

Source Water Protection and Connections to Land Use

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LUAC – JULY 15, 2021



Today's agenda

Updates on water supply work

- Water supply in comprehensive plans
- 2020 report to legislature on water supply planning activities
- Two examples of recent water supply efforts

Metro Area Water Supply Advisory Committees' Work

- Work plan
- MAWSAC and TAC exploration of land use and water supply

Next Steps

Water supply trends and themes from Comp Plan composite

Infrastructure

Significant region-wide investment planned for water supply system infrastructure: wells, distribution, and treatment

Water Demand

Decreasing per capita water demand as a region, varying by community type; Growing appetite for considering a range of water demand forecast scenarios

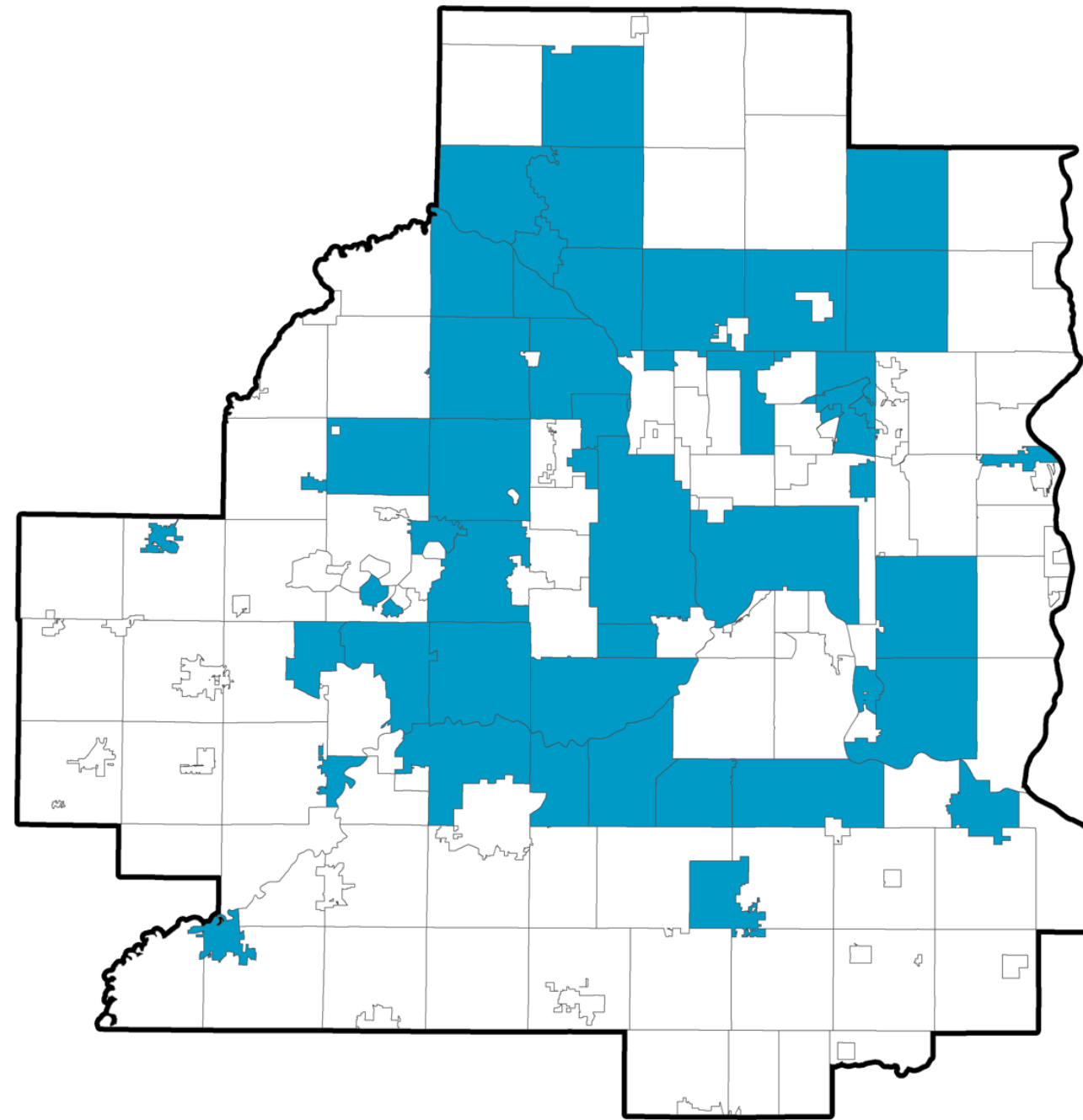
Groundwater-Surface Water Interaction

Address groundwater assessment and protection through local watershed management plans

