



Environment Committee Informational Item

Water Policy Research Project

Environment Committee Informational Item



August 8, 2023 | Jen Kostrzewski & Maureen Hoffman

Agenda



Water Planning Overview



Water and Climate Research
Paper

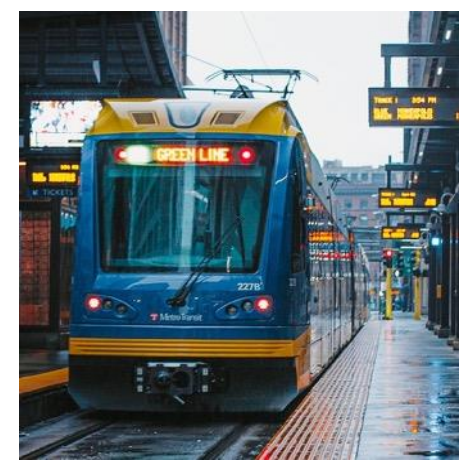
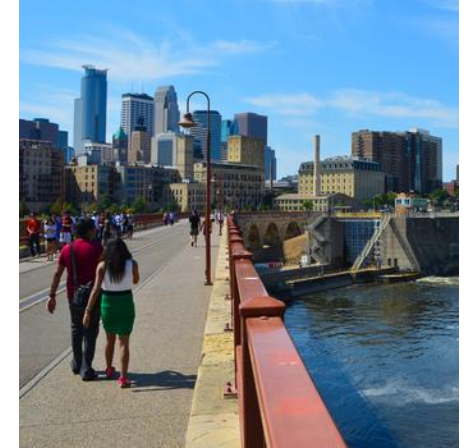


Rural Water Concerns
Research Paper

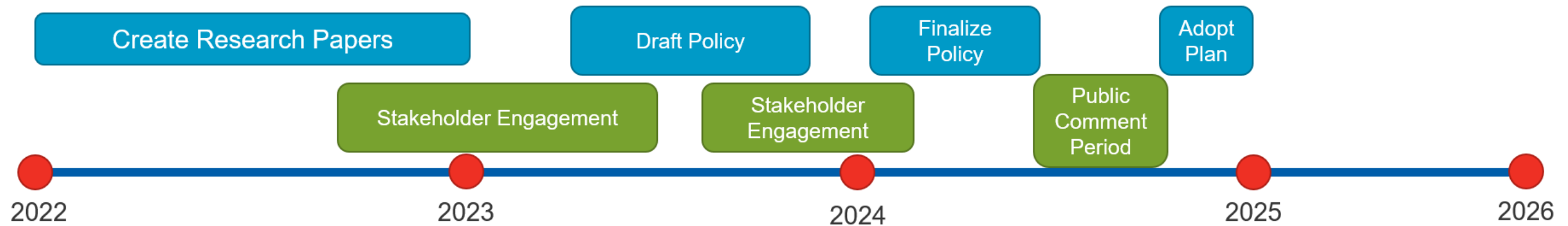
Water Resource Policy Plan (WRPP)

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.



2050 WRPP Timeline

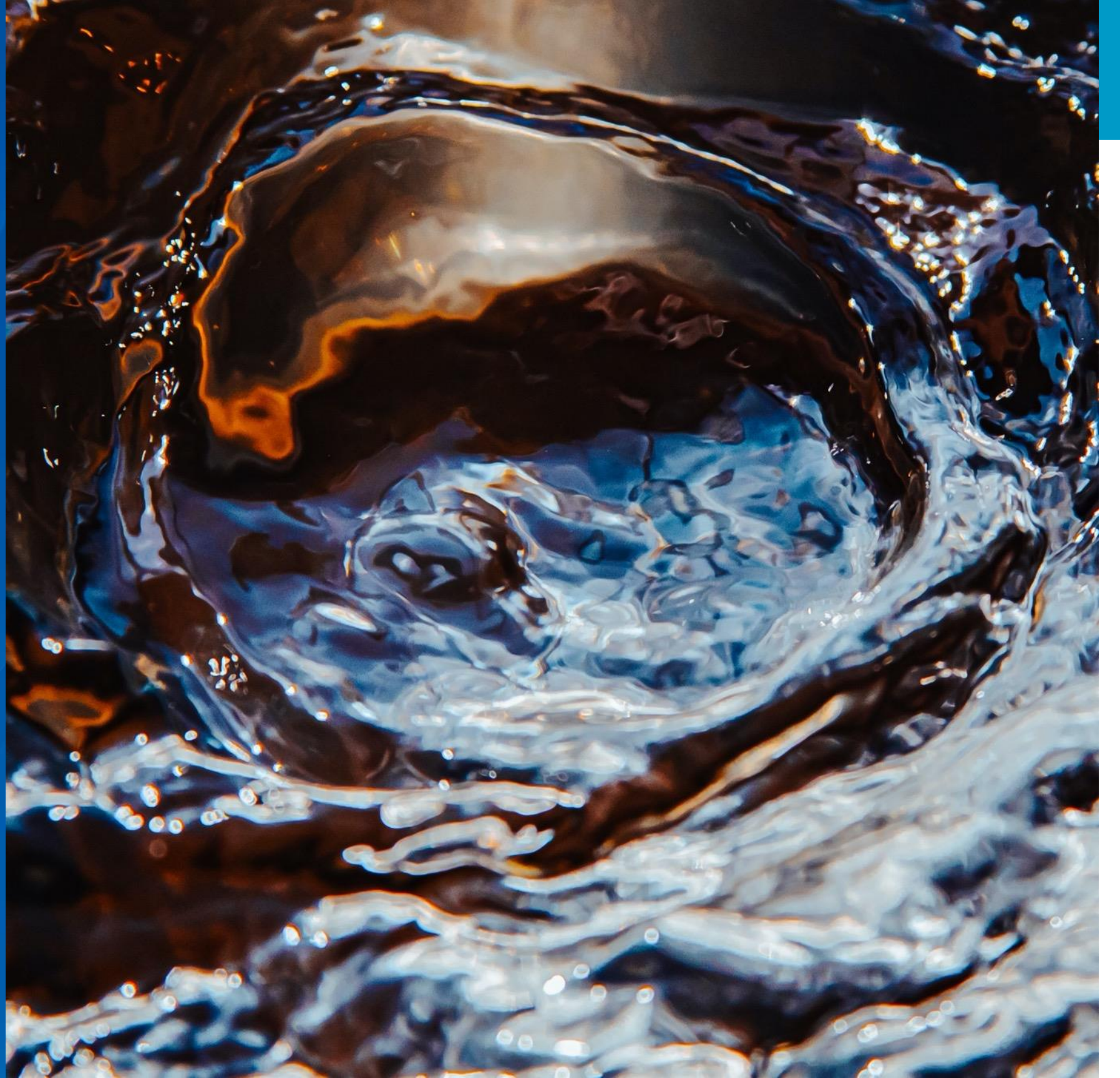


WRPP Research Topics



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

Water and Climate



Our changing climate



Minnesota is getting warmer and wetter

The scientific evidence is clear: Minnesota's climate already is changing rapidly.



Heavy rains put our health, water quality at risk

Climate change poses severe challenges for our stormwater systems.



Mega-rains overwhelm rivers, roads, and budgets

Since 2000, Minnesota has seen a significant uptick in devastating rainstorms.

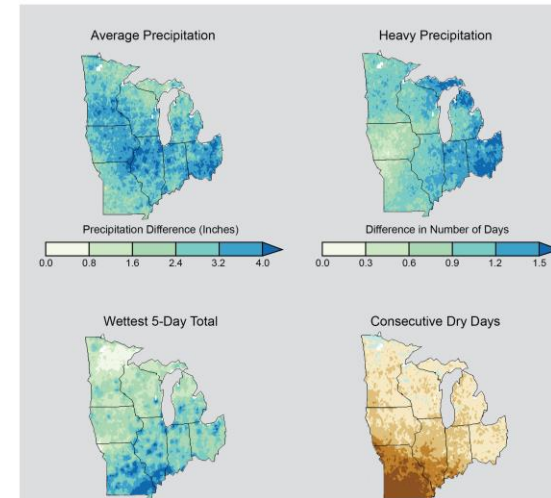


Disproportionate heat risks for communities of color

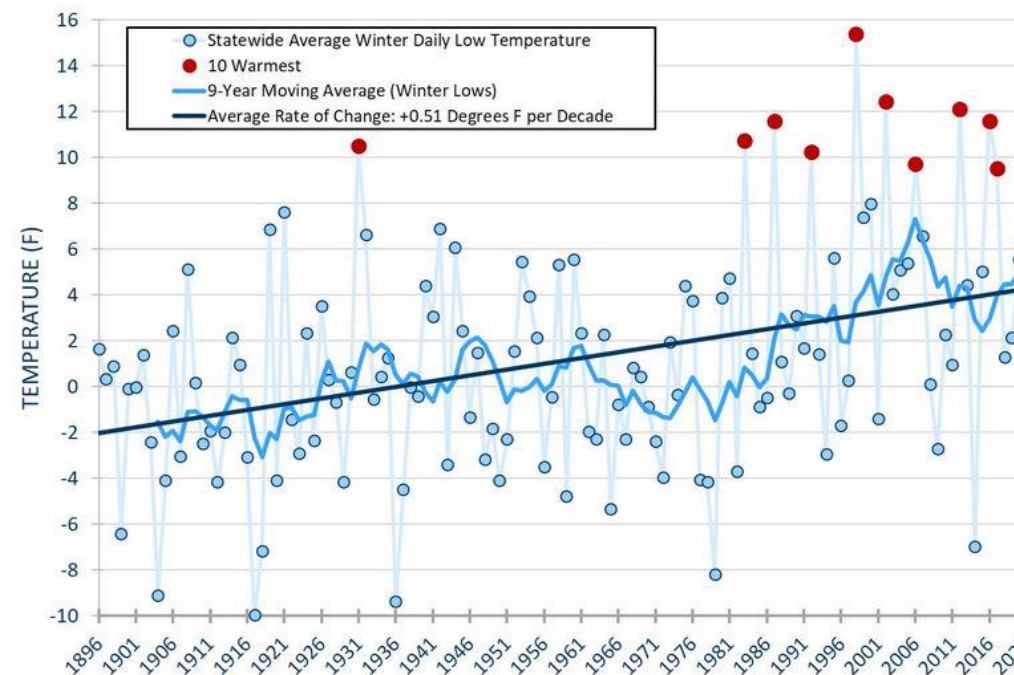
Decades of housing discrimination created climate inequities in cities like Minneapolis.

