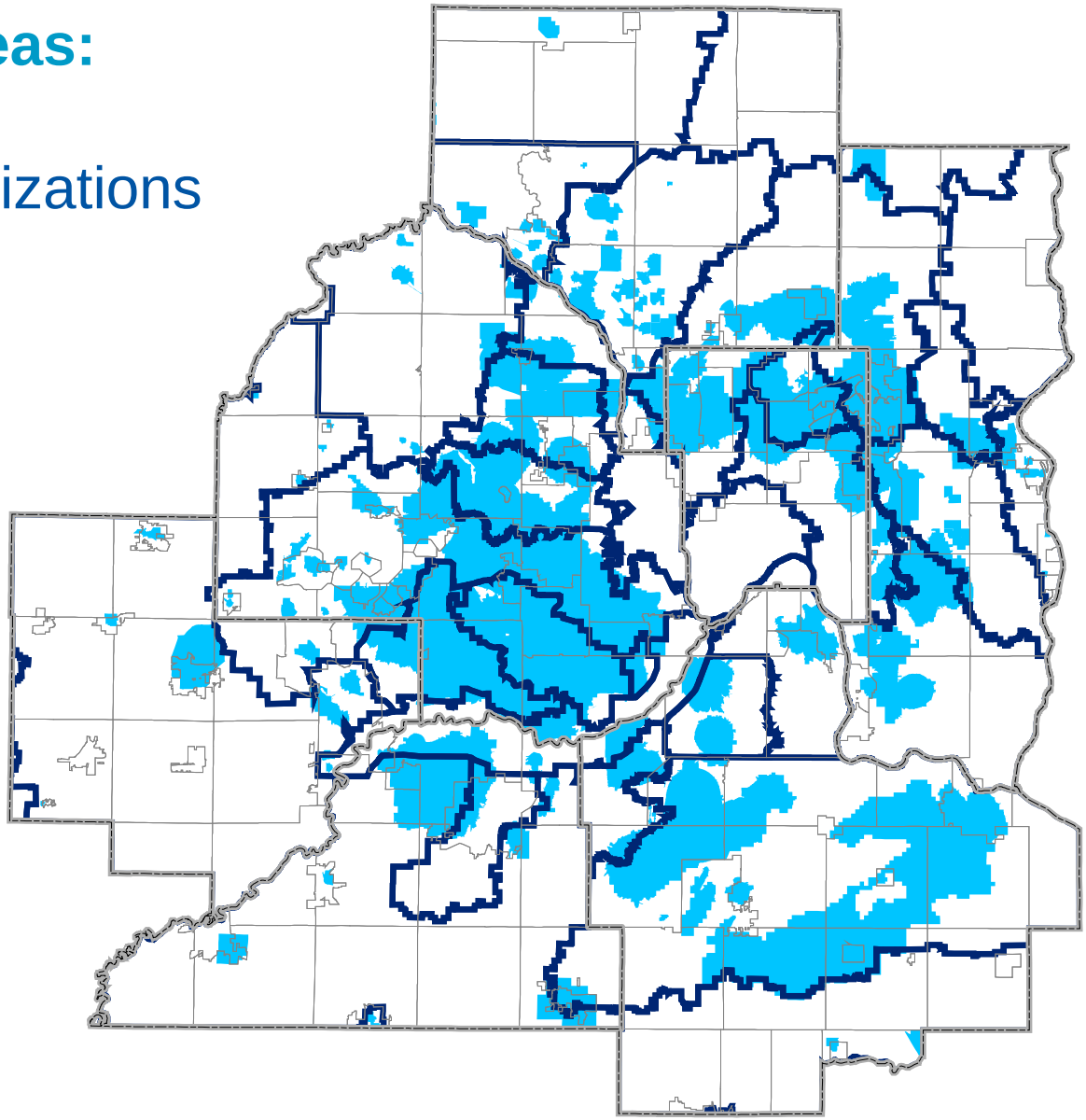


Management Areas:

Cities + Counties

Watershed Organizations

DWSMAs



Management Areas:

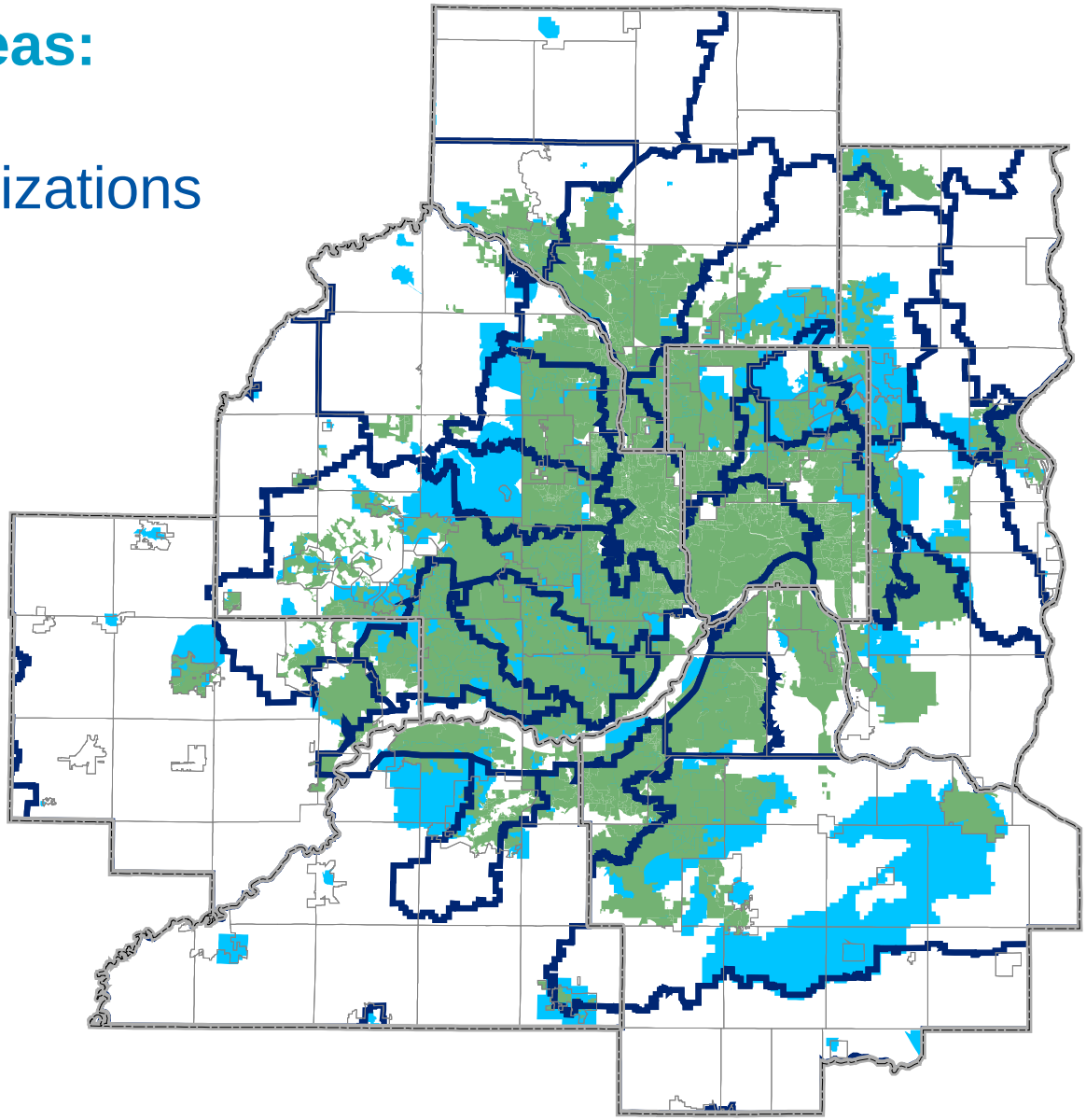
Cities + Counties

Watershed Organizations

DWSMAs

Sewersheds

… and more



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Benefits of Integrated Water Management

- Leveraging partnerships to provide individual, community, and regional benefits
- More effective approaches to issues that are not isolated to just one part of the water cycle (ex: chloride)
- Implementing water management practices that provide multiple benefits

#2: Why are you here?

www.pigeonholelive.com

Event Passcode:

MetroWater

Case Study Presentations

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Industrial Water Efficiency

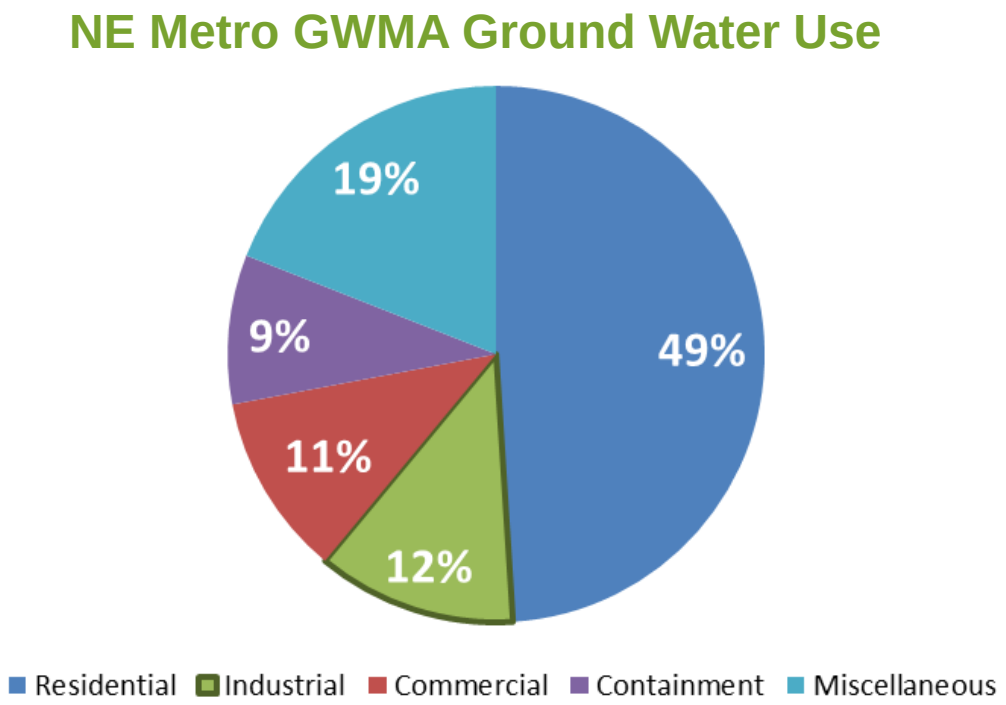
Laura Babcock, Minnesota Technical Assistance Program

Industrial Water Efficiency

- Minnesota Technical Assistance Program (MnTAP)
  - University of Minnesota, Twin Cities
  - Technical site assessments
  - Intern projects
- Collaboration with Metropolitan Council Environmental Services (MCES) on industrial water efficiency since 2012
  - Private industrial water users
  - Opportunity and assessments in NE Metro GWMA
  - Intern projects
  - Industrial water efficiency motivation study

Motivation for Work

- **3.6 Billion gallons** ground water use by NE Metro GWMA industries
- **5 years of focus** on industrial water efficiency assistance
- Results from water assistance
  - **100** Companies since 2012
  - **300** Water efficiency recommendations
  - **460** Million gallons identified
  - **180** Million gallons implemented
  - **31** Engineering students trained



https://metrocouncil.org/Wastewater-Water/Publications-And-Resources/WATER-SUPPLY-PLANNING/Water-Saving-Opportunies-in-the-North-and-East-Met.aspx

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Challenges and Opportunities

- Engagement
  - Awareness of water use
  - Trusted partnerships
  - Success stories
- Low cost of water
  - Utility cost
  - Total cost
- Time/capital justification
  - Engineering assistance
  - Bundle cost savings
  - Financing programs

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Strategies for Water Efficiency

Process for Technical Assistance

Map

- Measure
- Value
- Plan

Maintain

- Repair
- Prevent
- Repeat

Manage

- HP-LF
- High Eff.
- Automate

Modify

- Reduce
- Reuse
- Recycle

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Maintain Operations

Diasorin Inc.

- Stillwater, MN

- Motivation
  - Account for all site water
  - Avoid SAC increases
  - Reduce costs
- Approach
  - Close water balance
  - Repair leaking pump seal
  - Replace broken flow meter
  - Optimize flow rate
  - Replace check valves
- Results
  - 3.1 million gal water
  - $23,000

Manage Process

Federal Cartridge Co.
- Anoka/Coon Rapids, MN

http://www.mntap.umn.edu/intern/pdf/Federal%20Cartridge_Kaylea%20Brase.pdf

- Motivation
  - Manage operating cost
  - Use on-site wastewater treatment
  - Avoid SAC increases
- Approach
  - Timed rinse cycle
  - High pressure low flow nozzles
  - Automatic shut off valves
  - Back flush with recycled water
- Results
  - 5.5 million gal water
  - $83,000