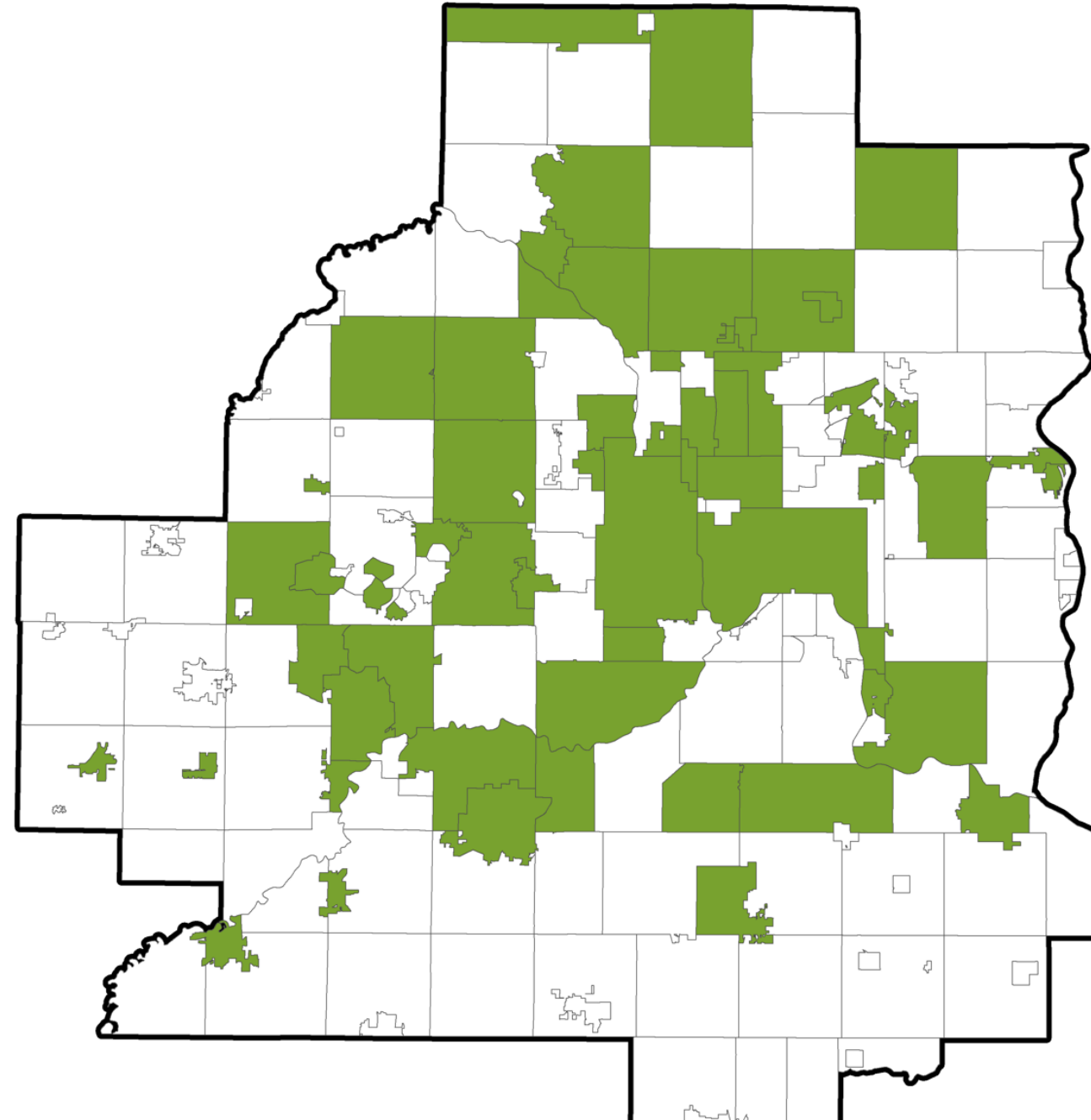
Source Water Protection

65% of the metro area has been designated as a source water management area (surface water and/or groundwater); increase links to watersheds, land use

