

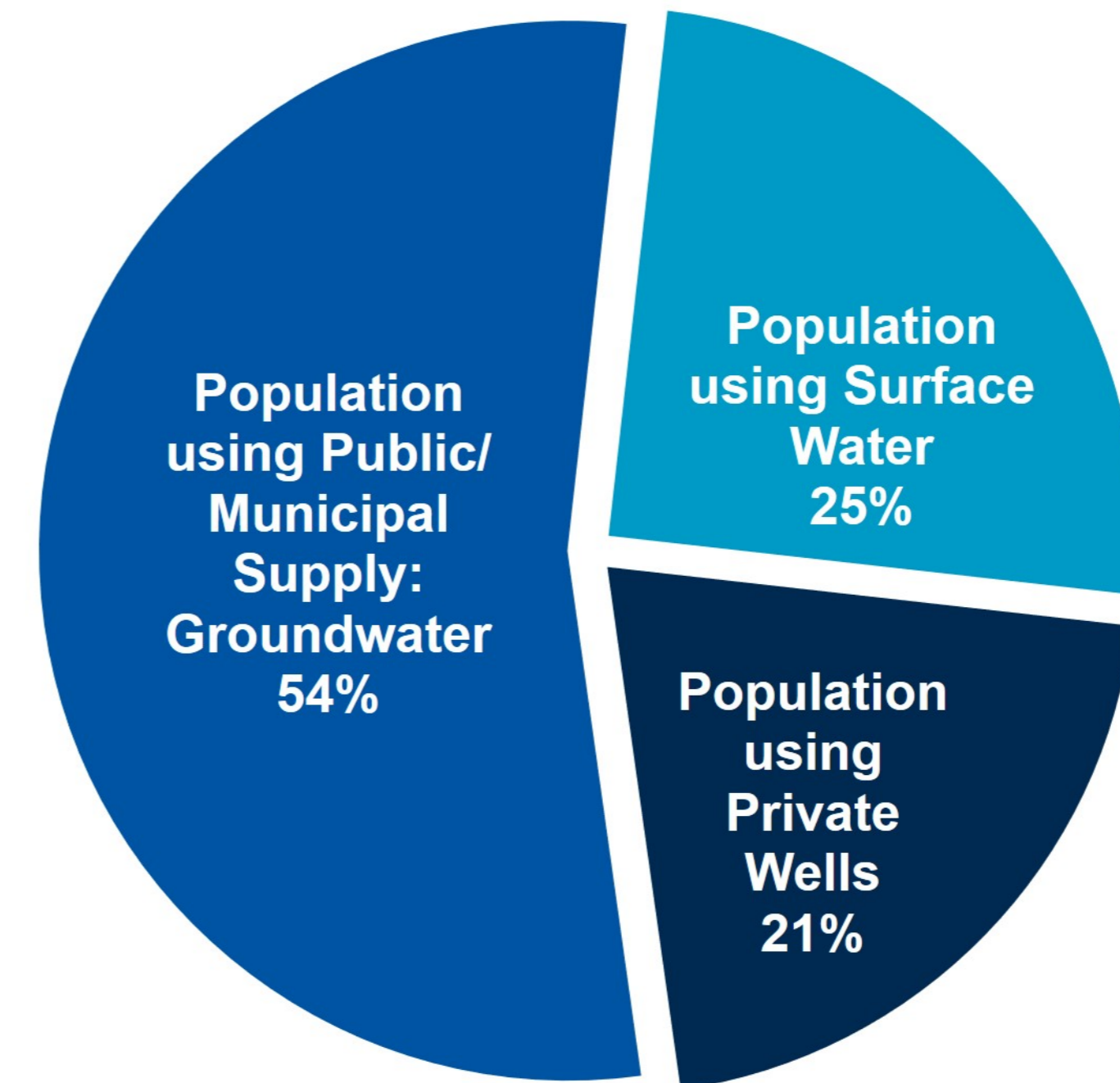
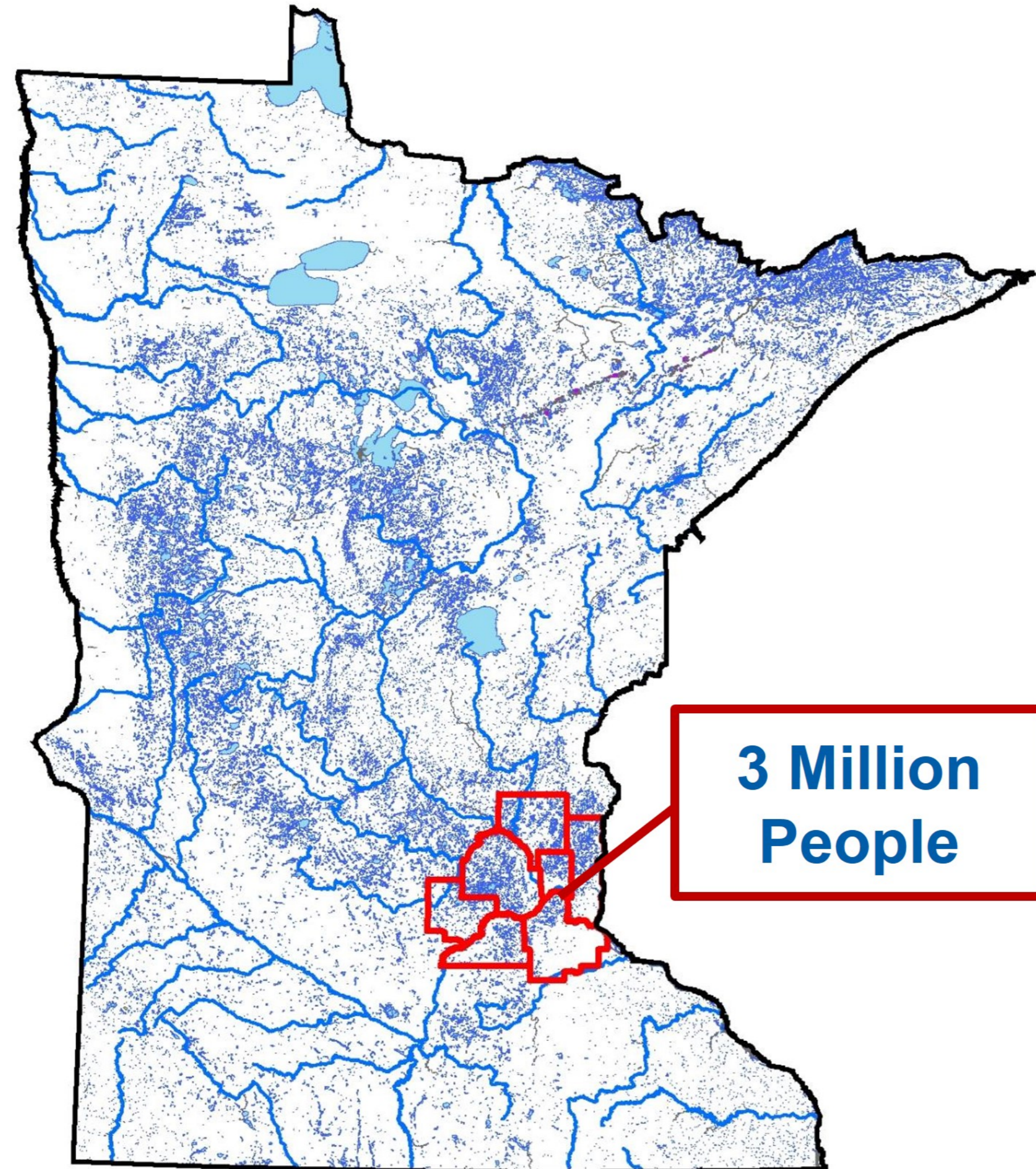
Information Item: Water Supply Planning Overview