Water and climate impacts

- Extreme precipitation
- Prolonged wet periods
- Warmer winters
- Heat waves
- Droughts
- Socioeconomic and ecosystem disruptions

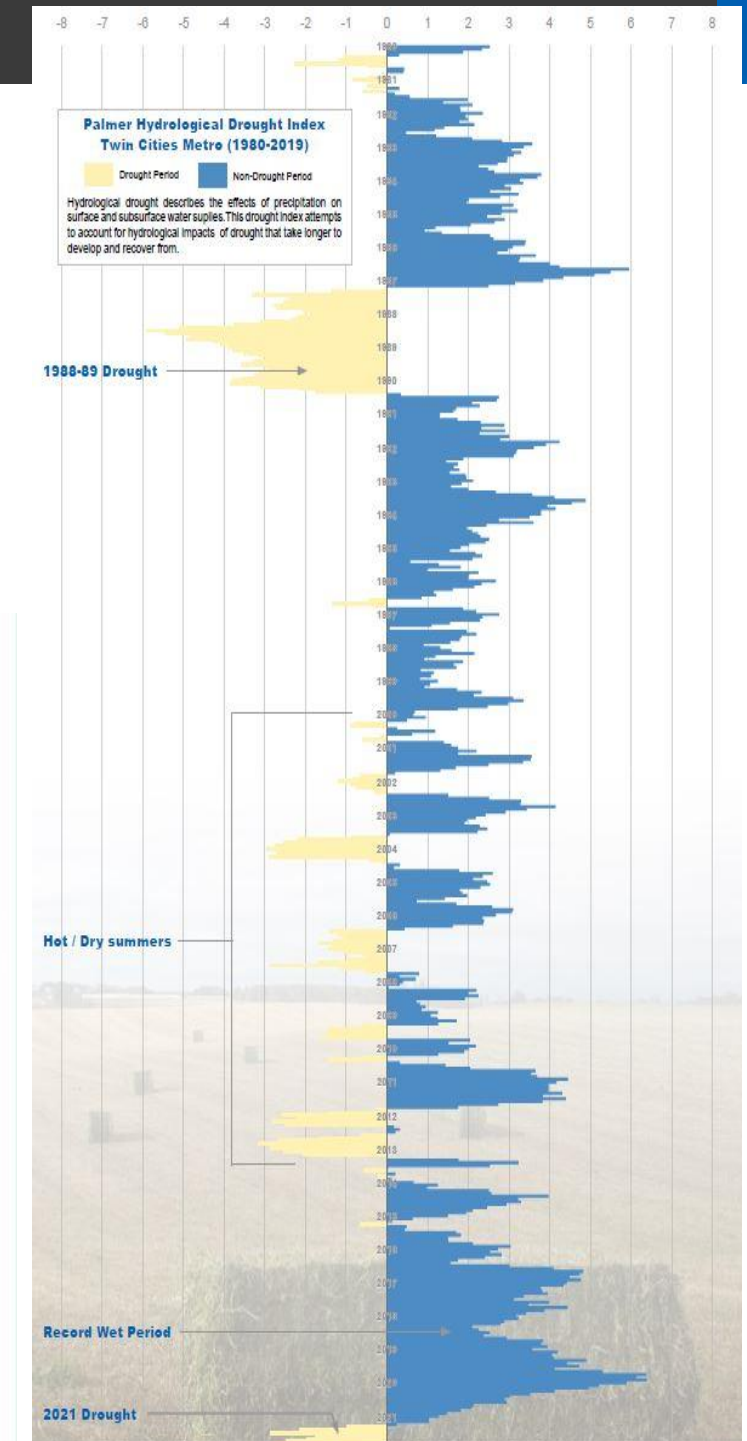


Minnesota Average Winter Daily Minimum Temperatures (December through February, 1896-2021)



m 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>)



Water and climate issue statement



Climate change poses immediate risks and future challenges on both natural and built environment.

Public health, ecosystem function, economic growth, and community and individual well-being are facing increased pressures - limiting equitable outcomes for regional residents.

Within the water sector, climate change affects us all - water resources, water infrastructure, and water utility services.

Limiting the most severe impacts of climate change necessitates both immediate and sustained action to reduce greenhouse gas emissions (mitigation) and to implement resilient climate design (adaptation) within our regional water infrastructure, water planning, and social systems that support our ability to thrive.

What is our climate role?

Regional Water Planning

Council is further charged with planning for the orderly and economic development of the seven-county metro area while recognizing and encompassing physical, social, or economic needs of the metropolitan area and those future developments which will have an impact on the entire area.

Regional Wastewater Collection & Treatment

To meet our statutory obligations to provide wastewater services and meet permit requirements, however, we need to ensure that our infrastructure is resilient and can withstand the impacts of climate change.

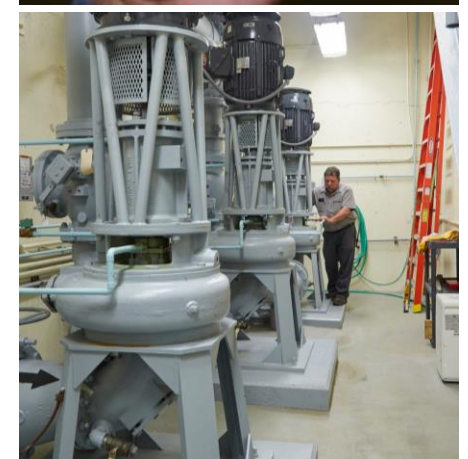
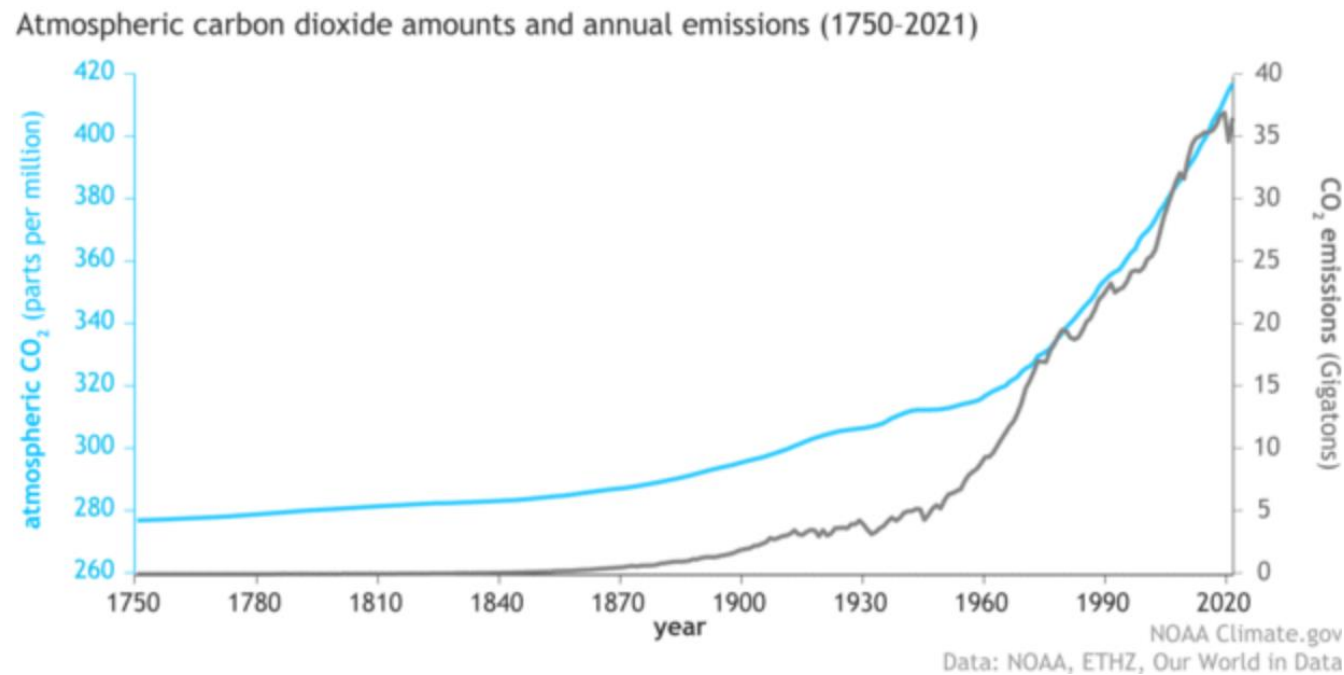
Climate actions

Mitigation: focuses on minimizing contributions to climate change through efficiency measures and reducing greenhouse gas emissions.

Adaptation: focuses on how to change policies and practices to adjust to ongoing and future impacts of climate change.

Crucial concerns - mitigation

- Climate change is creating challenges, increasing costs, and negatively affecting water utilities and water resources in the metro area.
- We can never fully remove greenhouse gas emissions from our wastewater process.
- We can improve our energy consumption and employ alternative technologies to reduce greenhouse gas emissions to help meet the state goal of carbon neutrality by the year 2050.
- Additionally, the regional water utility sector (local water suppliers and public works) has an opportunity to reduce their greenhouse gas emissions as well.