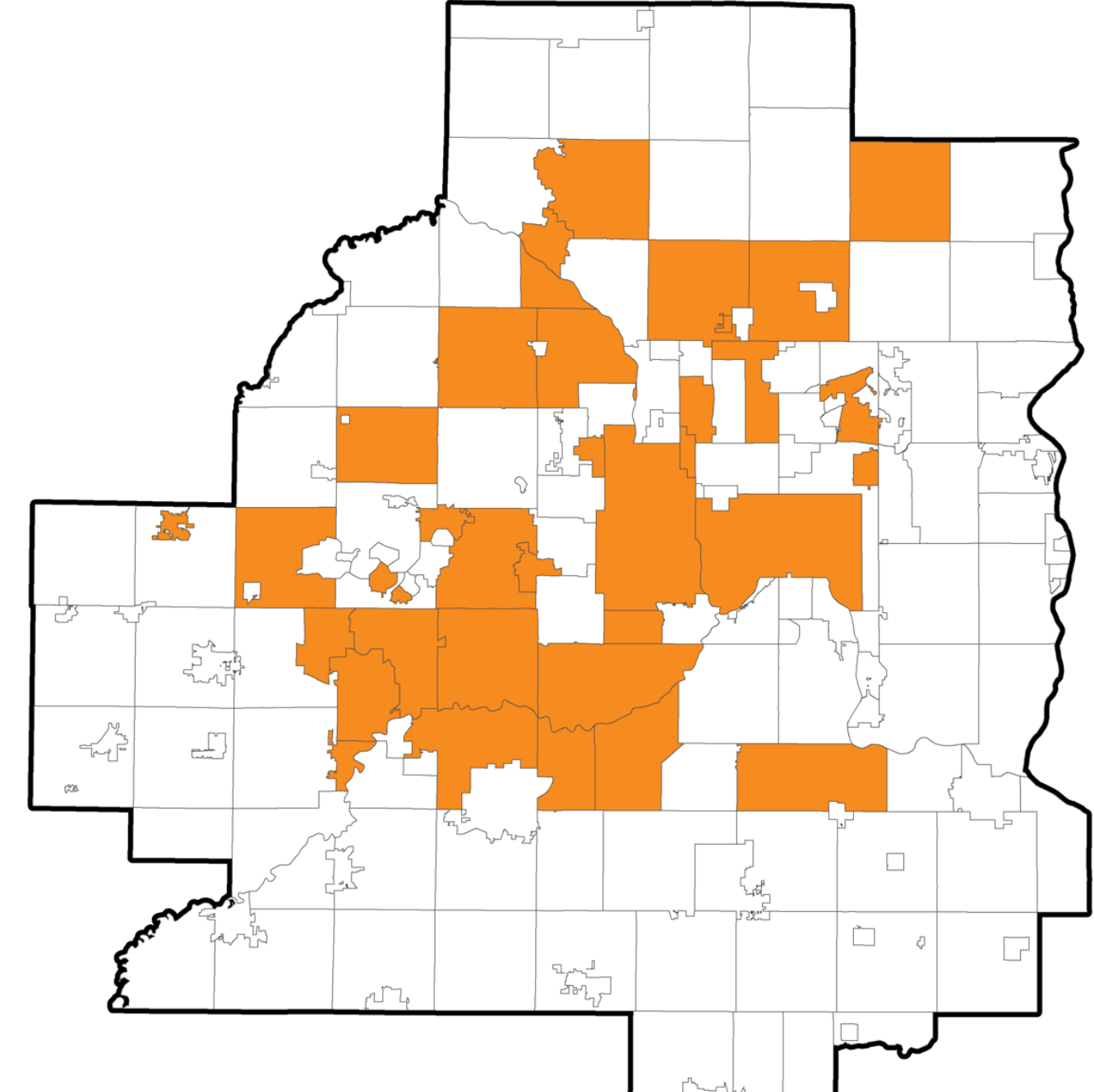
Water supply trends and themes from Comp Plan composite. continued



NEW WELLS
50+ communities



DISTRIBUTION
60+ communities



WATER TREATMENT
35+ communities

Source: 2040 local water supply plan updates submitted as part of community comprehensive plans. Not all local water supply plans had been submitted to the Council at the time of this mapping project; this information will be updated to include additional information received.

REPORT: Water Supply Planning in the Twin Cities Metropolitan Area (2005-2020)

The report documents work done and directions for future work:

1. How could equity be implemented in water supply activities?
2. What is the impact of climate change on our resources and operations in the water supply sector?
3. How can we strengthen land use and water supply planning connections?
4. What can we do to prevent contamination of our water supply sources and respond more effectively to emerging contamination (recent examples: PFAS, chloride)?

Climate thinking and water

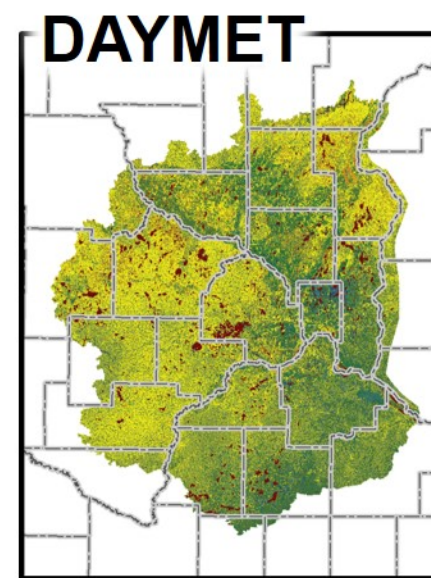
Testing feasibility of regional modeling to explore how projections of precipitation and temperature might change the amount of water available to recharge groundwater