Ali Elhassan, Manager, Environmental Quality Assurance

Environment Committee, October 22, 2019



Minnesota: *Land of 10,000 Lakes!*



Water Supply Planning

- **NOT Regulator and NOT SUPPLIER**

“Carry out planning activities addressing the water supply needs of the metropolitan area” (Minnesota Statutes, Section 473.1565)

- Develop a regional plan led by local input
- Maintain a database of technical information
- Assist communities in developing local water supply plans
- Identify approaches for emerging issues.

- **Advisory Committees**

- Metro Area Water supply Advisory Committee (MAWSAC)
- Technical Advisory Committee (TAC)

- **Advisory Committees Role**

- Assist and Guide Council water supply planning
- Approve Regional Water Supply Plan



Planning Responsibilities

Thrive MSP 2040



Stewardship Prosperity Equity Livability Sustainability



Water Resources

Wastewater System Plan

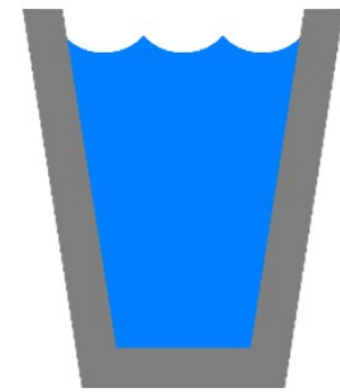
Master Water Supply Plan



Water Sustainability: Protect, conserve and utilize the region's groundwater and surface water in ways that protect public health, support economical growth and development, maintain habitat and ecosystem health, and provide for recreational opportunities, all of which are essential to our region's quality of life.

Technical Support

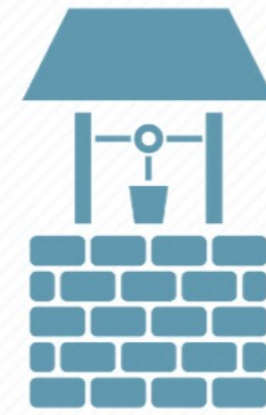
What are the cumulative aquifer impacts of long-term planned growth & water demand in the Twin Cities metropolitan area?



Water Demand
(Past & Projected)



