EXECUTIVE SUMMARY:
RURAL WATER ISSUES

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Executive Summary

Rural water issues are complex. Climate change, infrastructure, land use, and land use changes impact water quantity and quality. Rural areas are important for natural resource protection and groundwater recharge for drinking water wells. If rural lands are not managed properly, rural land uses and agricultural practices can negatively impact waterbodies and drinking water sources.

The Metropolitan Council (Met Council) strives to foster and maintain a growing economy that creates and provides jobs for citizens of the region. Sustainable and plentiful high-quality water resources provide a firm foundation for future economic growth, livability, and high quality of life. Protecting our rural lands and understanding rural water concerns are crucial for achieving sustainable water resources within the metro region. Sustainable water resources include abundant, high-quality groundwater and surface water resources that support the state's growing water supply needs and unique ecosystems.

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 change.

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.

Our role in rural water issues

The Met Council is the regional policy-making body, planning agency, and provider of essential services in the metro region. Under state statute, the Met Council is responsible for developing a comprehensive development guide, which establishes the policy foundation used to complete regional systems and policy plans, development policies, and implementation strategies. The Water Resources Policy Plan is defined by state statute as a policy plan within the comprehensive development guide.

The Environmental Services division of the Met Council acts as the regional wastewater system operator and wastewater, surface water, and water supply planning agency for the seven-county metro region. We ensure sustainable water resources through intentional planning and operations.

Additionally, the Met Council sets the land use policy for the region through Community Designations, which group jurisdictions based on urban or rural character for the application of regional policy. The Met Council defines maximum residential development densities to help avoid premature development and protect natural resources until urban densities are needed to accommodate regional growth. Rural Community Designations in the metro are Rural Centers, Rural Residential, Diversified Rural, and Agricultural.

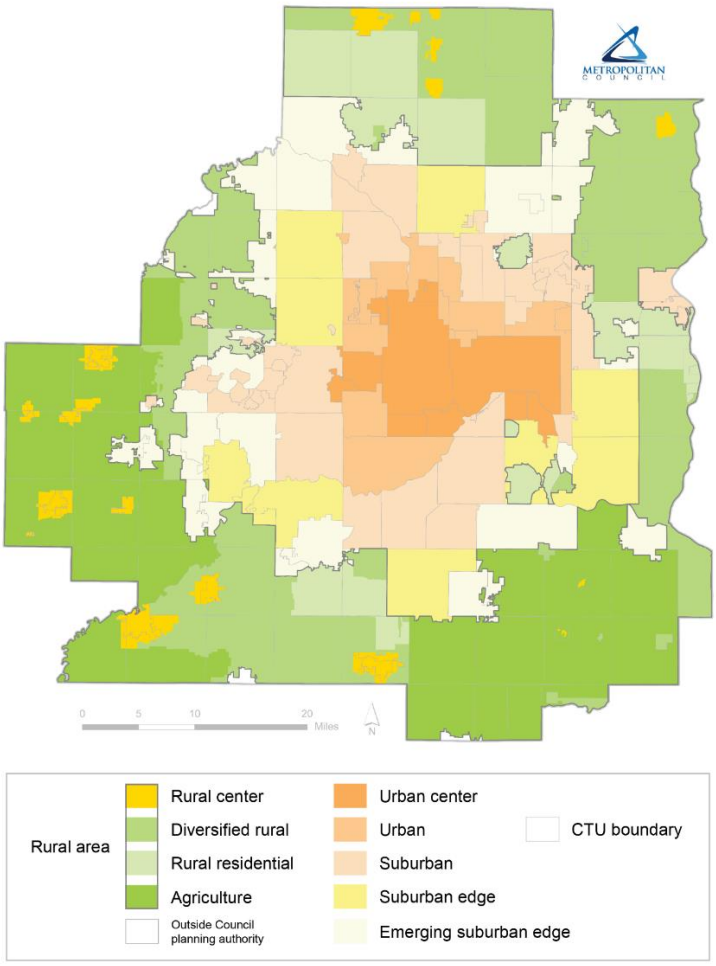

Figure 1: Thrive MSP 2040 community designations (with rural areas outlined)

Equity and rural water issues

Public policy and industry practice have produced an unequal landscape across rural lands, causing an unequal burden on people of color, including negative impacts on wealth building, health, and environmental justice issues. There are environmental justice and equity concerns in the metro region regarding rural lands including access to land, access to financing for land, and public investment.

Environmental justice, as defined by the Met Council's Environmental Justice Task Force, is the equitable engagement of policy creation for, and service delivery to, all people in the metropolitan region with the ***prioritization of communities of color and low-income communities***. The use of the term *justice* acknowledges that there has been an ongoing history of harm and environmental racism toward Black, Indigenous, and people of color in the state of Minnesota.