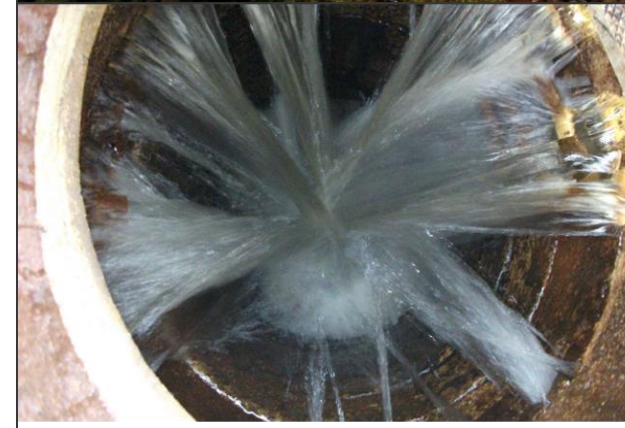
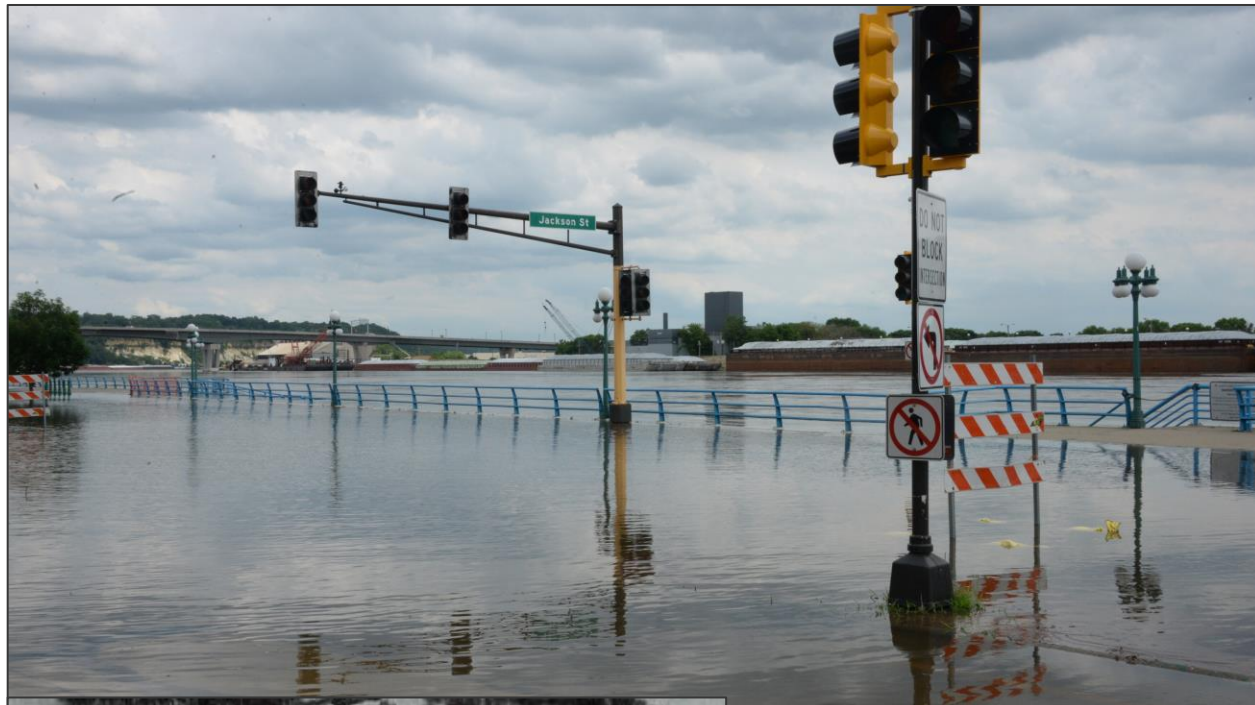
Crucial concerns – water & land management



Regional economic and population growth and land development and redevelopment must be done within the context of a changing climate.

- **Flooding**
- **Non-point source pollution**
- **Increasing impervious surfaces**
- **Water restrictions**
- **Drought-tolerant landscapes**

Crucial concerns – water infrastructure



Crucial concerns – socioeconomic

For many, Minneapolis parks offer a way to beat the heat

Regina Medina Minneapolis July 26, 2023 5:31 PM



Tyna'Ja, 11 (left), and Lyllian jump into the Webber Natural Swimming Pool in north Minneapolis on Tuesday. [Ben Hovland | MPR News](#)

Climate change

Climate-proof Duluth? Why the city is attracting 'climate migrants'

Dan Kraker Duluth, Minn. October 4, 2021 6:18 AM



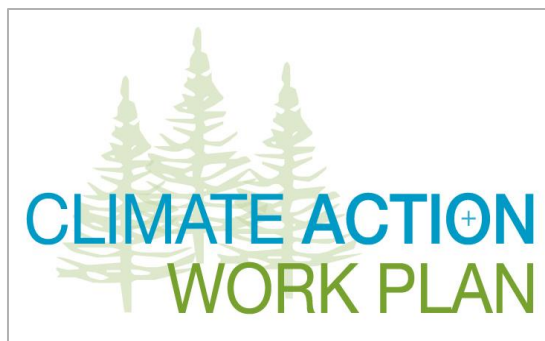
A stretch of the Lakewalk in Dec. 17, 2020, in Duluth, Minn. The city has been identified as a potential destination for future “climate migrants” — people who leave their homes due to rising sea levels or climate-related extreme weather. [Derek Montgomery for MPR News 2020](#)

Current policy

Policy on Wastewater Sustainability

The Council will provide efficient, high-quality, and environmentally sustainable regional wastewater and regional services.

The Council shall conduct its regional wastewater system operations in a sustainable manner as is economically feasible. Sustainable operations relate not only to increasing energy efficiency and using renewable energy sources, reducing air pollutant emissions, and reducing, reusing, and recycling solid wastes.



Policy on Sustainable Water Supplies

While recognizing local control and responsibility for owning, operating, and maintaining water supply systems, the Council will work with our partners to develop plans that meet regional needs for a reliable water supply that protects public health, critical habitat, and water resources over the long term.



Policy on Watershed Approach

The Council will work with our partners to develop and implement a regional watershed-based approach that addresses both watershed restoration (improving impaired waters) and protection (maintaining water quality in unimpaired waters).



Recommendations

The Metropolitan Council prioritizes the mitigation of greenhouse gas emissions and their climate consequences in its operations, facility management, and planning functions.

Proposed actions:

- The Metropolitan Council will have net zero emissions by 2050, in alignment with the Minnesota Climate Action Framework.
- The Metropolitan Council will maximize energy efficiency, electrification, energy recovery, and renewable energy opportunities in the planning, design, procurement, operation, and maintenance of its assets.
- The Metropolitan Council will work to implement a methodology to account for the social cost of greenhouse gases when conducting cost-benefit analyses.
- The Metropolitan Council will support the development and piloting of innovative approaches to reduce emissions in our own or the region's operations emissions through demonstration projects.

Recommendations Part 1

The Metropolitan Council will support, partner, and create information to better understand the impacts of climate change on the natural and built environments within the metro area.

Proposed actions:

- The Metropolitan Council will convene water and climate-focused conversations to ensure regional priorities are represented and shared. This includes state agencies, climate policy experts, watershed organizations, water suppliers, community planners, and residents.
- The Metropolitan Council will partner with and support university and research organizations to generate metro area-specific climate information and best understand the potential future climate based on current science and models.
- The Metropolitan Council will share climate research with local governments and decision-makers through tools and resources to encourage local risk assessments, evaluation, and action.

Recommendations Part 2

The Metropolitan Council will consider the climate vulnerabilities and risks within our facilities and reduce the impact of climate on water resources, land management, water planning, and regional wastewater services now and into the future.

Proposed actions:

- The Metropolitan Council will connect, partner, and learn from other water utilities and planning organizations as we take on water and climate challenges.
- The Metropolitan Council will periodically reevaluate and assess climate vulnerability and risk to our facilities and infrastructure as we refine climate projections.
- The Metropolitan Council will make investments to safeguard our regional wastewater system to ensure its viability in a changing climate.
- The Metropolitan Council will be a regional leader in climate-focused land management by managing our facilities and land holdings to reduce impervious surfaces, integrate green infrastructure and nature-based solutions within our stormwater management systems, install native plantings where possible.

Recommendations Part 3

The Metropolitan Council will support and collaborate with local communities and partners to understand regional climate risk, including the associated economic, social, and cultural consequences, and adapt land use and water infrastructure to ensure sustainable water resources and resilient regional growth.

Proposed actions:

- The Metropolitan Council strongly supports low-impact design and the integration of nature-based solutions into regional development to adapt to projected climate impacts on our land and waters.
- The Metropolitan Council will evaluate and quantify the risks to our regional waters, ecosystems, and local water utilities through scenario planning, adaptive management, and the creation of robust strategies and plans.
- The Metropolitan Council will identify social, economic, and cultural impacts of water-related climate change impacts on vulnerable communities within the region.
- The Metropolitan Council will assess and provide recommendations on the creation of funds to help close the investment gap in water (stormwater, water supply, and wastewater) infrastructure.

Recommendations Part 4

The Metropolitan Council recognizes that climate change exacerbates current and future regional disparities and will work with impacted communities to co-create water and climate solutions that fit regional objectives and best benefit the community.