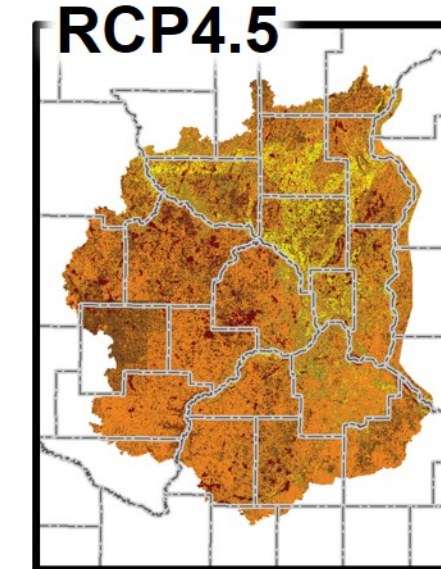
1988-2011



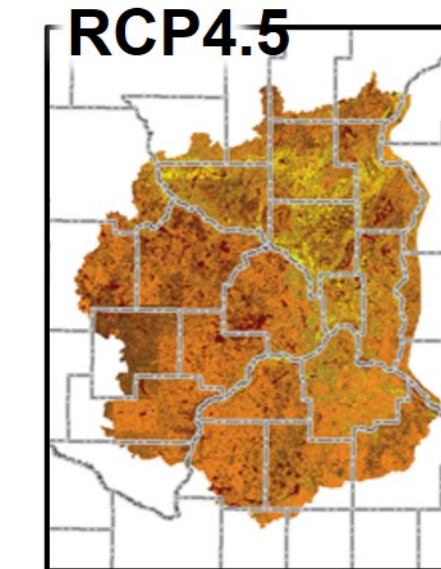
2010-2019



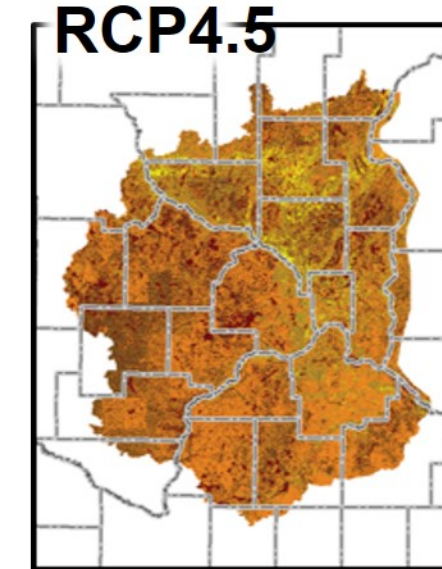
2020-2039