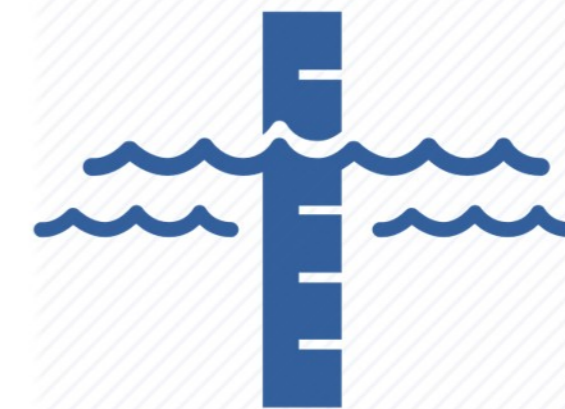
Climate



Well
Information



Contaminant
Plumes



Water
Levels



Land Cover



Infiltration &
Recharge



Aquifer
Properties

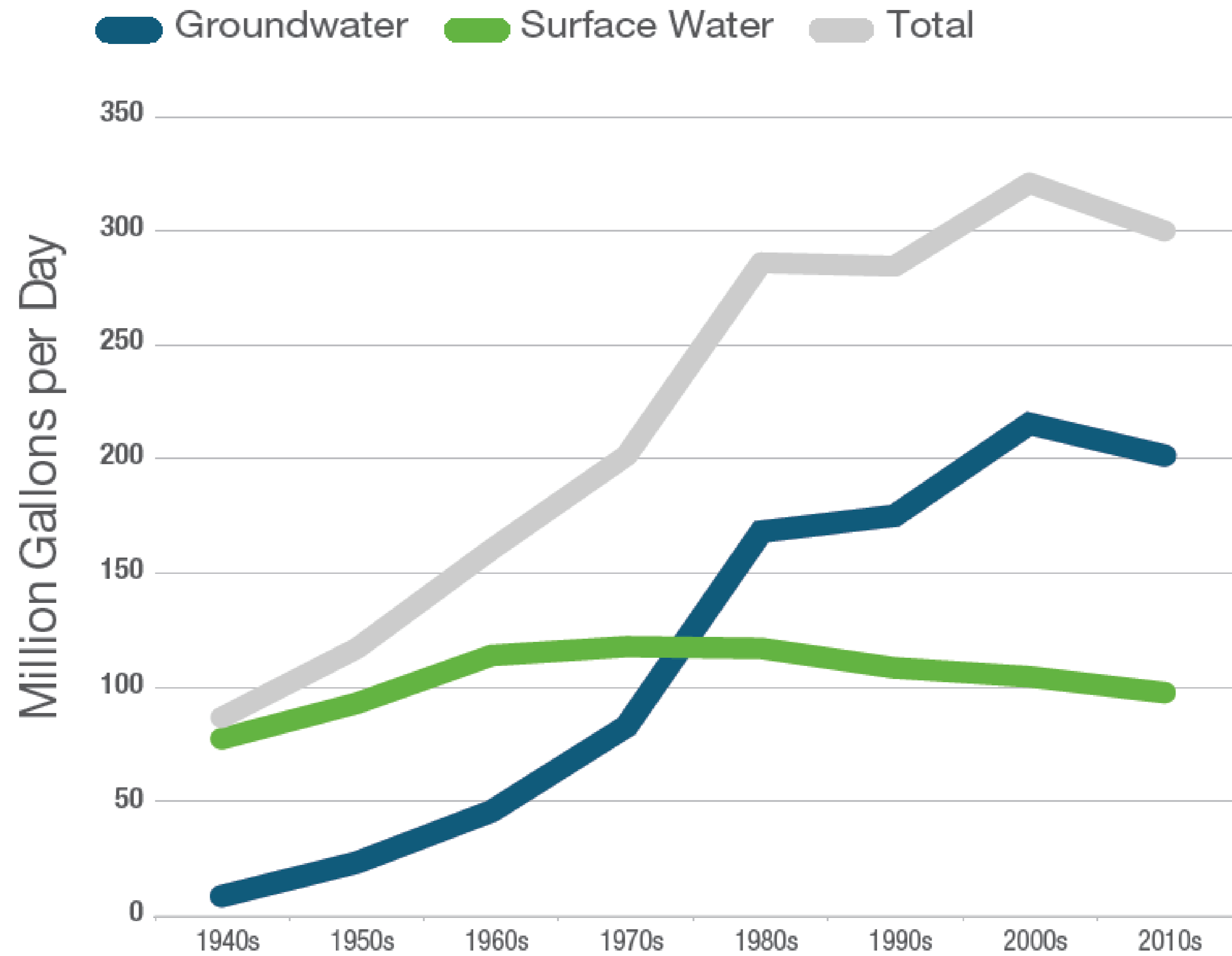


Baseflow

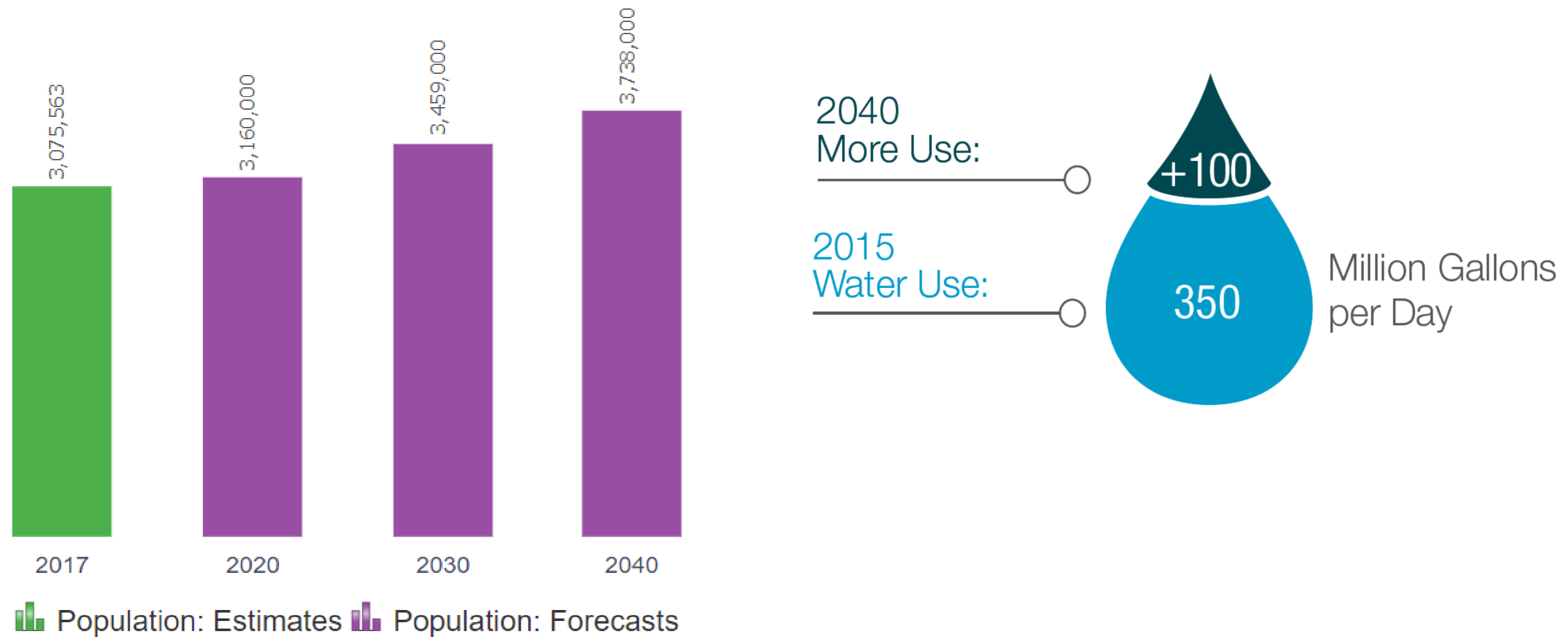


And more...

Where Are we now?



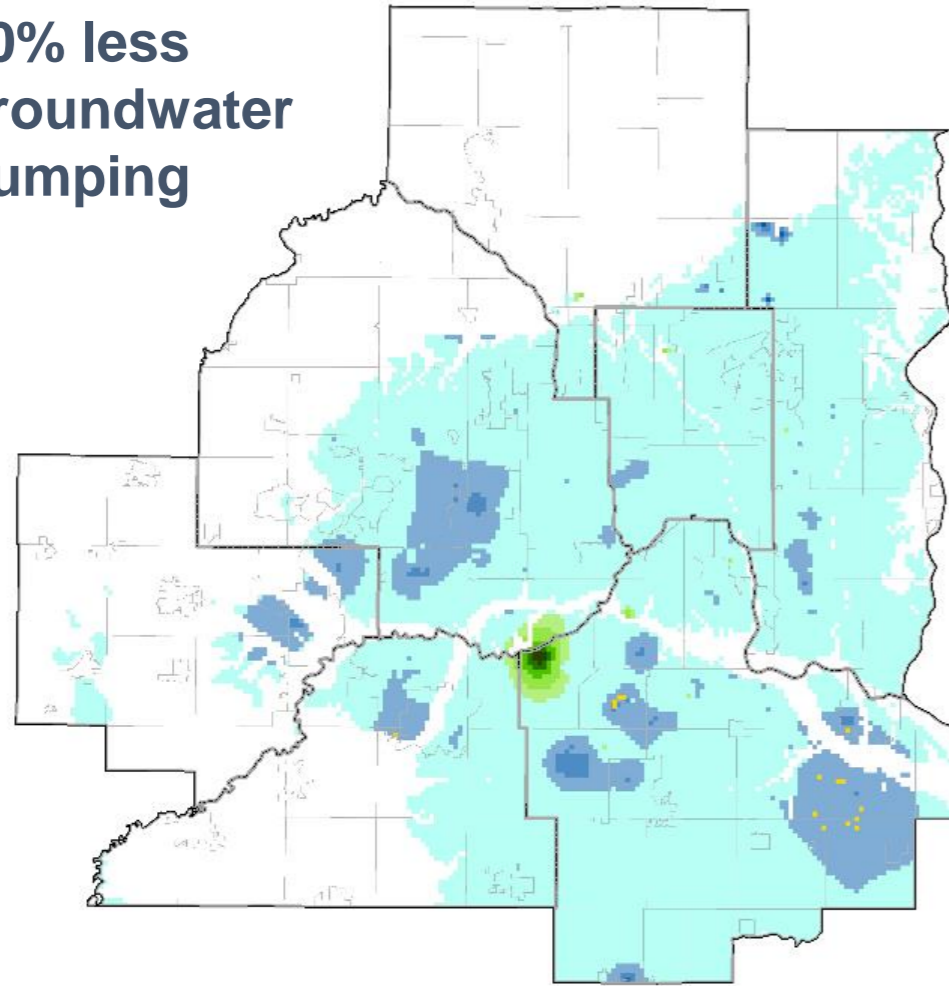
Growing Population Increases Municipal Water Use