Proposed actions:

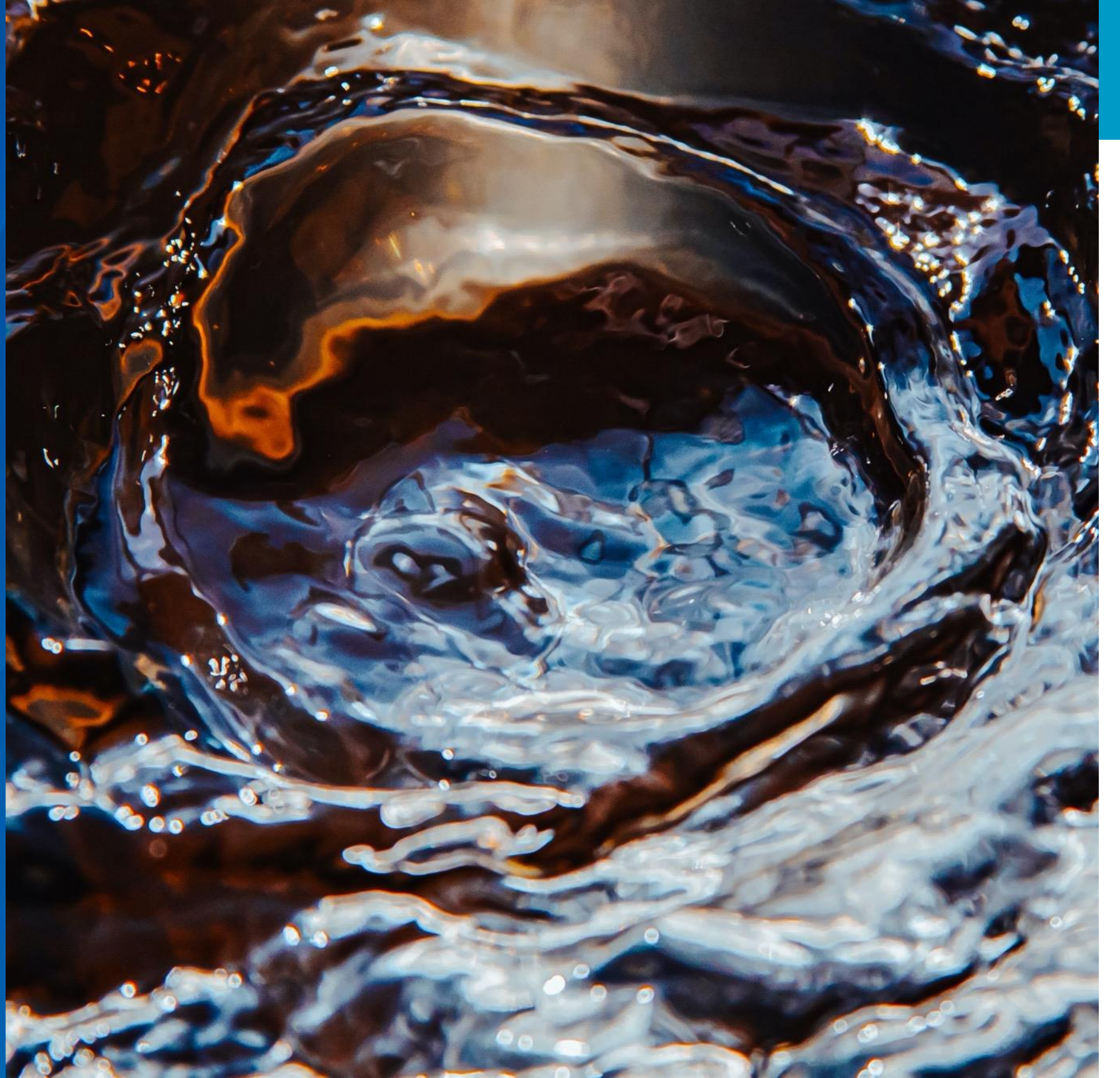
- The Metropolitan Council will listen and make an honest effort towards reconciliation with communities most impacted by environmental injustices relating to wastewater, water planning functions, or other experienced water inequities.
- The Metropolitan Council will co-create solutions with impacted communities to best alleviate water and climate burdens.
- Environmental Services will integrate equity metrics into our programs, projects, and services.
- Environmental Services will partner and collaborate with other Metropolitan Council divisions to address equity efforts that overlap regional systems.

Water and climate discussion questions

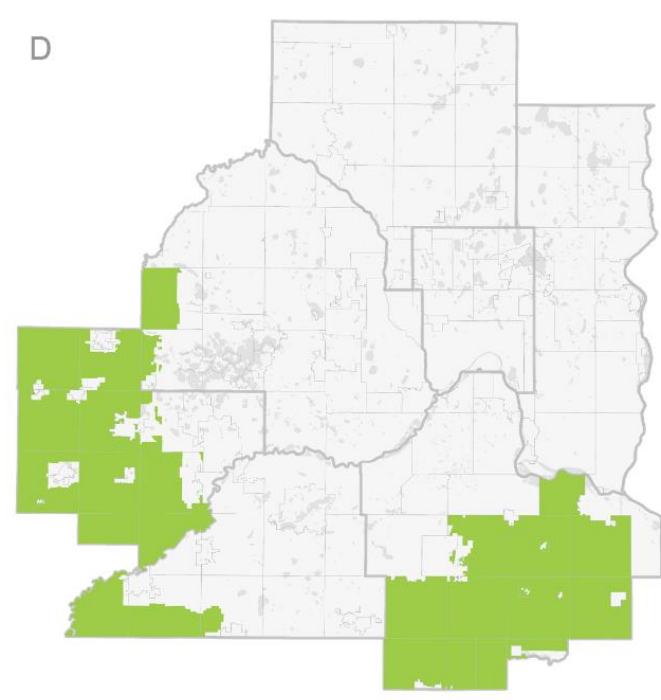
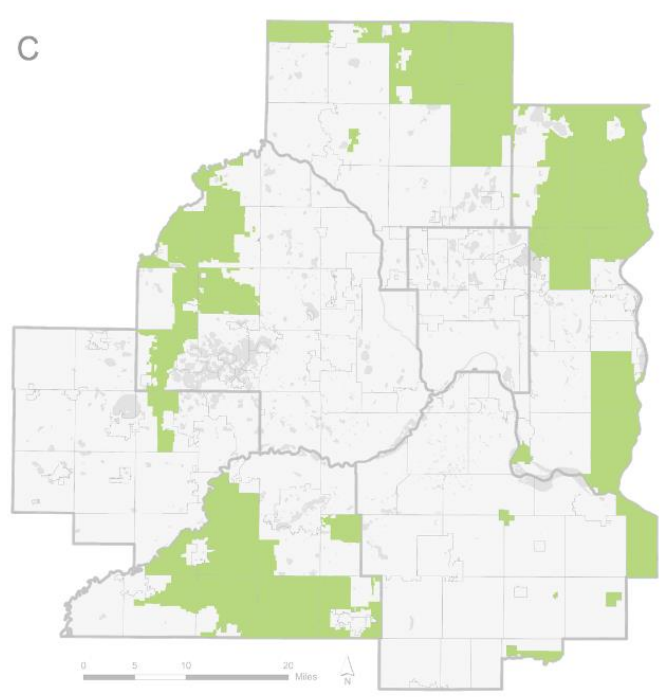
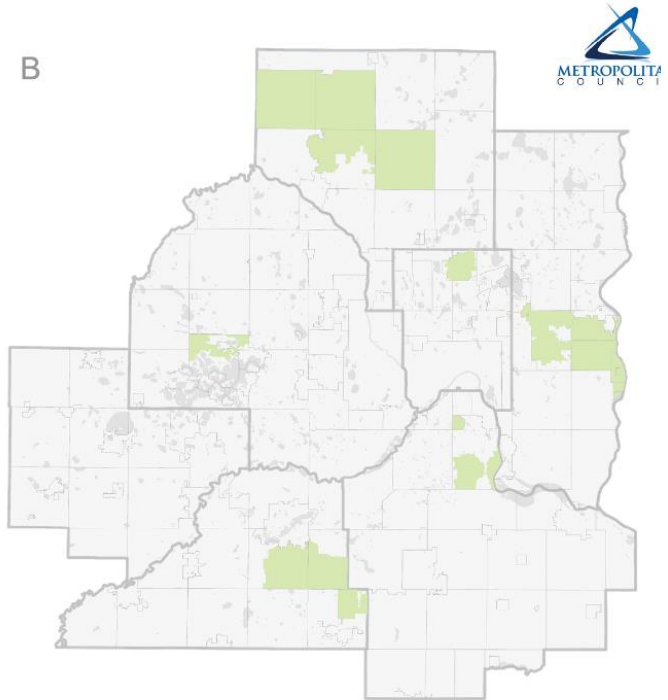
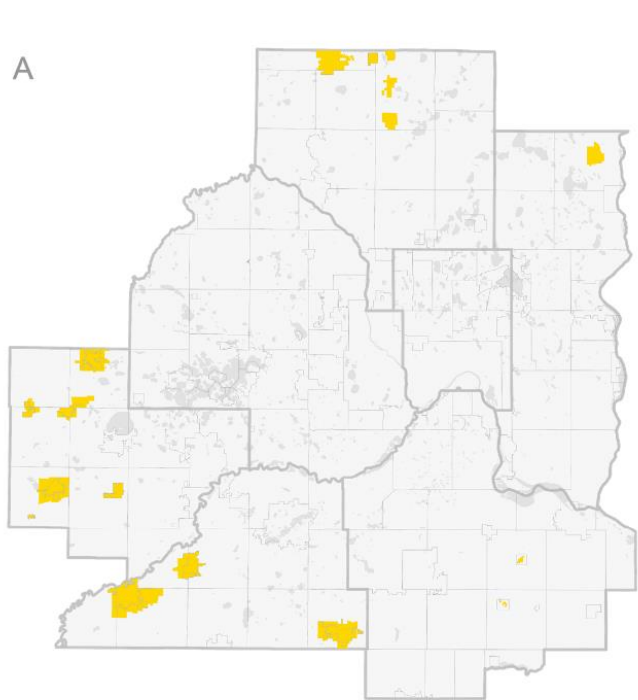
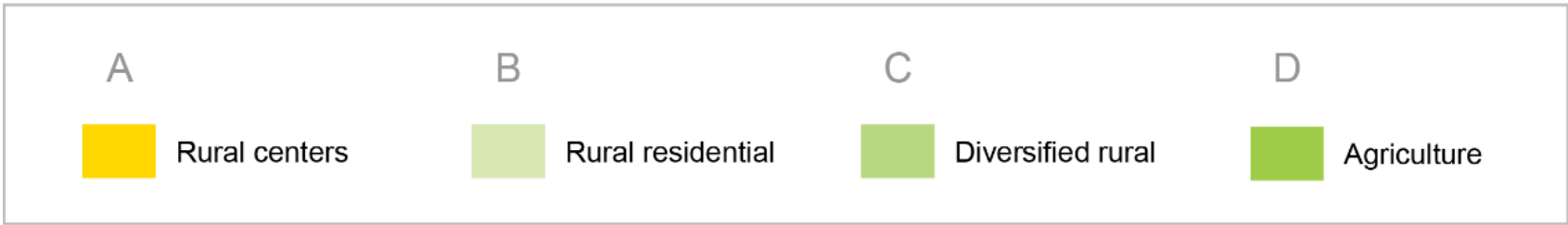


- Have any of your district cities or townships discussed these crucial climate concerns with you?
- Did we miss anything?
- What can/should the Council do to help increase our agency's resiliency?
- What can/should the Council do to help increase our regional resiliency?