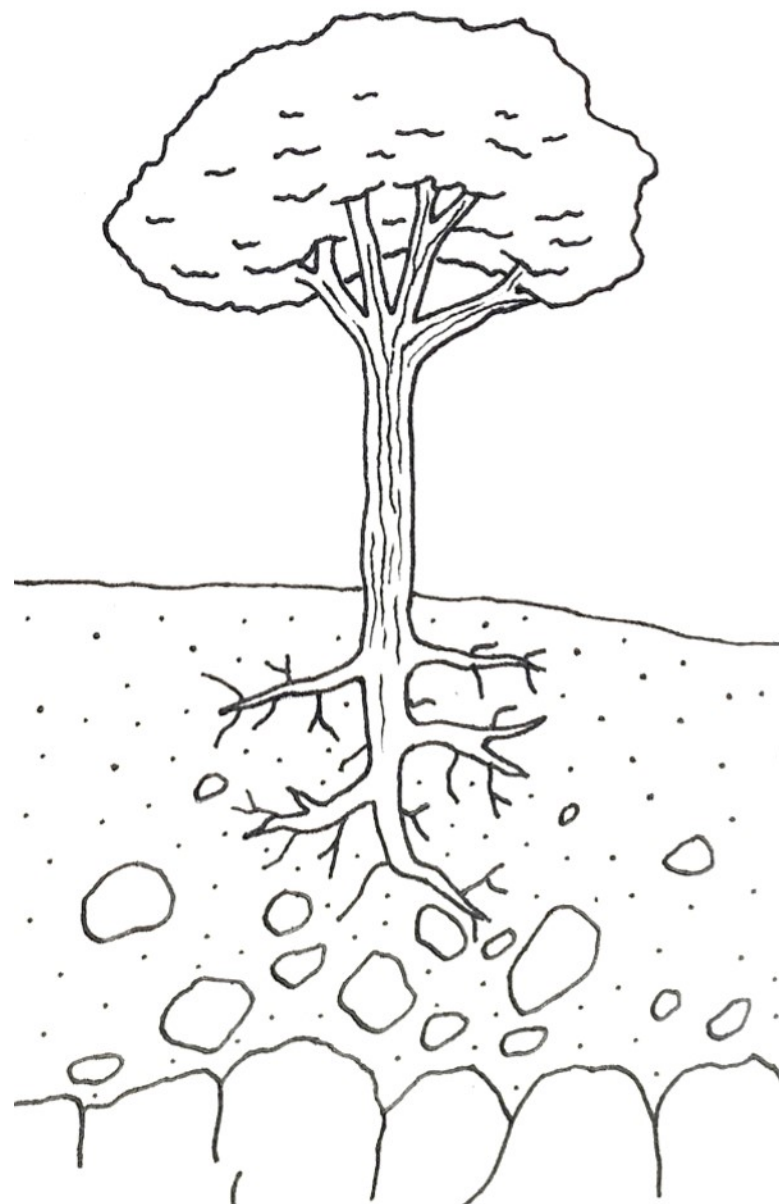
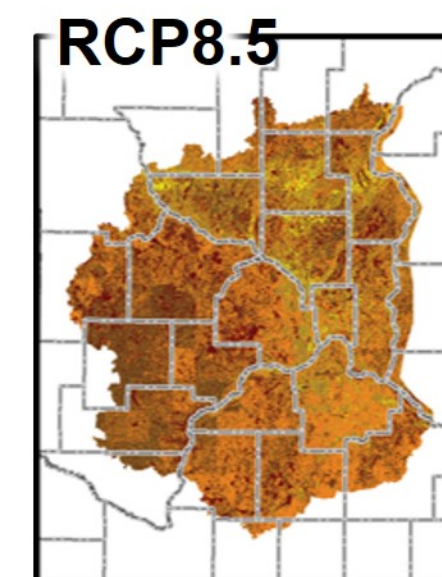
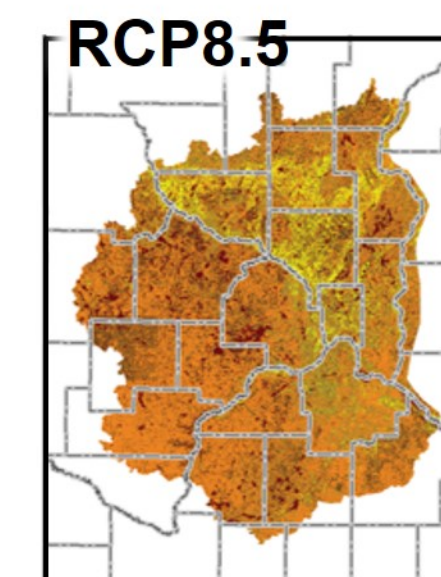
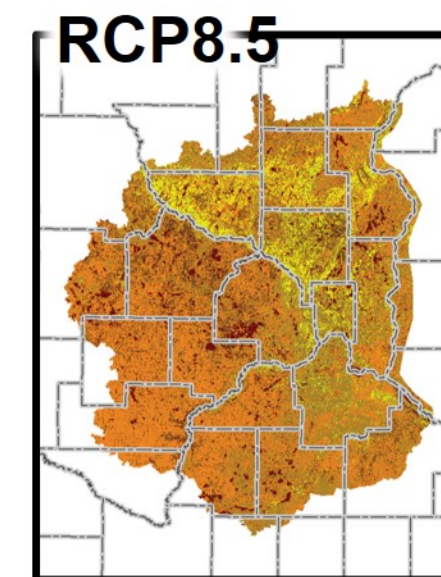