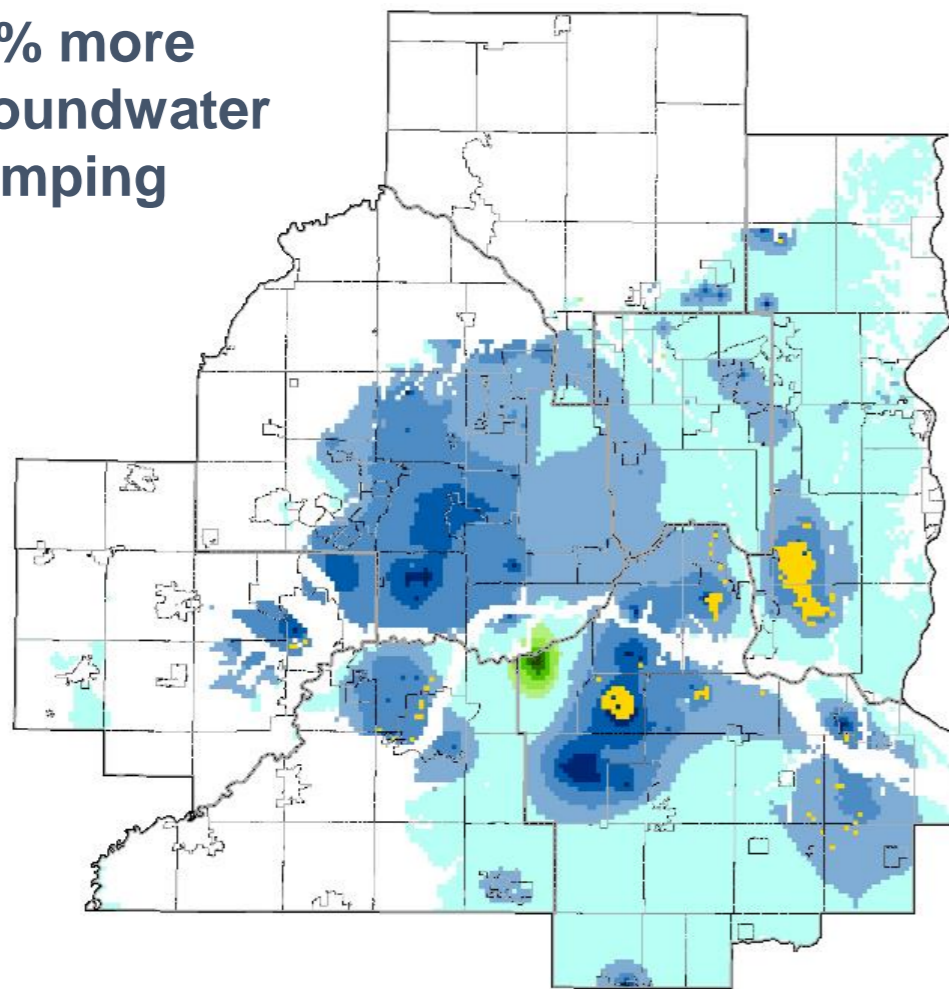
Source; 2015 Master Water Supply Plan

Metro Model 3: Exploring Multiple Scenarios

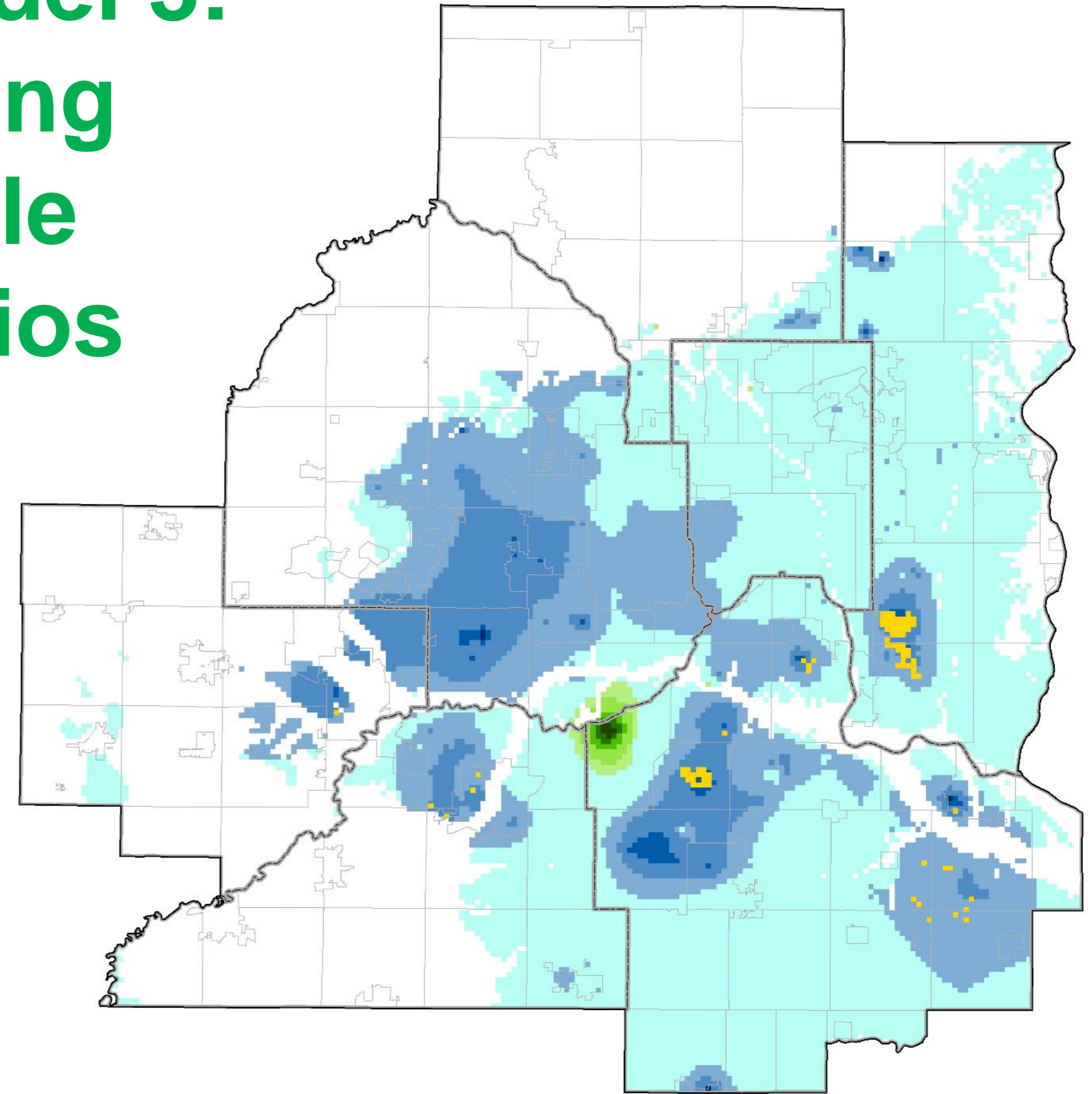
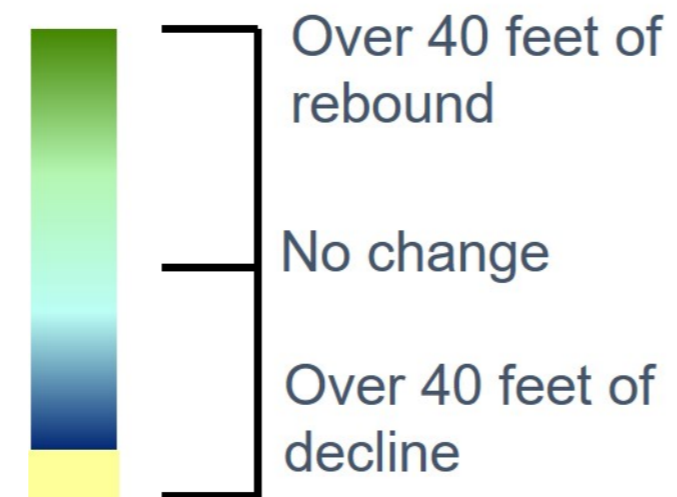
20% less
groundwater
pumping