Rural Water Concerns



Our rural lands



Rural water concerns issue statement



Rural lifestyles and high-quality natural resources provide critical benefits to the region's economy.

Rural and agricultural areas account for about half of the region's land but represent a much smaller proportion of the population.

Our region benefits from a diversity of natural resources, communities, land uses, and economies.

As the region grows and climate shifts in the coming decades, rural areas are likely to experience significant changes.

Long-term development, land use change, and limited funding to address aging infrastructure pose substantial threats to water resources and ecosystems in rural and downstream areas.

To plan for a sustainable and vibrant future, the Met Council must establish adaptive, forward-looking policies that support rural livelihoods, protect and enrich our region's waters, and promote equitable outcomes for current and future generations.

Rural water concerns primary drivers

Climate Change

- Floods
- Droughts
- Altered length of growing season
- Invasive species

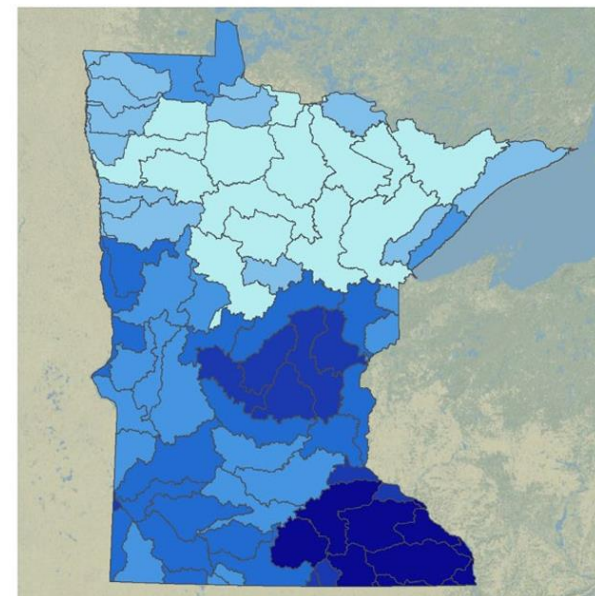
LOCAL NEWS

DNR finds city of Blaine tapped out nearly 50 private wells

The Minnesota DNR says the agency and the city of Blaine will work with impacted well owners on a settlement.

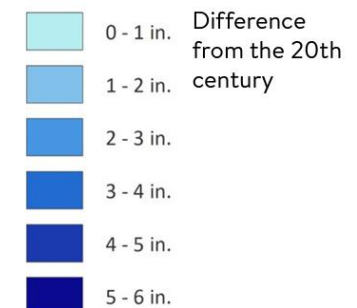
Minnesota drought puts farmers' crops in potential peril

By Babs Santos | Published June 19, 2023 | Updated 9:42PM | News | FOX 9 | [↗](#)



Annual precipitation change 2000-2019

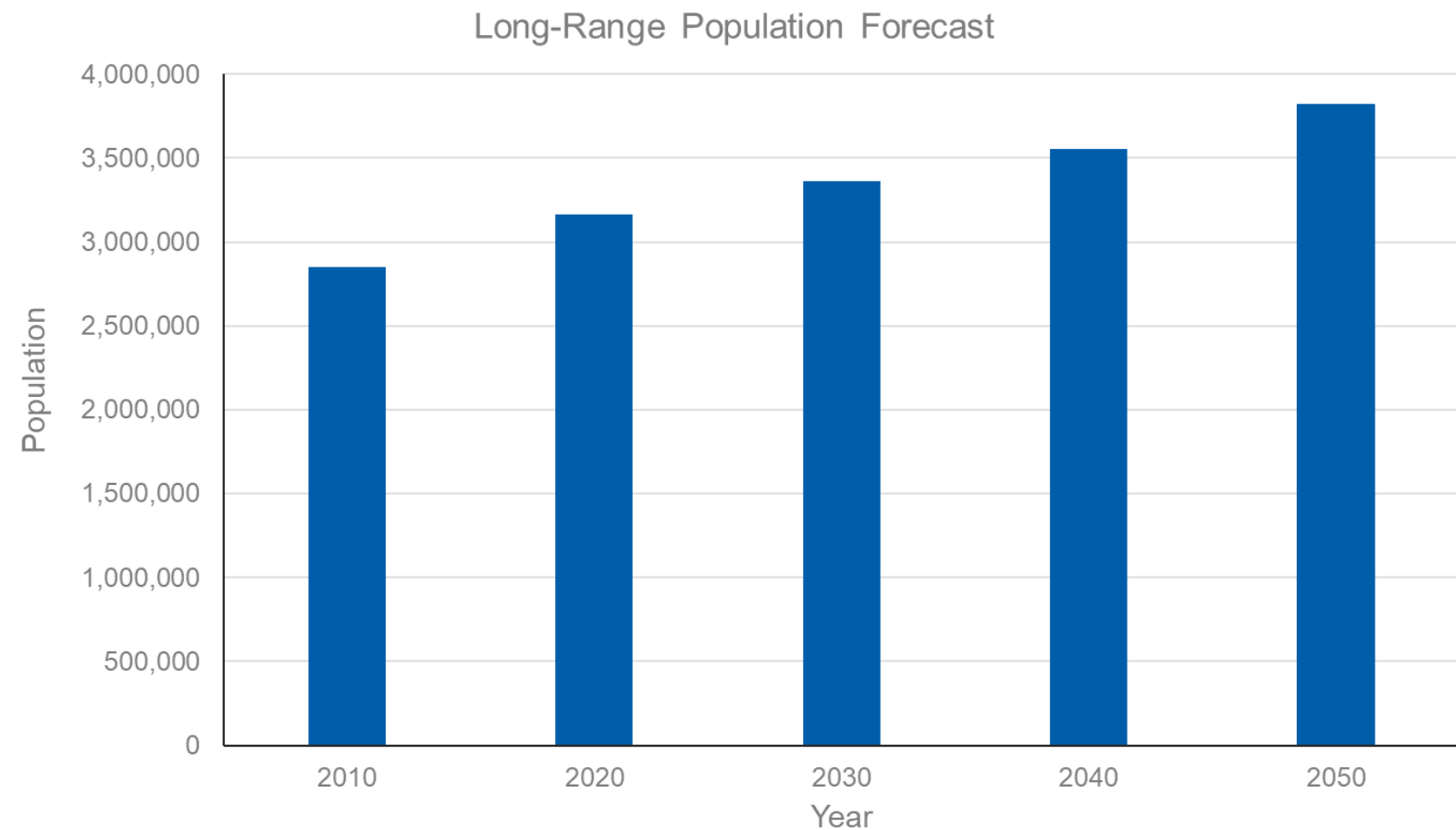
Annual precipitation change by watershed for 2000-2019, compared to 20th century averages. Minnesota is getting wetter, especially the southern parts of the state.



Rural water concerns primary drivers continued

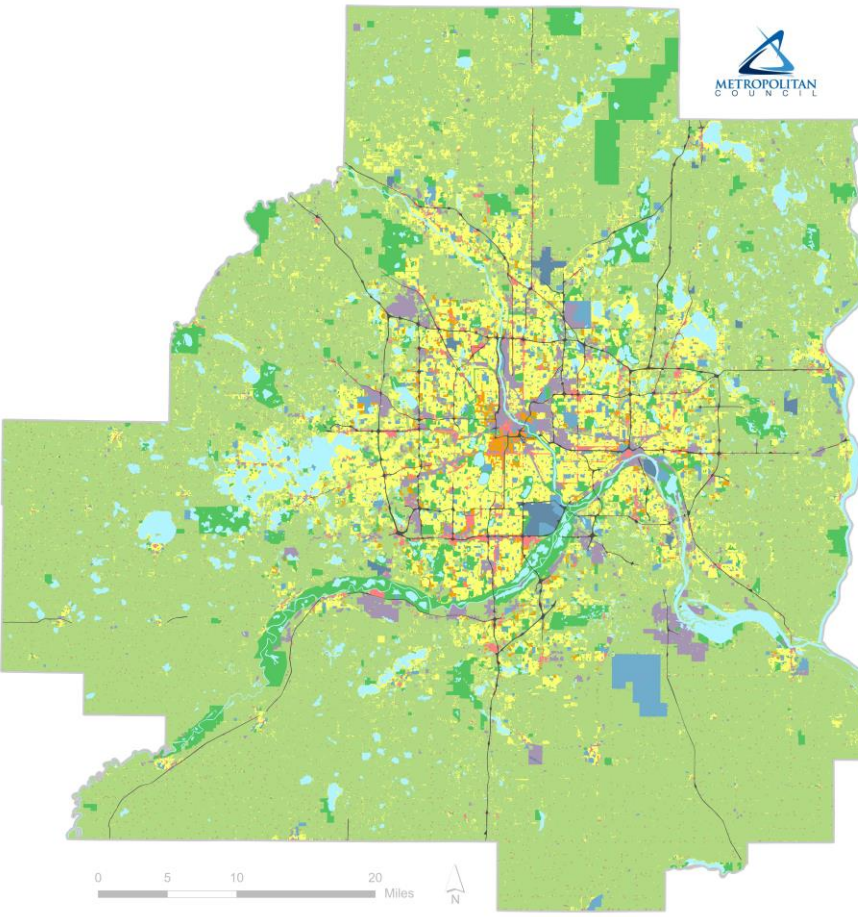
Population Growth

- The population doubled between 1960 and 2020, climbing from 1.5 million residents to 3.2 million residents.
- Our 2050 population estimates predict 657,000 more residents in the metro area.