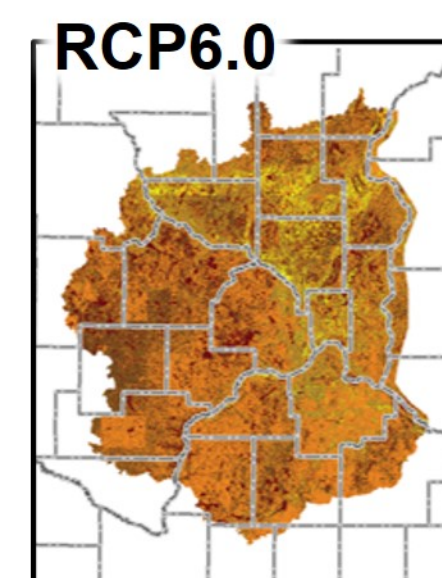
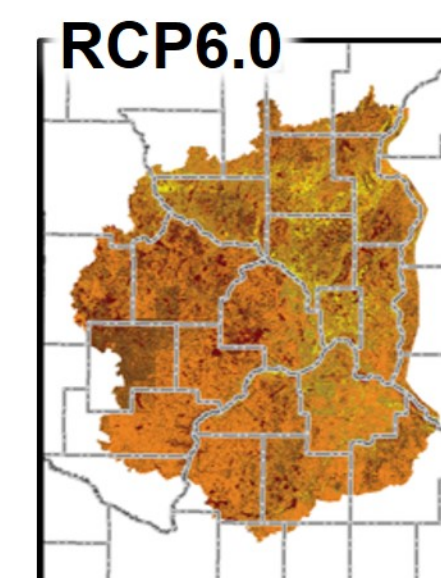
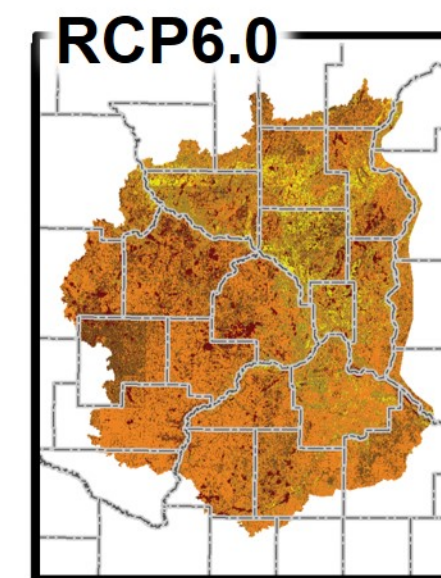
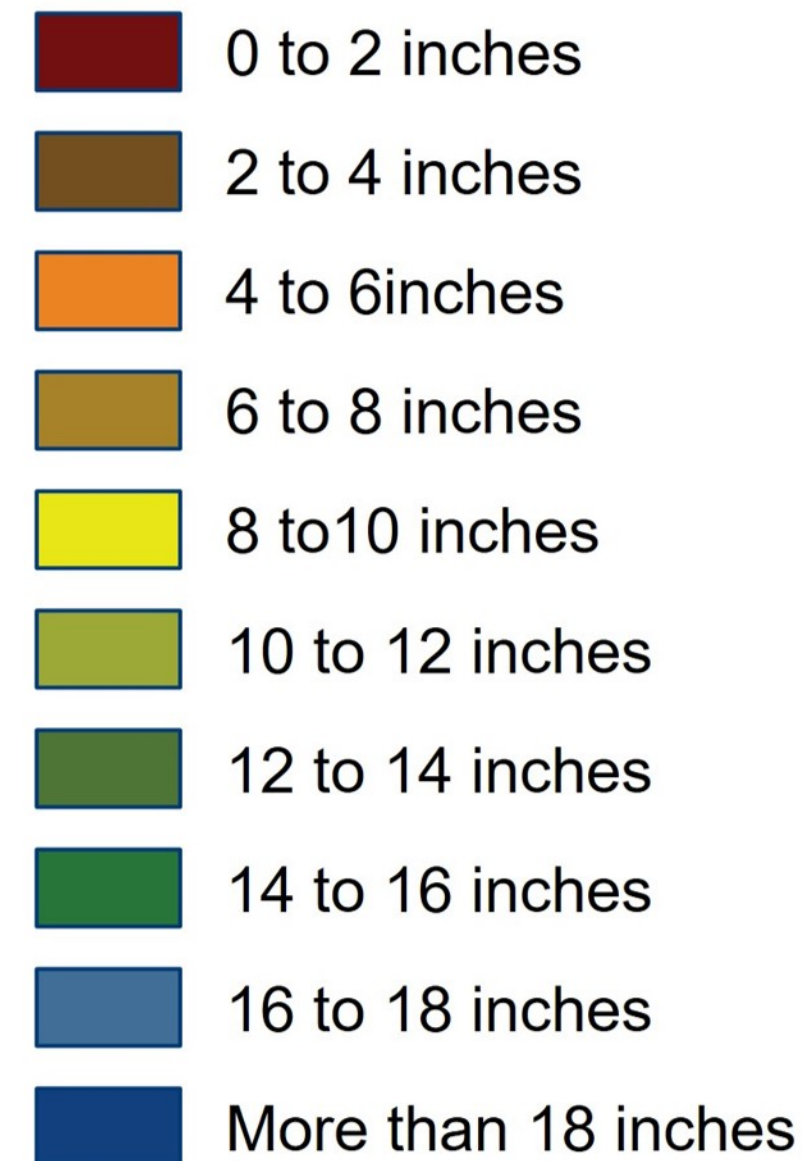
2040-2069