Modify Process

Gedney Foods Company
- Chaska, MN

http://www.mntap.umn.edu/intern/pdf/Gedney_Ryan%20Venteicher.pdf

- Motivation
  - Maintain well supply
  - Reduce material costs
- Approach
  - Fix leaks
  - Reuse steam overflow
  - Reuse brine solutions
  - Optimize salt levels
- Results
  - 3 million gal water
  - 460,000 lb salt
  - 22,000 therms heat energy
  - $57,000

Summary

- Billions of gallons of ground water used for industry
  - Critical asset
  - Ample efficiency opportunity
  - Continue attention needed
- Company benefits from industrial water efficiency
  - Reduce costs
  - Support expansion
  - Meet corporate sustainability goals
- Other benefits from industrial water efficiency
  - Avoid more well pumping and water treatment
  - Decrease volume to wastewater treatment facilities
  - Decrease energy and chemical use

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Water Efficiency Resources

- MnTAP Water Resources
  - http://www.mntap.umn.edu/greenbusiness/water.html
- Reports and Publications
  - http://www.mntap.umn.edu/greenbusiness/water/119-WaterConservation.htm
  - https://metrocouncil.org/Wastewater-Water/Publications-And-Resources/WATER-SUPPLY-PLANNING/Water-Conservation-by-Private-Well-Industries.aspx
  - https://metrocouncil.org/Wastewater-Water/Publications-And-Resources/WATER-SUPPLY-PLANNING/Industrial-Water-Conservation-North-East-Metro-G.aspx
- Industrial water use tips newsletters
  - http://www.mntap.umn.edu/greenbusiness/water/water_projects.html
- MnTAP Intern Summaries
  - http://www.mntap.umn.edu/intern/pastproj.htm
  - http://www.mntap.umn.edu/resources/solutions.html

Be a Water Hero

- Provide water efficiency information
  - Industrial water efficiency tips
  - Examples and success stories
- Make water efficiency actions easy
  - Provide or refer businesses for technical assistance
  - Support incentives for water efficiency
- Share your successes

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Water Quality/Quantity Loop

Ole Olmanson, Shakopee Mdewakanton Sioux Community

SMSC's Water Quality/Quantity Loop

- SMSC leadership consistently support stewardship opportunities
- Concern for surface water impacted by waste water effluent led to
  - Improved infrastructure
  - Increased surface water quality
  - New source of non-potable water
  - Reduced summer peak groundwater pumping
  - Pilot project for residential irrigation
- Required a high level of internal department collaboration as well as working with neighboring communities

Drivers

- 2006 – Water Reclamation Plant Opens
  - Testing showed chloride levels increasing from road salt and water softeners
  - Modified road salting practices
  - Added reverse osmosis (RO) to water plant
- Abundant clean surface water source supply available

Connecting the Dots

- Small geographic footprint
- High profile, heavily irrigated, public spaces
- Ample available surface water
- Expensive tap water
- Opportunity for irrigation with recycled water

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Challenges

- Plant tolerance
- Soil buildup
  - 2 year study measuring water quality, plant health, soil components
- Public awareness
  - Signage, newsletter campaign, webpage

Moving Forward

- Tewapa Subdivision
- 24 residential lots
- Soccer field
- All irrigated with recycled stormwater
  - 75% target

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Tewapa Challenges

- Public awareness
  - Signage, flyers to new owners
- Health risks
  - More intense treatment, UV light
- Volume management
  - Tap water backup during dry times

SMSC Conclusion

- Hopefully these are the first of many more projects
  - Knowing available resources and needs are key to developing these projects
  - Leadership that is willing to take risks
  - Good neighbors help too
- Email for more information
  - ole.olmanson@shakopeedakota.org