20% more
groundwater
pumping



Aquifer change
under projected
2040
groundwater
pumping:



Source; 2015 Master Water Supply Plan

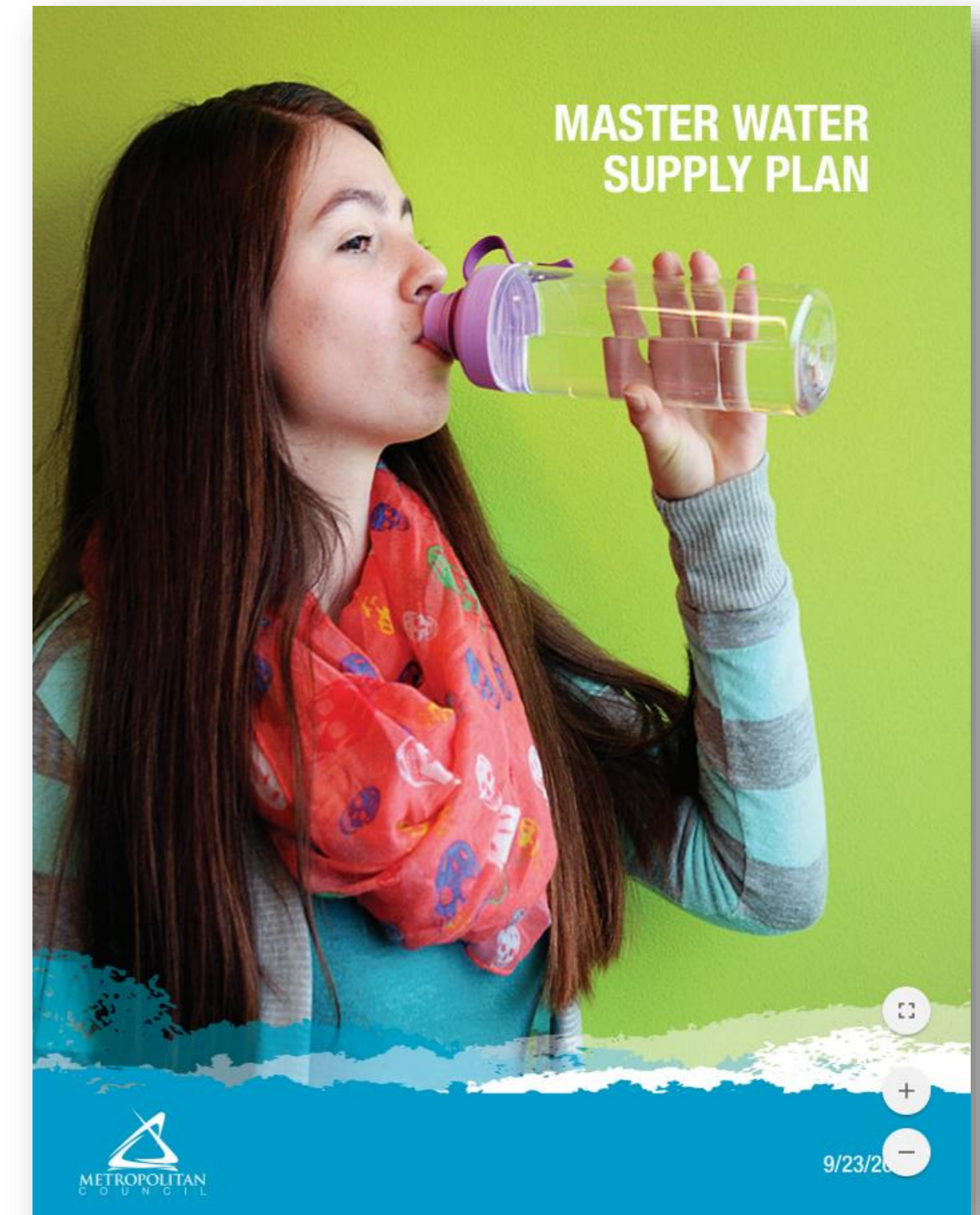
2015 Master Water Supply Plan

Desired Outcomes

- Increased **collaboration**
- Improved **planning & plan implementation**
- Sustainable approaches** are implemented
- Source** waters are **protected**
- Water **conservation**

Strategies

- Facilitate Collaboration
- Support for local planning & implementation
- Technical studies
- Conservation & reuse
- Investments