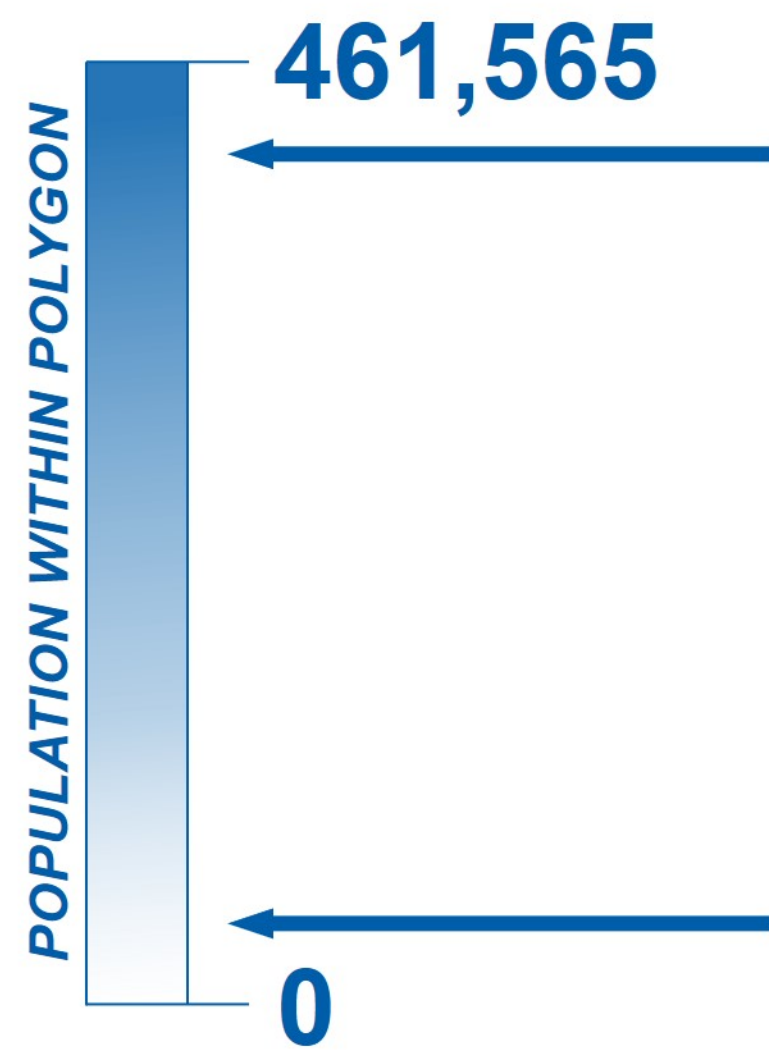
2070-2099



Annual infiltration (inches)

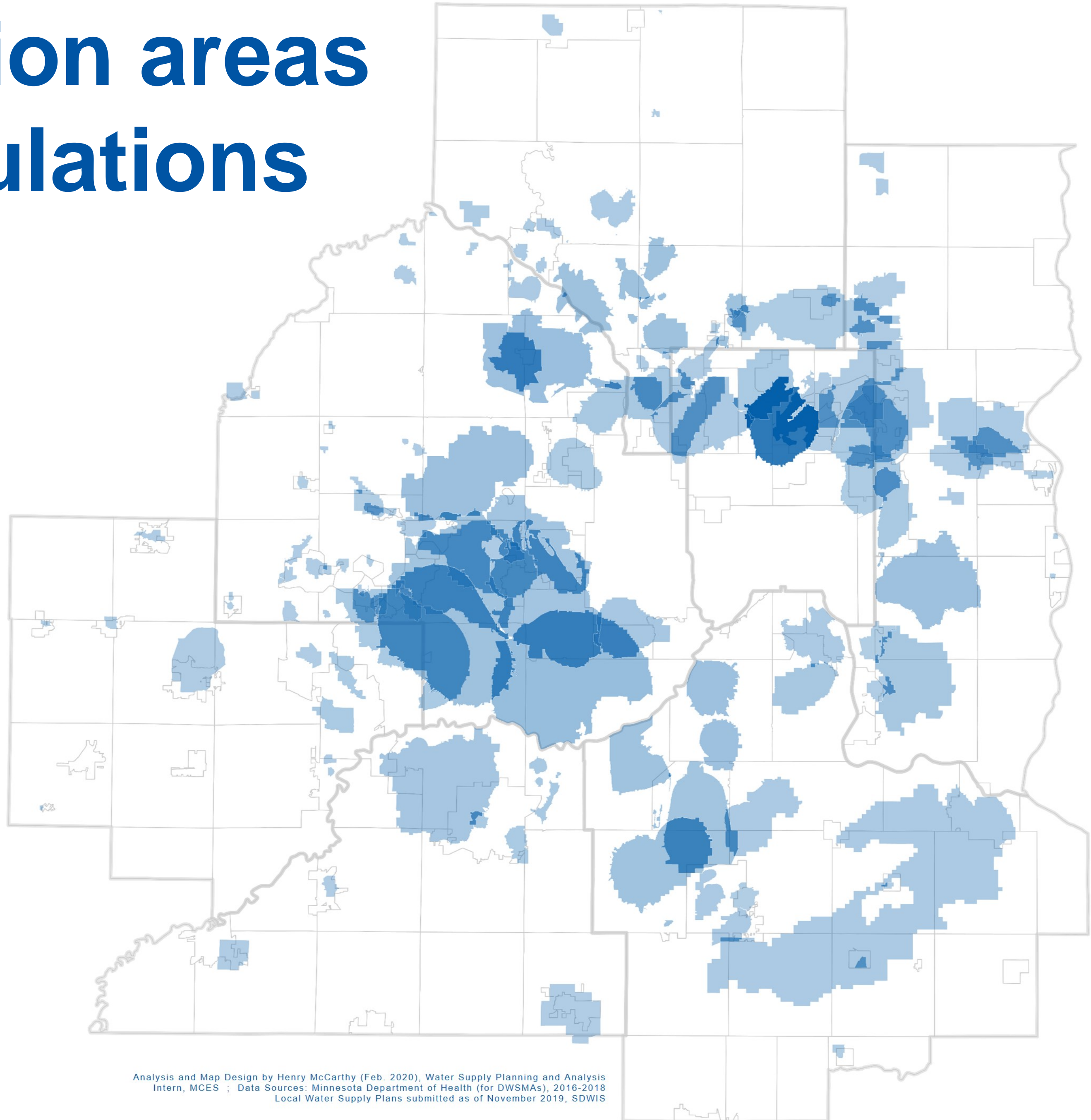


Source water protection areas (groundwater) & populations served



Some areas contribute to drinking water for more than 400,000 people (St. Paul and its overlapping areas)