CITY OF BURNSVILLE WELLHEAD PROTECTION PLAN IMPLEMENTATION

Steve Albrecht, City of Burnsville

Burnsville

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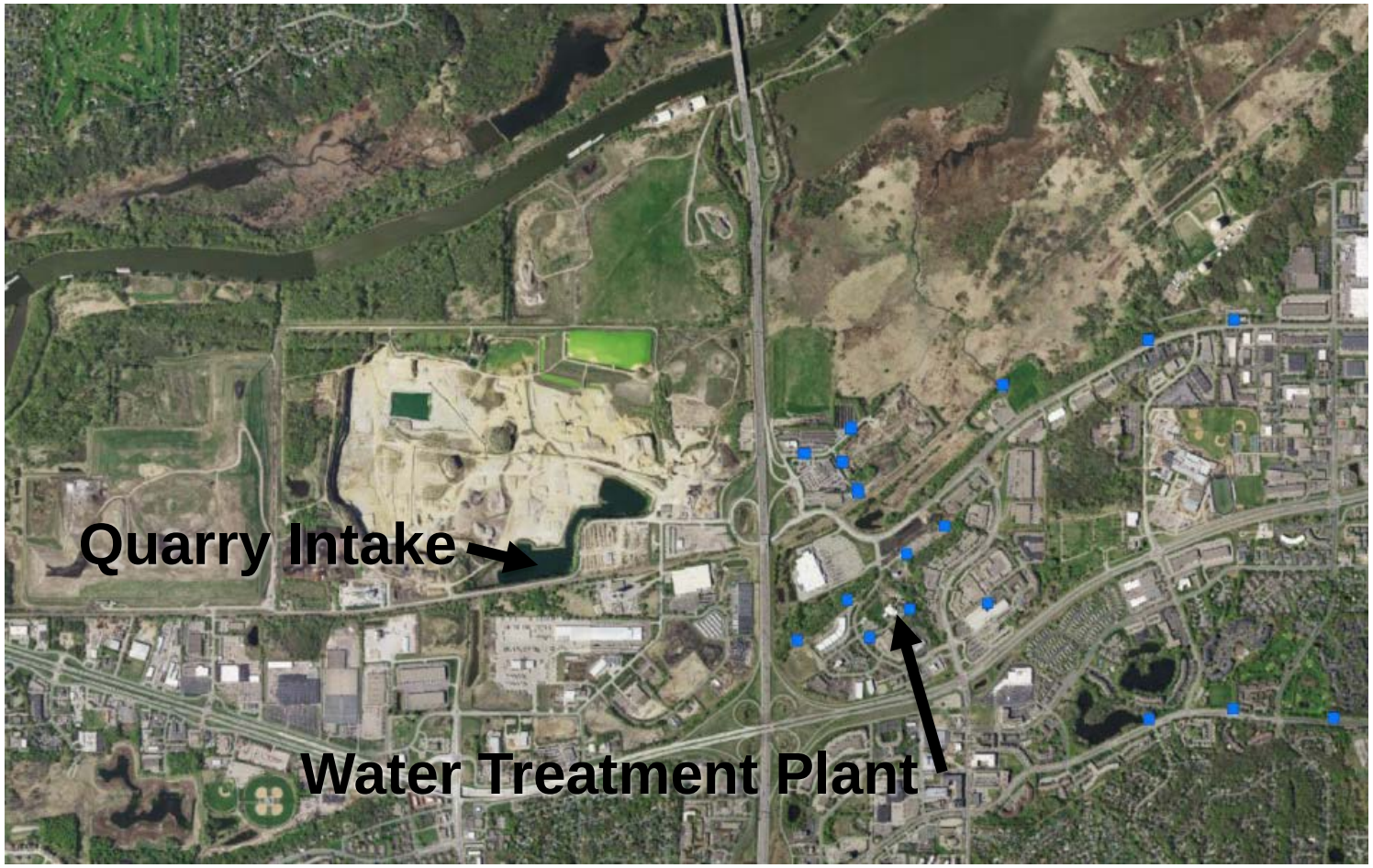
Presentation

1) City of Burnsville Water Supply
2) Why is Wellhead and Source Water Protection so important in Burnsville?
3) Implementation of Wellhead Protection Plan
4) Drinking Water Supply Overlay District Strategy
5) Questions

Burnsville Water Use

- Annually, the City of Burnsville pumps more than 3.2 billion gallons of water. Service area includes approximately 90,000 residents (includes Savage)
- 1.1 billion gallons comes from quarry intakes, with the balance supplied by 17 wells.
- In 2016, Burnsville provided 89% (about 764 MG) of Savage's water via a water use agreement (year 9 of agreement).
- On peak days the City system pumps more than 20 MG

Drinking Water Supply Sources



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Why Did Burnsville Need Enhanced Water Supply Protection?