Source; 2015 Master Water Supply Plan



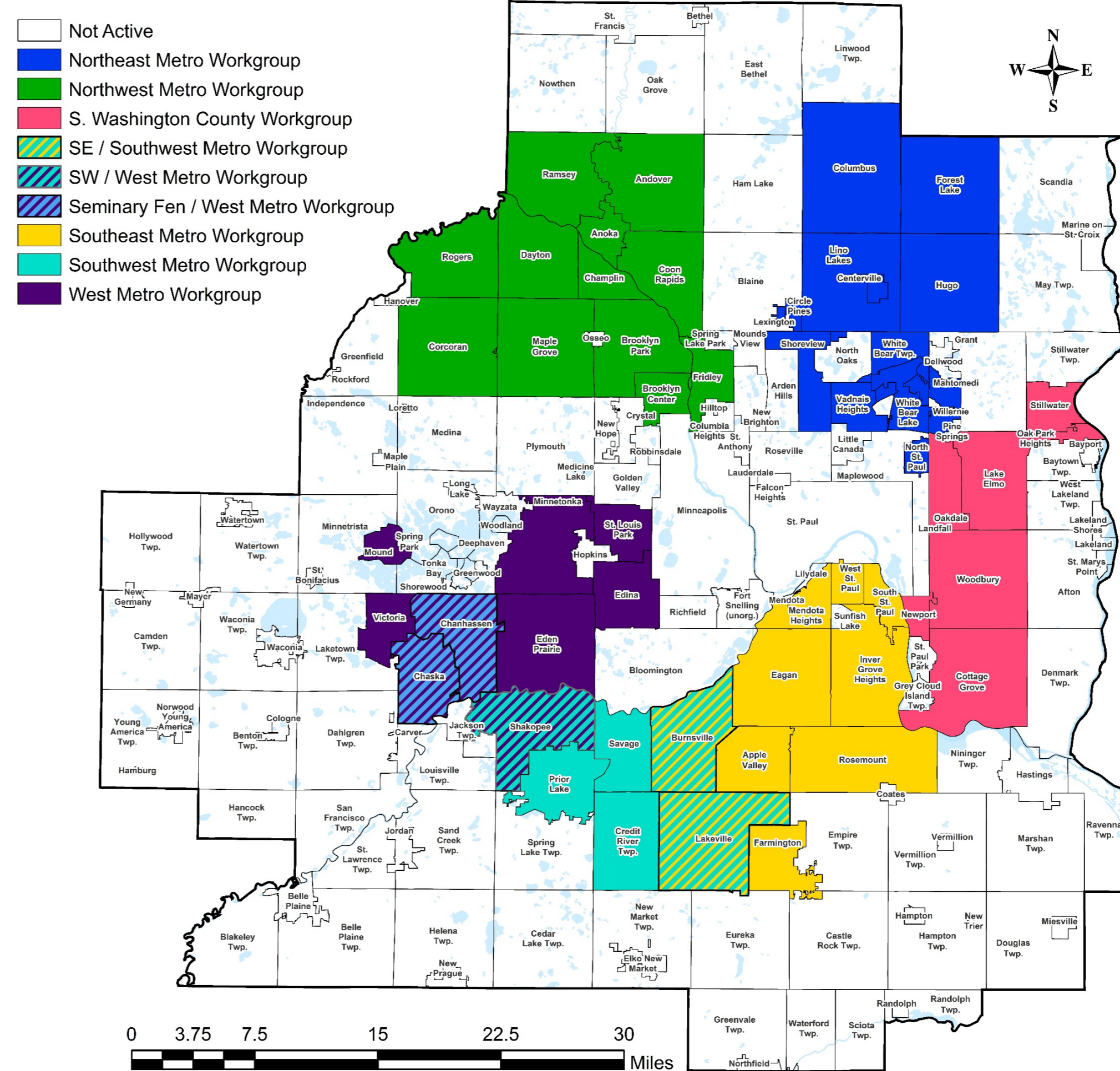
Collaboration: Water Supply Sub-Regional Workgroups

Effective Platform for Collaboration

“Groundwater doesn’t know community boundaries. We can have a greater impact if we work together on water supply sustainability.”

Russ Matthys, Public Work Director, Eagan
Member of Southeast Work group

Communities in Metro Area Water Supply Work Groups



Met Council is a Partner and a Resource

Convene, Facilitate and Provide Technical and Financial Support



"The Metropolitan Council plays a valuable facilitating role in the discussions and provides a regional perspective for the group. Council funding of the study was important because it isn't always easy to get local city councils to commit funds to something that reaches beyond their borders" Steve Albrecht

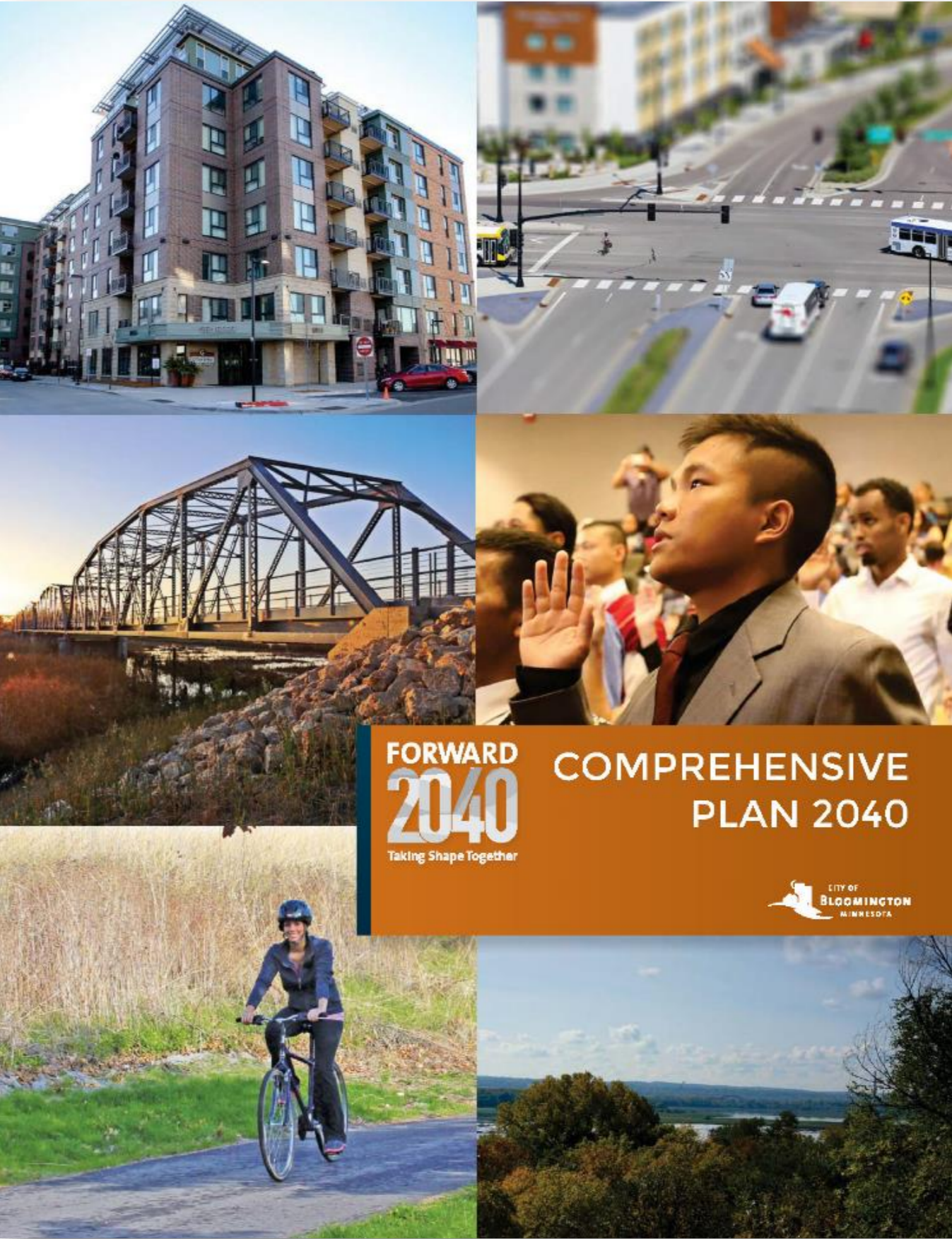


Planning Support: *Bloomington Comprehensive Plan 2040*

GOAL 1: Dependably and affordably provide a high-quality public water supply

STRATEGY 1.1: Protect the quality and quantity of the groundwater supply

ACTION: Encourage the continued development of a metropolitan groundwater model, as a tool to define aquifers and aquifer recharge areas and as a basis for aquifer protection and management.