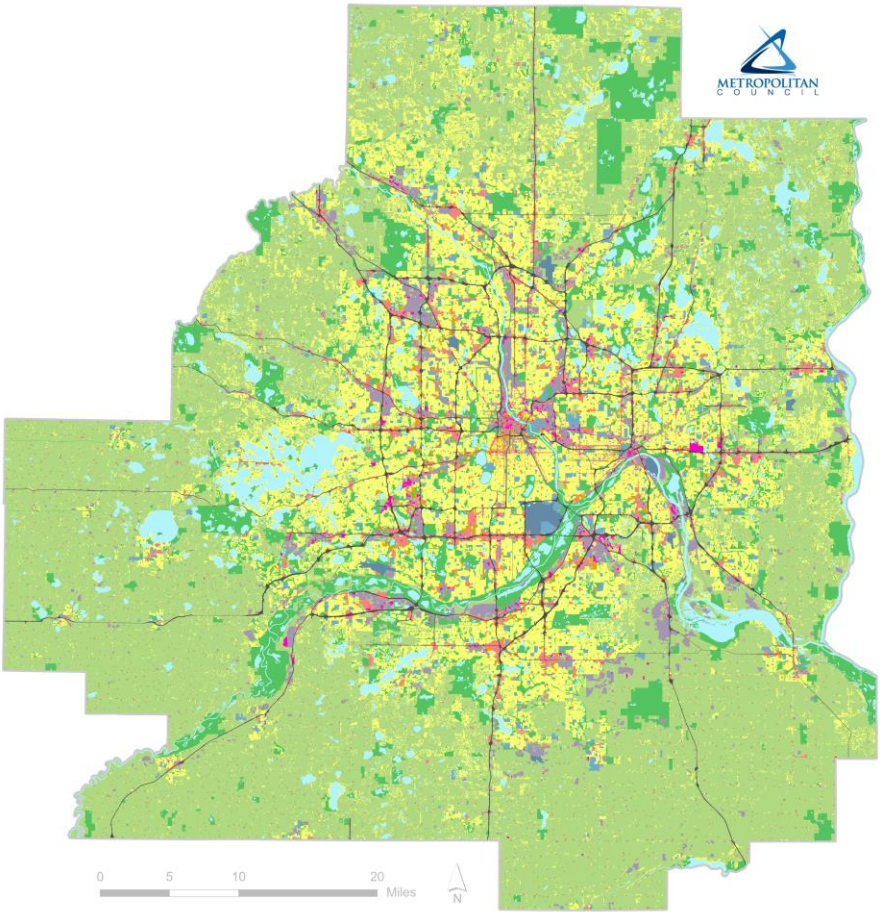


Rural water concerns primary drivers

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

What is our rural water role?

Regional Water Planning

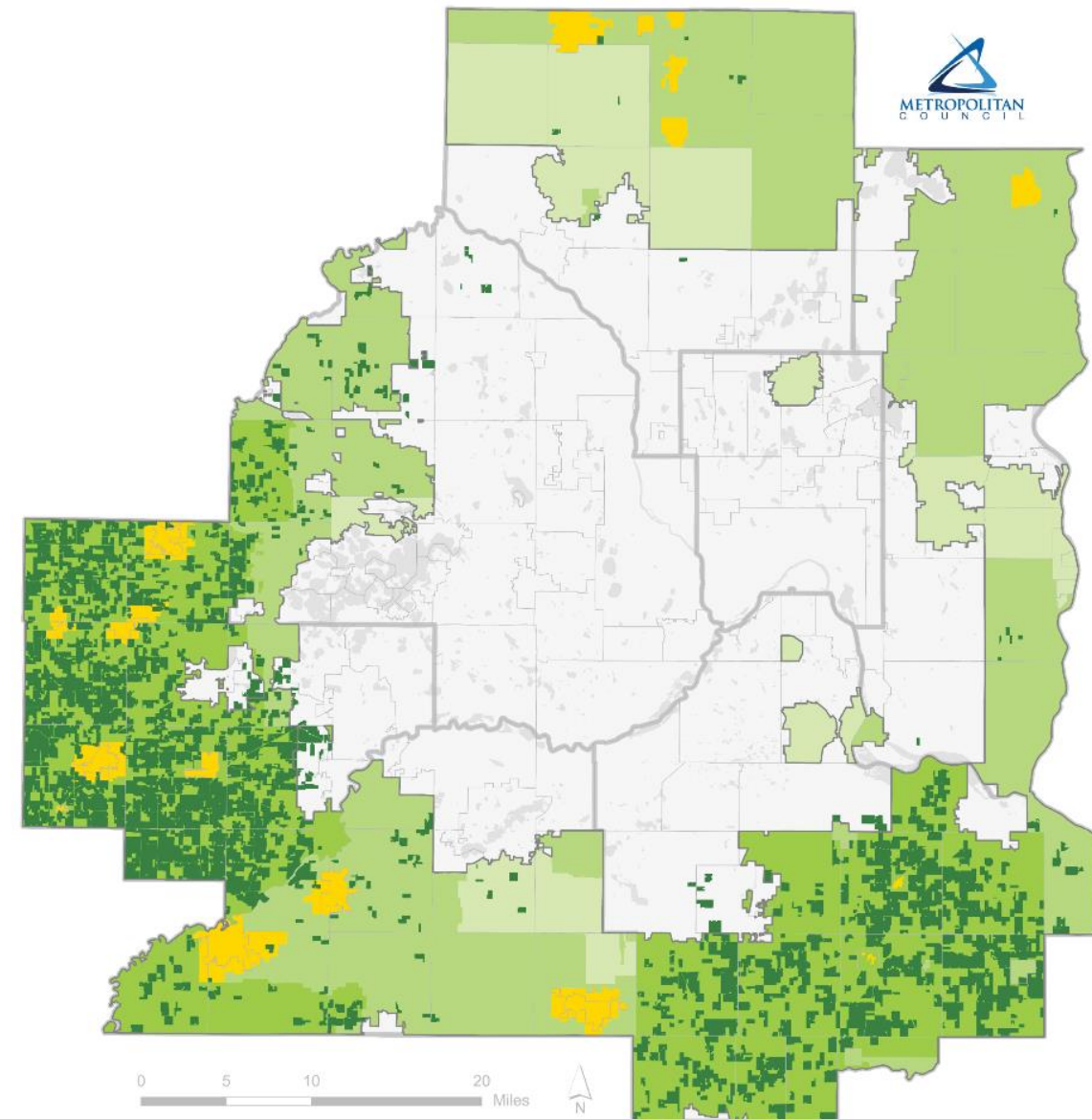
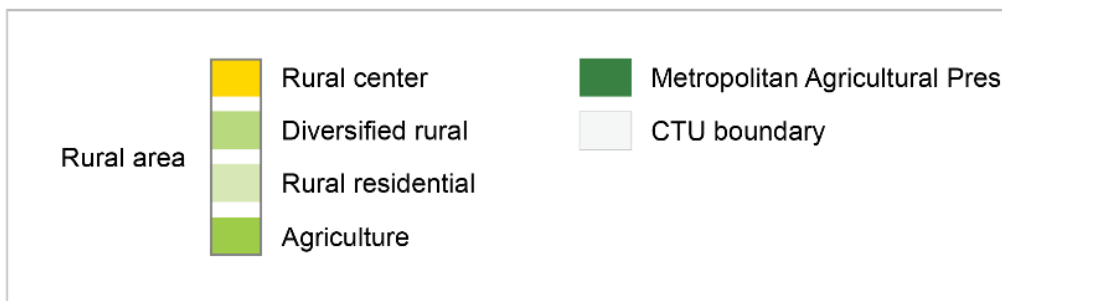
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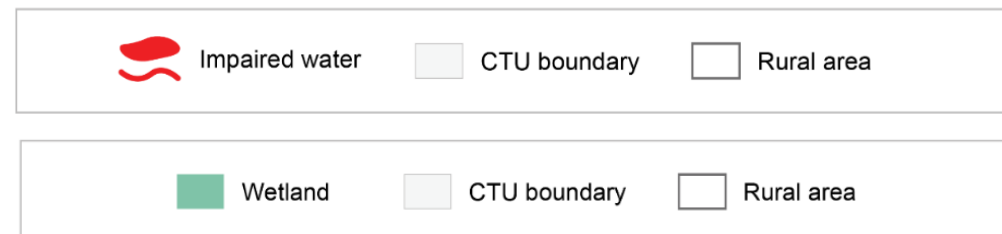
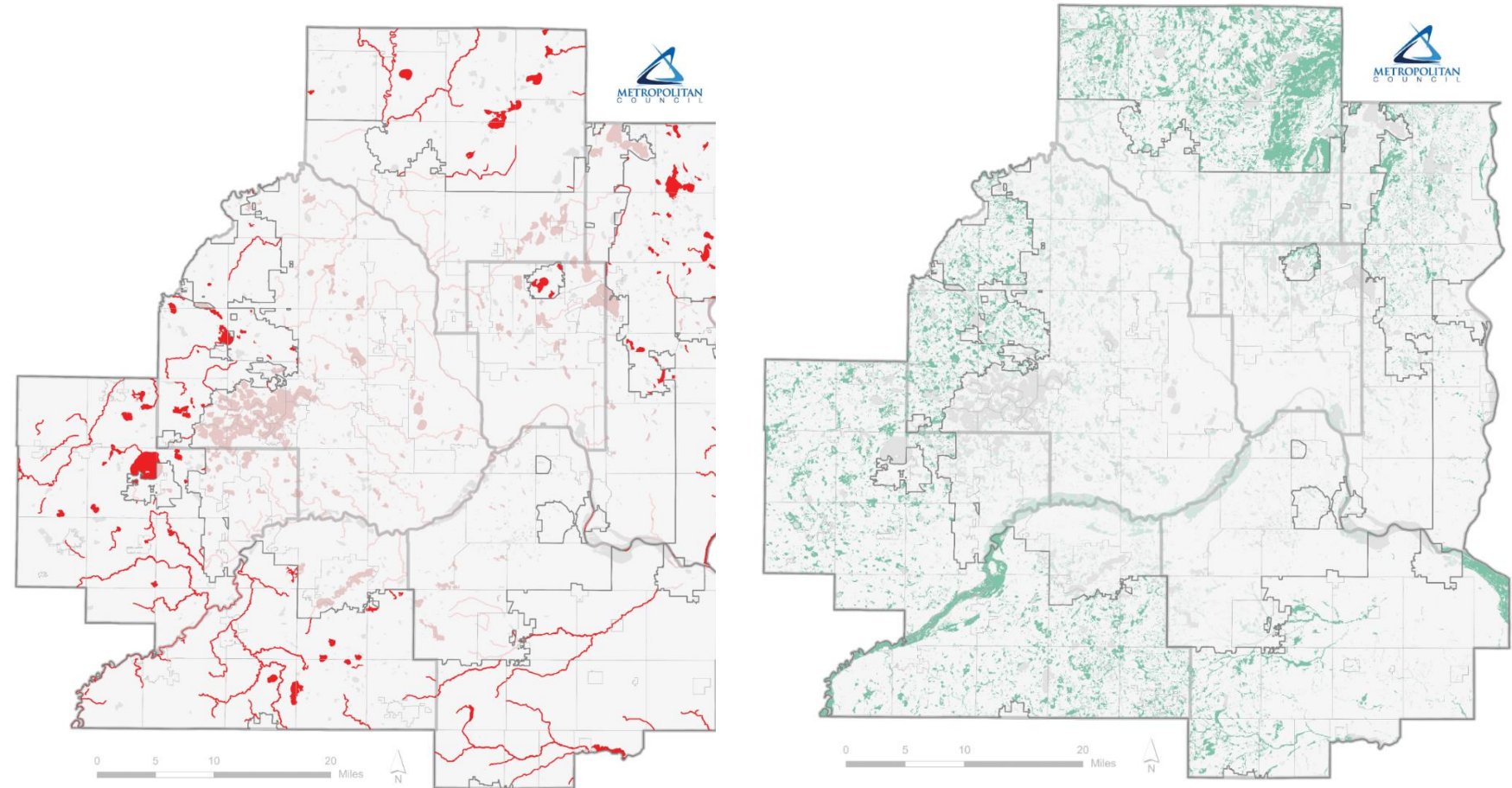
Land Preservation Programs