- Burnsville's drinking water aquifers and quarry sources are susceptible to potential pollution from regulated substances in certain areas of the City.
  - Fully developed City
  - Heavy and lite industrial uses in close proximity to drinking water sources.
  - 1 open and 2 closed landfills/dumps, power plant, rail line and quarry in close proximity to drinking water sources.
- Maintain Consumer Confidence
- An overlay district would provide a framework for verifying existing regulations through inspection program.

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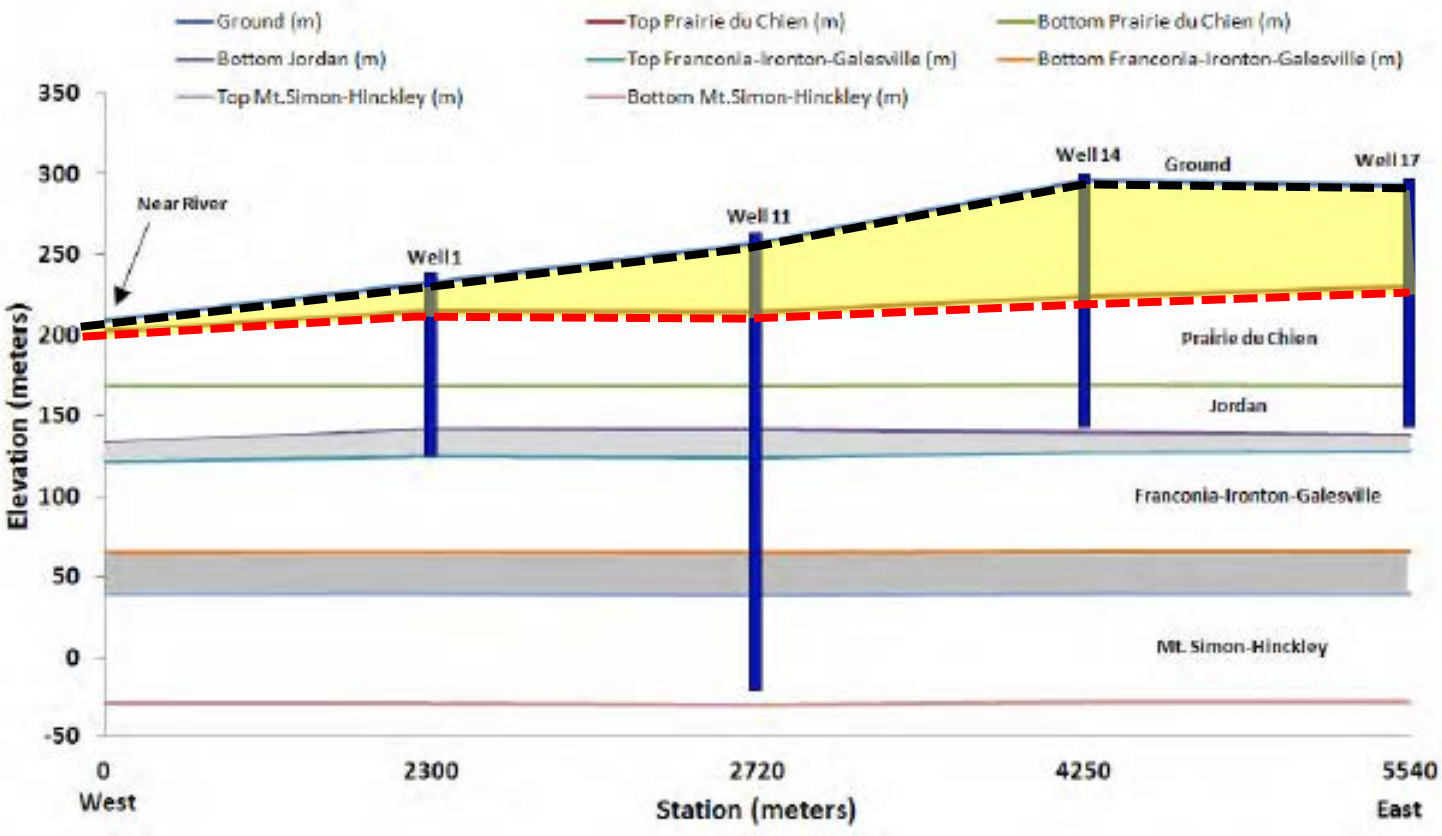
Aquifer Susceptibility