Planning Support: Woodbury Comprehensive Plan 2040

“For this analysis, it should be noted that while the population is projected to increase through 2040, the **average and maximum daily water demand is projected to remain flat** due to a reduced per capita usage over this period.”

WATER DEMAND PROJECTIONS					
YEAR	PROJECTED TOTAL POPULATION (1)	PROJECTED POPULATION SERVED	PROJECTED TOTAL PER CAPITA WATER DEMAND (GPCD)**	PROJECTED AVERAGE DAILY DEMAND (MGD)***	PROJECTED MAXIMUM DAILY DEMAND (MGD) (2)
2016*	68349	62883	na	6.7	15.7
2020	72500	67839	115	7.7	19.2
2025	76500	70631	110	7.8	19.4
2030	80500	75839	105	7.8	19.6
2035	84150	78281	100	7.8	19.6
2040	87800	83139	95	7.8	19.5



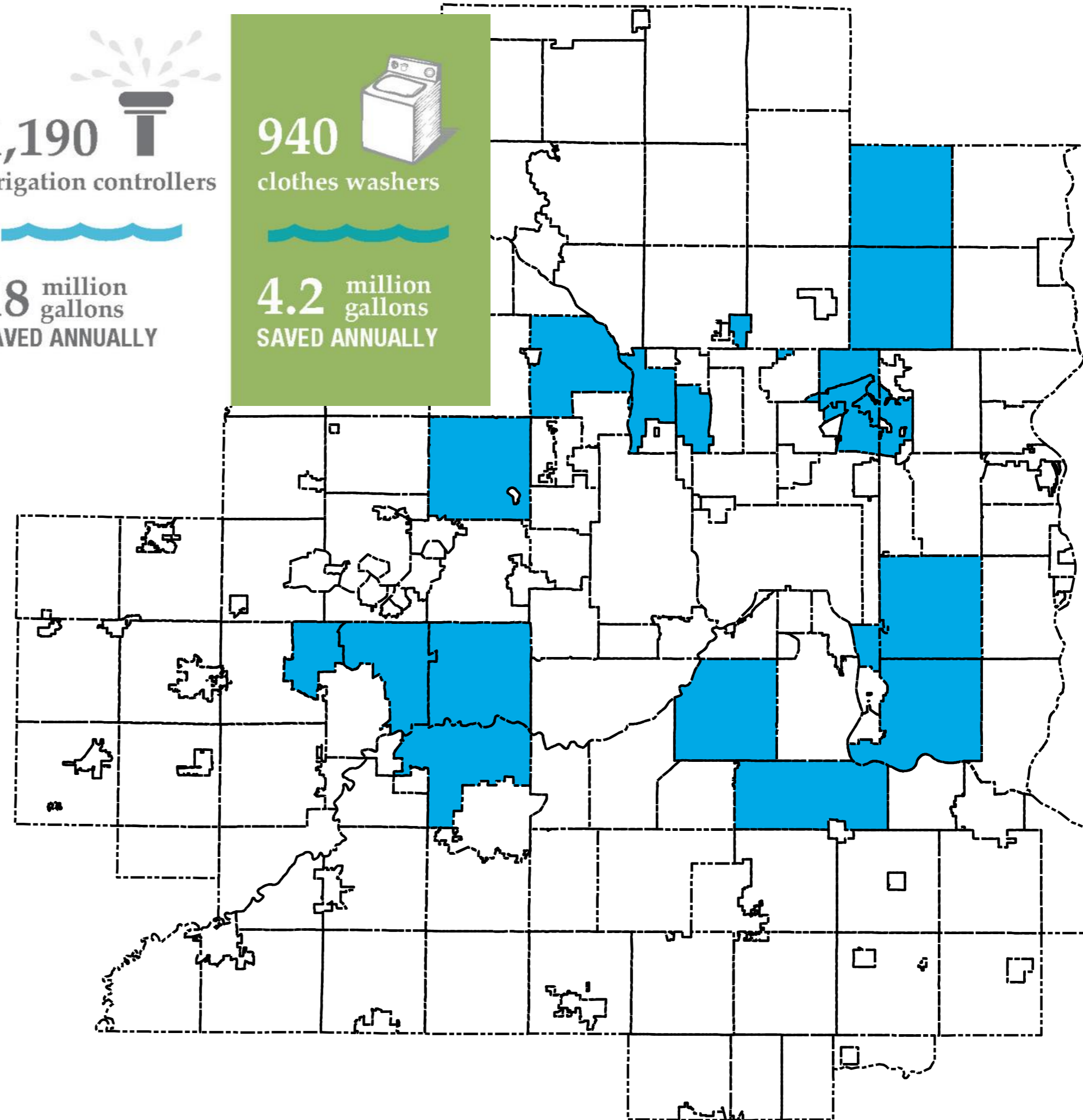
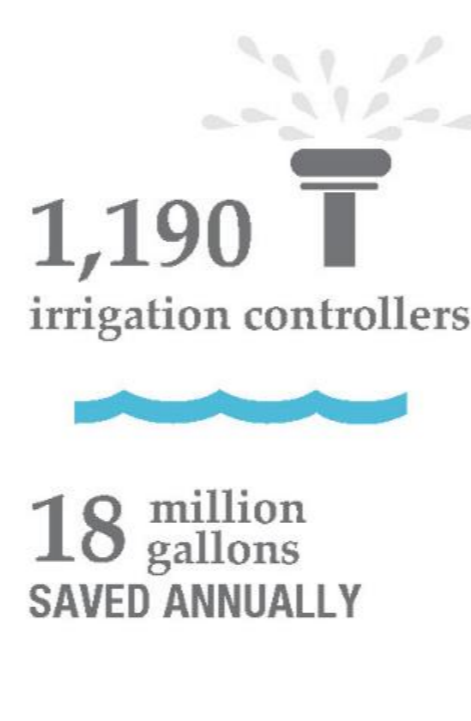
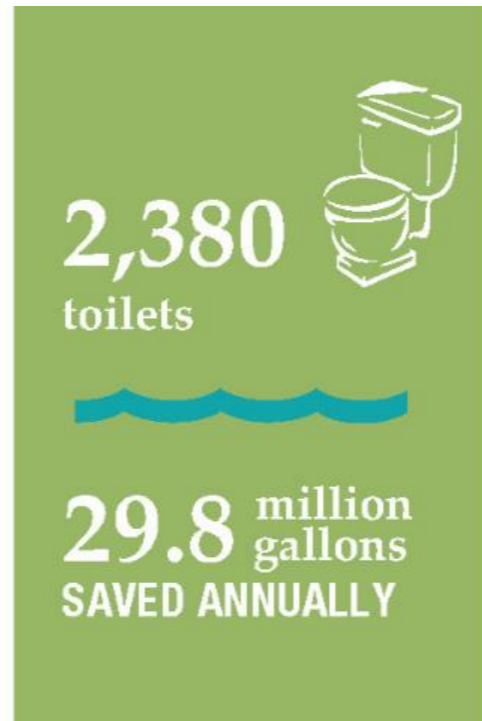
Financial Support

Council grants help growing communities use water more efficiently

— \$500,000 Water Efficiency Grants —

4,510
TOTAL DEVICES
REPLACED

52 million
gallons
SAVED ANNUALLY



2015-2016

19 Communities

- High growth
- Groundwater source



Technical Support: MN Technical Assistance Program (MnTAP) Supporting Industrial Water Efficiency



- MnTAP continues to provide multiple wins for Minnesota:
 - Water Savings
 - Financial Savings: operational cost reductions for businesses,
 - Real-world training for the engineers and scientists who will lead these efforts through the twenty-first century.