- Communities with an Agricultural designation have prime agricultural soils that are planned for long-term agricultural use.
- Most of the communities in the Agricultural designation have very little change or forecasted growth.
- These communities have the greatest number of contiguous lands enrolled in the Metropolitan Agricultural Preserves as well as the statewide Green Acres Programs.



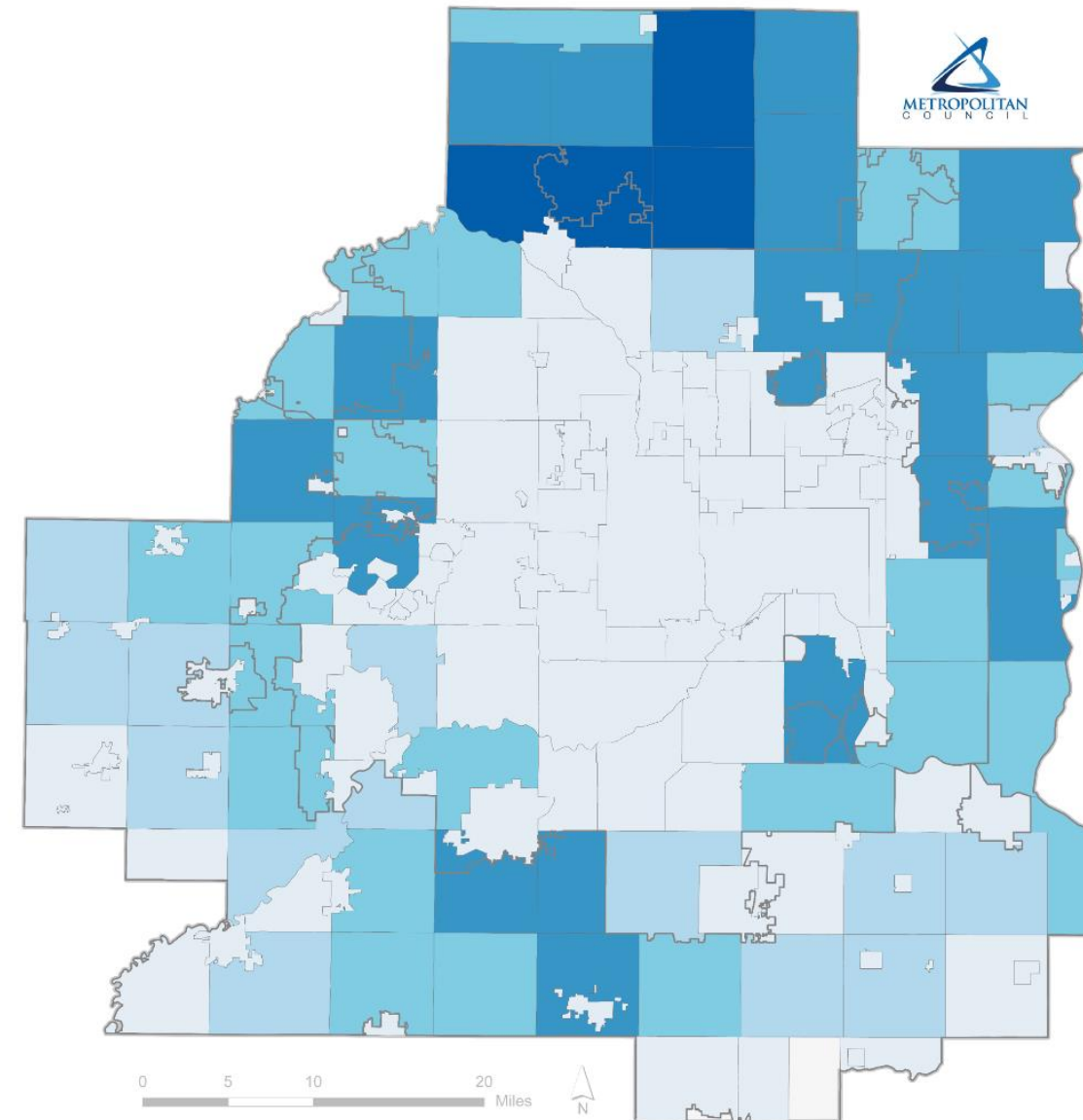
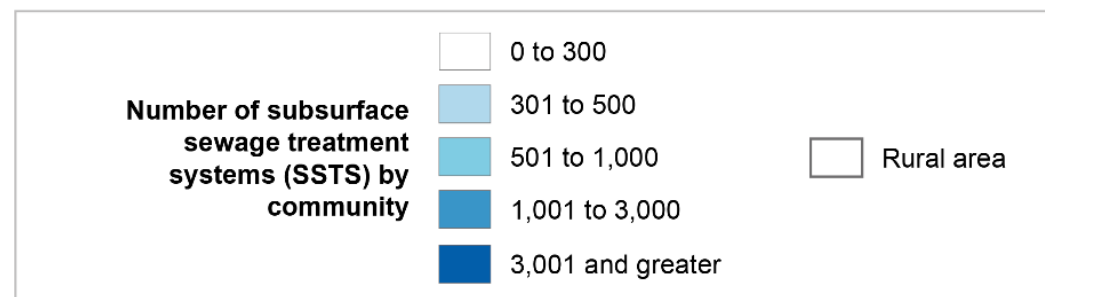
Crucial concerns – water quality

- **Impaired waters:** Nutrients and pesticides impact the water quality of rural waterbodies.
- **Wetlands:** Despite state regulations, wetlands are impacted as rural areas are developed.
- **Soil loss:** Intensive farming techniques (row crop & tillage) impact soil erosion rates and can be a threat to soil fertility and farm productivity.
- **Drainage:** Alters natural water flows and the pollutant loads that the water carries.