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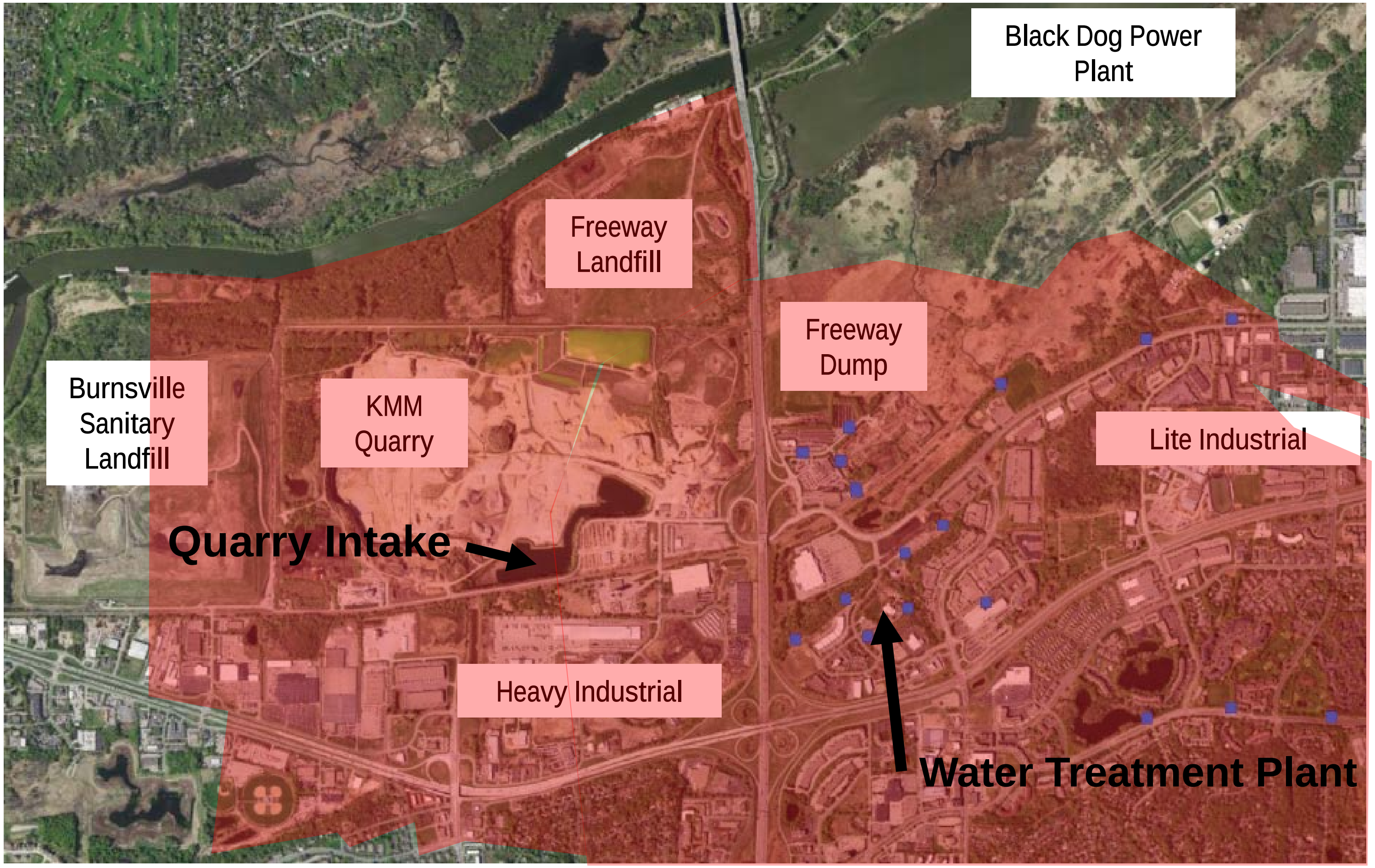
Uses



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Wellhead Protection Plan Goals

- The City will continue to meet or exceed all State and Federal water quality standards.
- The City will promote protection of vulnerable source water aquifer through management of high risk potential contaminant sources within the DWSMA and raising public awareness of source water protection issues.
- The City will keep track potential contaminant sources in order to adjust their management activities to meet community's needs in the years between WHPP development.