Other areas contribute to populations as small as 203 people (East Bethel)



Analysis and Map Design by Henry McCarthy (Feb. 2020), Water Supply Planning and Analysis Intern, MCES ; Data Sources: Minnesota Department of Health (for DWSMAs), 2016-2018 Local Water Supply Plans submitted as of November 2019, SDWIS

Land cover and associated potential contaminant sources

LAND COVER	POTENTIAL CONTAMINANT SOURCE
<i>Forest</i>	<ul style="list-style-type: none"> At this time, there are no potential contaminate sources identified
<i>Barren land</i>	<ul style="list-style-type: none"> Mining, pit (aggregate), stormwater runoff
<i>Wetlands and Open Water</i>	<ul style="list-style-type: none"> Stormwater runoff, road or rail crossing over water
<i>Hay/Pasture/Cultivated Crops</i>	<ul style="list-style-type: none"> Land application, nutrient application/management, feedlots, storage and preparation areas
<i>Developed - Open Space</i>	<ul style="list-style-type: none"> Wells, septic systems, turf management, chemical application and storage
<i>Developed - Low and Medium Intensity</i>	<ul style="list-style-type: none"> Wells, septic systems turf management, chemical application and storage, stormwater basins/drains/infiltration, stormwater runoff, above ground storage tanks, class V wells, transportation corridor
<i>Developed - High Intensity</i>	<ul style="list-style-type: none"> Wells, septic systems turf management, chemical application and storage, stormwater basins/drains/infiltration, stormwater runoff, above ground storage tanks, class V wells, transportation corridor, road and rail crossings (spills over water), solid waste management site, pipeline, gravel pit, suspected contaminant of concern, hazardous waste handler and/or generator

Goal for water supply advisory committees (MAWSAC and TAC)

By 2022, produce a set of recommendations and supporting information around high-priority water supply topics to support the update of the Council's regional development guide and related policy plans.

Policy makers and influencers will be better informed to develop and implement policies that ensure a sustainable water supply for the region.

Recommendations to the Council and the Legislature may address:

- Technical studies,
- Policy updates,
- Collaboration, and/or
- Funding

Perspectives to consider: Water supply advisory committee members

Consider that many of our current problems came about because we didn't understand the implications of handling industrial/commercial waste many years ago. Are we creating problems now with our current land use or industrial practices that our communities will have to address 50 years from now?

I support the committees' collaboration with other groups around water supply challenges. Often, the root cause of contamination is in an area outside of the water supply sector. For examples: transportation, agriculture, watersheds.

We try to create a CIP for sewer infrastructure; we have capital projects envisioned with certain price tags. Then planning comes and changes land use. Why can we pivot on land use when underground infrastructure can't pivot? I understand that planners are in the business of bringing business to the city, and while I provide infrastructure to support that, I can't do that well if the goal post keeps changing."

MAWSAC and TAC work plan

TOPIC	DATES
Work Plan Kickoff	March 23, 2021
1) Contamination and Water Quality	April 20, 2021 (TAC) and May 18, 2021 (MAWSAC)
2) Intersection of Land Use and Water Supply	June 15, 2021 (TAC) and July 20, 2021 (MAWSAC)
3) Groundwater - Surface Water Interaction	August 17, 2021 (TAC) and September 21, 2021 (MAWSAC)
4) Infrastructure	October 19, 2021 (TAC) and November 16, 2021 (MAWSAC)
Subregional Work Group Forum	December 2021 (TAC and MAWSAC)
Approval of Recommendation Report	January 18, 2022 (MAWSAC, with TAC input)
Outreach and Engagement	First and second quarters of 2022 (TAC and MAWSAC)

Food for thought

1. What trade-offs or tensions do you perceive might shape public support for protecting source water through land use choices?
2. What resources would help most?
3. Who in your community is most impacted by expectations for source water protection or concerns about infrastructure changes/expansion?
4. How could the Council and/or organizations represented on the metro area water supply advisory committees help?

Next steps

- MAWSAC discussion of land use and water supply July 20, 2021
- MAWSAC and TAC exploration of groundwater-surface water interactions and infrastructure
- Drafting MAWSAC report to Council + legislature, due in 2022

Questions

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