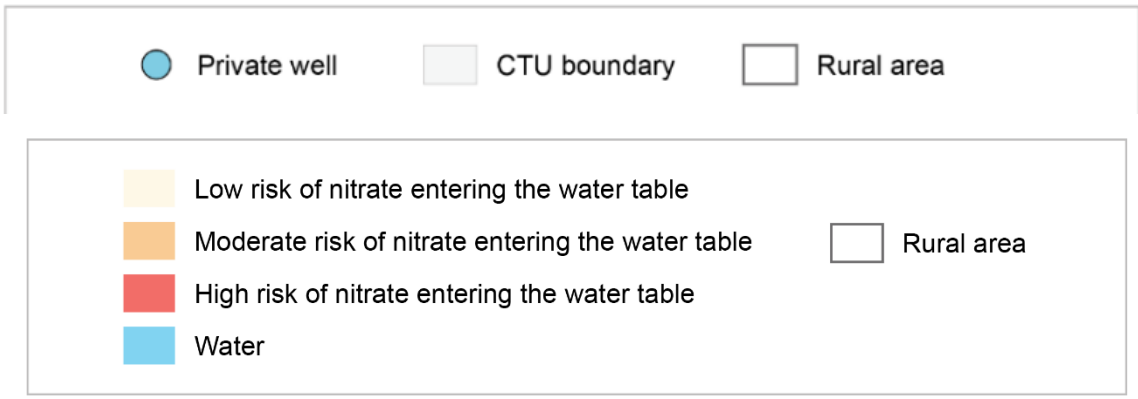
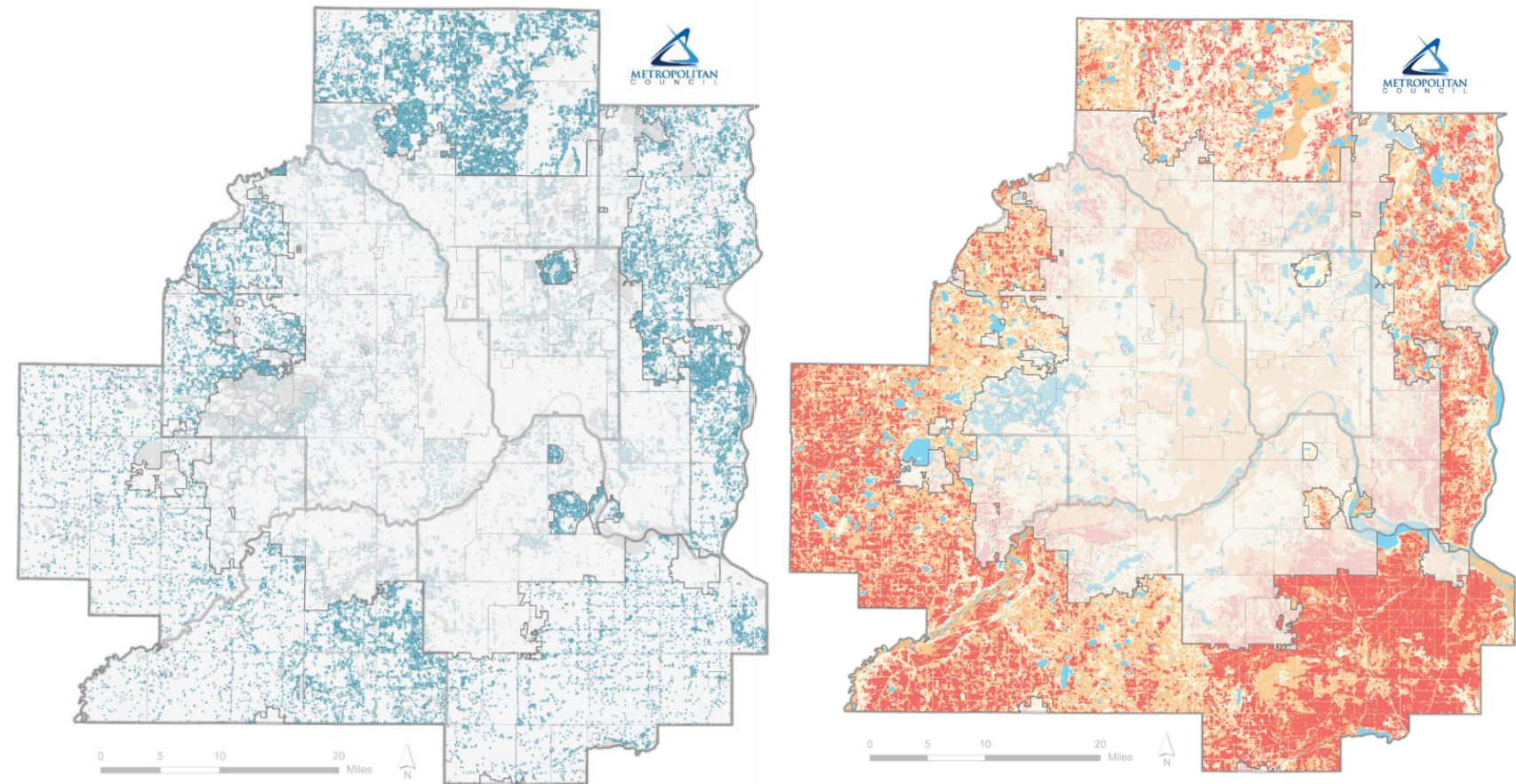
Crucial concerns – rural wastewater

- Rural wastewater services can be stressed due to limited financial resources and a challenging population distribution.
- Aging infrastructure and underperformance can further exacerbate concerns and cause systems pose environmental and public health risks.



Crucial concerns – rural water supply

- The Twin Cities metro region has over 65,000 private wells, approximately 70% of which are in areas designated as rural.
- Both community water supply wells and private wells face similar threats to water quality and quantity.
- Private well users do not have the same water quality safeguards as those who get their water from a public system.
- Contaminants that private well owners test for include nitrates, arsenic, and pesticides.



Current water policy

Policy on Watershed Approach

The Council will work with our partners to develop and implement a regional watershed-based approach that addresses both watershed restoration (improving impaired waters) and protection (maintaining water quality in unimpaired waters).

Policy on Sustainable Water Supplies

While recognizing local control and responsibility for owning, operating, and maintaining water supply systems, the Council will work with our partners to develop plans that meet regional needs for a reliable water supply that protects public health, critical habitat, and water resources over the long term.

Policy on Private Wastewater Systems

Communities that permit the construction and operation of subsurface sewage treatment systems and other private wastewater treatment systems within their communities are responsible for ensuring that these systems are installed, maintained, managed, and regulated consistent with Minnesota Pollution Control Agency rules. The Council will not provide financial support to assist communities if these systems fail.

Policy on Serving the Rural Area

The Met Council will acquire wastewater treatment plants owned by Rural Centers, based upon their request through the comprehensive plan and comprehensive sewer plan processes, and based upon criteria that ensure direct identifiable regional benefits, after soliciting customer input and conducting a public hearing on the request.

Recommendations Part 5

We will need to develop new policy to encapsulate our strategies and actions toward water equity and environmental justice within the region. Met Council staff will work with Council Members to develop the language in 2023. Below are the recommended actions from this paper:

Proposed actions:

- The Metropolitan Council will investigate ways to include environmental justice frameworks into its decision-making processes, including expansion of the wastewater system, and the Council's infrastructure policy should consider environmental justice and racial equity principles at a regional level.
- Met Council staff will partner and support metro region organizations with a water equity focus.
- The Met Council will convene regional discussions about water equity and environmental justice concerns.
- Environmental Services will integrate equity metrics into our programs, projects, and services. Environmental Services will complete an equity analysis of where our capital program dollars are being spent.
- The Met Council will work toward securing funds to provide grants promoting water equity and to address identified environmental injustices.

Recommendations Part 6

It is recommended, in partnership with the wastewater white paper, that we modify the current wastewater policy as suggested in bold below:

*“The Council will acquire wastewater treatment plants owned by Rural Centers, based upon their request through the comprehensive plan and comprehensive sewer plan processes, **if the acquisition provides cost-effective service, accommodates assigned growth, protects public health and wellbeing, and the facility currently meets or with improvements can meet environmental and regulatory requirements, after soliciting customer input and conducting a public hearing on the request.**”*

Proposed actions:

- The Met Council will consider providing a higher level of service for liquid waste haulers by investigating adding and maintaining additional liquid waste receiving sites.
- The Met Council will partner with other state agencies to discuss subsurface sewage treatment system disposal facilities and rural access to disposal sites.

Recommendations Part 7

The Met Council will support, collaborate, and partner on water quality efforts in rural areas.

Proposed actions:

- Investigate how to create better agricultural partnerships with soil and water conservation districts to limit land management decisions impacts on our drinking water supply and wastewater permits.
- When public drainage systems are upgraded, the Met Council will support incorporation of practices to reduce peak flows and nutrient loading.
- The Met Council supports preservation of regionally significant ecologic areas as rural areas develop through education to local governments and plan review.
- The Met Council will promote the use of green infrastructure best management practices for new development and redevelopment through education to local governments and plan review.
- Water quality credit trading is a potential strategy for meeting National Pollution Discharge Elimination System permit requirements but will require careful planning and implementation. Water quality trading agreements will be explored on a case-by-case basis.

Recommendations Part 8

The Met Council will support adaptation and mitigation efforts of rural water systems and rural water users as the impacts of climate change become more substantial and the region continues to grow.

Proposed actions:

- The Met Council will convene rural water suppliers, private well users, and partner agencies to discuss and set planning priorities for rural areas around aging infrastructure, system resiliency, service population growth, and potential impacts to private users.
- The Met Council will research long-term water availability in rural areas of the metro region.
- The Met Council will partner with the state to help rural communities collaborate around emergency planning and service reliability by identifying community needs and potential service or funding gaps.
- The Met Council will (where applicable) encourage growing communities planning on building new water supply systems to transition existing interconnections from supply to emergency use.
- The Met Council will support efforts to estimate the pumping volume and impacts of private wells in rural areas and the broader metro region.

Rural water concern discussion questions



- Have any of your district cities or townships discussed these crucial rural water concerns with you?
- Have you heard about rural needs to support private wells or municipal wastewater treatment?
- Have you heard concerns about loss of rural lands as development pressure occurs?
- Did we miss anything?

Thank you

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