Drinking Water Protection Overlay District Strategy

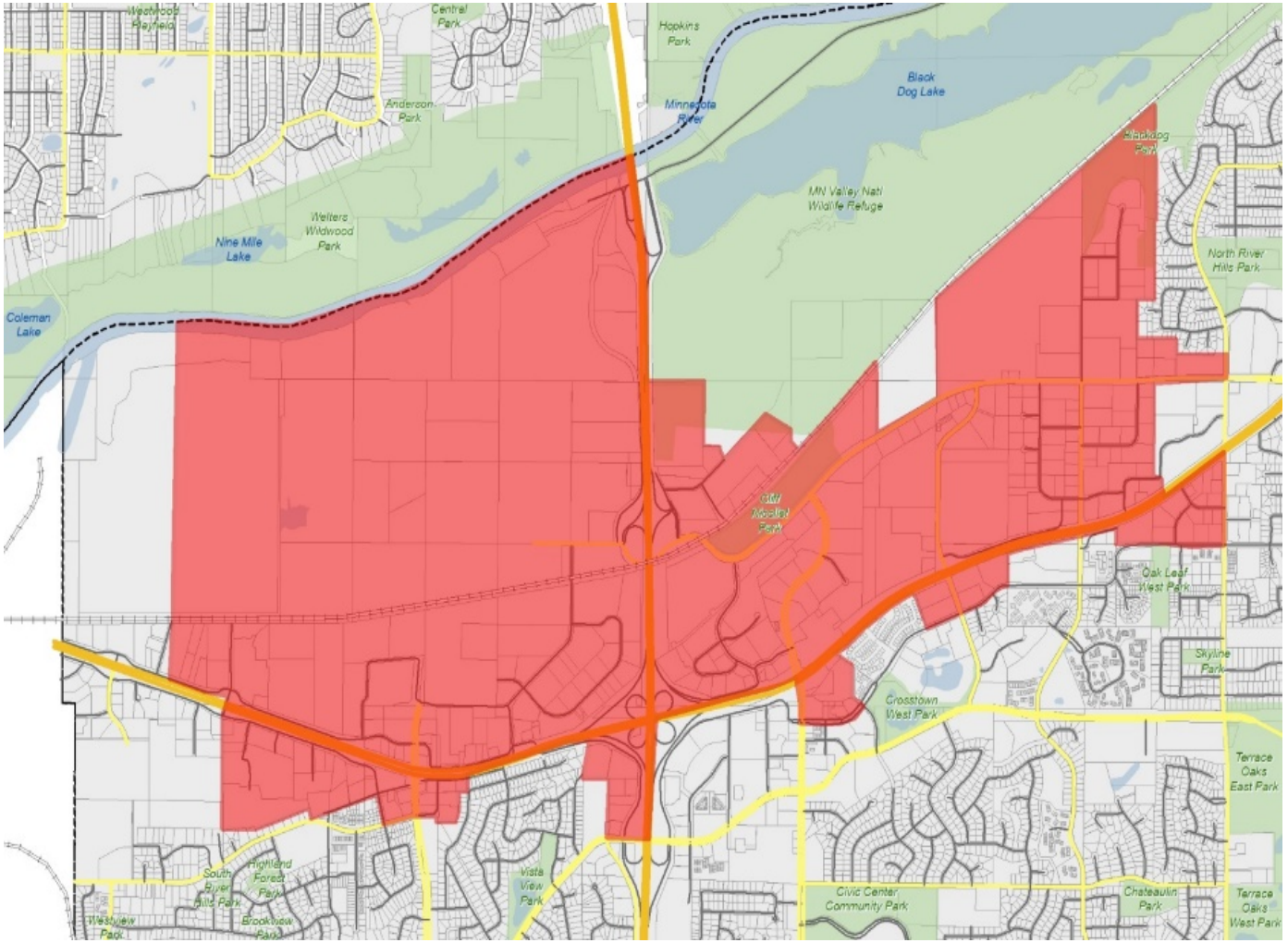
1) Model area groundwater to better understand potential risks. ✓**DONE**

2) Implement proactive testing protocol to ensure pollutants aren't present. ✓**DONE**

3) Develop long term management strategy. ✓**ONGOING**

4) Implement 2 part ordinance. ✓**ONGOING**

Proposed Overlay District



Questions?

Contact Steve Albrecht at 952-895-4544
steve.albrecht@burnsvillemn.gov

Information available on City Website at:
www.burnsville.org/drinkingwaterprotection

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Questions?