🚰 KapStone Container Corp.



Ngan Tran
Chemical Engineering,
University of Minnesota

Organization Background

KapStone Container Corporation is a manufacturer of corrugated packaging products in Fridley, MN. The plant makes a variety of cardboard from paper stock and converts it to boxes designed, sized, and printed to customer specifications. The plant has served the upper Midwest market since 1962, and ships to over 30 states, Canada, and Mexico. The corporation is currently in the process of being purchased by Westrock.



"Working at MnTAP gave me the opportunity to gain hands-on experience in an industrial setting. The project was challenging, but the guidance and support from MnTAP and Kapstone staff helped me understand its complexity and develop solutions to the problems. In addition to the fundamental engineering skills I got from this experience, the valuable feedback contributed tremendously to my personal growth and development." - NT

Project Background

Large volumes of water are used for cooling in corrugated cardboard production and for cleaning related to printing operations. Large amounts of paper waste is generated from equipment, operational problems, changes in paper properties, as well as unavoidable trim. This project attempted to identify specific causes for some of the waste and then identify solutions.

Incentives To Change

KapStone Container has the third highest water consumption in the city of Fridley, consuming 10 million gallons of water in 2017 at a cost of \$100,000 per year. The plant also generates about 9 million pounds of paper waste per year, and has a goal to reduce manufacturing paper waste from 14.5% to 12.5% of the total amount of paper purchased. Paper waste currently costs about \$2,700,000 per year.

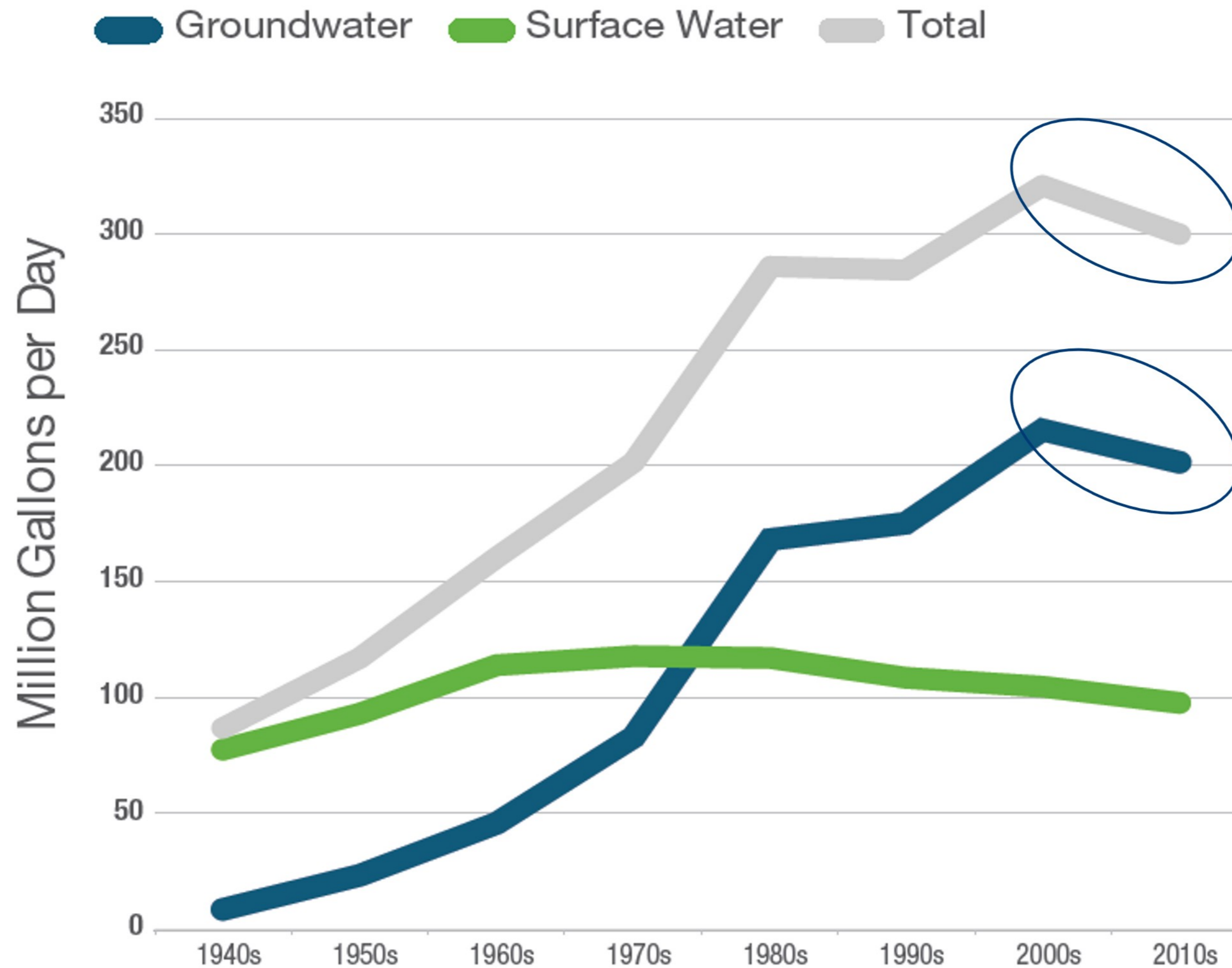


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Are we heading in the right direction?

Now we use more groundwater compared to river water



Groundwater withdrawal
2011-2015 average is less
than 2007-2010 average
by **17 MGD**



Resources

- Water Supply Planning staff
- Environmental services staff
- 6 consulting companies
- University of Minnesota
- Freshwater
- United States Geological Survey

- Clean Water Fund (\$ 2.75 Millions)
 - Water supply sustainability support
 - Efficiency Grants
- Metropolitan Council
 - Regional planning (\$ 100,000)
 - MAWSAC/TAC coordination & support (\$75,000)
 - Local water supply planning support (\$100,000)



What We Have Learned

Working together to achieve better results

- Collaborations
 - Engage stakeholders early
- Partnerships
 - Facilitate relationships building
- Learning from each other
 - Understand other's perspectives



Questions

Ali Elhassan

MCES Manager Water Supply Planning

ali.elhassan@metc.state.mn.us

651-602-1066