Crucial concerns for protecting rural water

Climate change

Minnesota's winters are warming, the frequency and intensity of storm events have shifted from the historical record, and we are projected to experience more extreme heat and drought events. Climate change will continue to impact the region's rural areas. Flooding can endanger private wells and pose a public health risk. Prolonged drought can impact community and private water supply systems and can potentially increase well interference. Changing growing seasons, invasive species, floods, and droughts all threaten the productivity of agricultural fields.

Population growth and land use change

The population of the metro region doubled between 1960 and 2020, and it is forecasted to continue to increase. Without careful planning and best management practices, this growth will affect the amount of environmental pollution, modify the ways water infiltrates and moves across the landscape, and reduce the potential for groundwater recharge, placing stress on rural lands and their waters.

Water quality

The quality and quantity of water has direct effects on our ecosystem, health, agriculture, and infrastructure. Rural land use and management practices have a direct impact on water quality. The water quality section explores wetland loss, agricultural soil loss, agricultural drainage, nutrient issues, and pesticides.

Historically, wetlands were considered undesirable and were drained and filled for farmland and development. Today, Minnesota protects wetlands through laws such as the Public Waters Permit Program and the Wetland Conservation Act (Minn. Stat. § 103A.201). Despite regulations, small amounts of wetland areas are still impacted each year. As rural areas are developed, unavoidable impacts will increase.

Agricultural practices in the metro region have evolved over time and are currently dominated by row crop fields, which are often tilled. Tillage breaks up soil aggregates and leaves soils more vulnerable to erosion by wind and water. Eroded soils impede flows, reduce stream capacities, and carry nutrients and pollutants. Conservation tillage and regenerative agricultural systems have been developed to reduce soil loss from cultivated fields and increase soil fertility. However, these practices can have disadvantages including lengthening the time needed for soils to dry for planting in the spring.

In many parts of Minnesota, row crop production is not feasible without soil drainage due to water-retaining soils and high-water tables (University of Minnesota Extension, 2018b). The primary function of drainage is to alter the landscape's hydrology by transporting water from depressions and saturated soils to rivers. Land drainage for agriculture has significantly altered the hydrology of wetlands, streams, rivers, and riparian floodplains, increasing erosion (Blann et al., 2009).

Phosphorus and nitrogen are the primary macro nutrients required for plant growth and are frequently applied to agricultural fields as fertilizers to assure healthy plant growth and increase crop yields. However, these elements also contribute to the growth of aquatic plants and cause eutrophication and algae blooms in surface waters. The Minnesota Pollution Control Agency (MPCA) estimates that 35% of the phosphorus in the Mississippi River Basin comes from cropland runoff (MPCA, 2014). The

Nitrogen in Minnesota Surface Waters study estimated that agriculture contributes 73% of the statewide nitrogen load in a typical year (MPCA, 2013).

The Minnesota Department of Agriculture conducts annual ambient water quality monitoring to evaluate the impacts of pesticides on water resources and to create the Pesticide Management Plan. Results of the Minnesota Department of Agriculture's ambient pesticide monitoring since 2006 show that a few pesticides are widespread but at low concentrations. All detections were below the applicable reference values. Few surface waters are impaired for pesticides.

Wastewater

Rural communities face significant obstacles in maintaining wastewater services due to limited financial resources and a challenging population distribution. Aging infrastructure and underperformance can further exacerbate concerns and cause systems to become noncompliant, posing environmental and public health risks. Environmental Services must balance stewardship of the environment and health of the population with preserving rural and agricultural land uses outside the long-term service area.

In rural areas, sanitation needs are met through two primary treatment options: individual and community wastewater systems, also known as subsurface sewage treatment systems, or municipally owned and operated local wastewater treatment plants. All treatment systems share the same primary purpose of protecting the health and well-being of the community and the environment, though they vary in their execution of that purpose.

Water supply

Approximately 340,000 residents of the region live in rural areas and rely on private wells or municipal water supply systems for their drinking water. Rural water supply systems are often smaller and more isolated than those in the urban core or densely populated suburbs. Rural communities' overall smaller populations and lower proportion of residents connected to municipal systems mean fewer wells are needed to adequately supply water to customers. Smaller populations, however, mean a smaller tax base for system improvements – causing rural water supply systems to have some of the highest water rates in the region. Additionally, rural water supply systems often lack backup connections. In times of emergency, isolation from other water supply systems can pose a challenge to systems that rely on relatively few wells.

Private wells face additional threats to water quality and quantity because they are usually constructed in shallow quaternary aquifers. Yet, private well owners do not have the same water quality safeguards as those who get their water from a public system. Private well owners are responsible for the cost of testing and treating their wells. Testing by counties and state agencies has documented growing problems with water quality in private wells, raising concerns about human health and costs for treatment. Rural land use and management can have a direct impact on the water quality for these drinking water sources. Additionally, high concentrations of naturally occurring chemicals can impair the safety of a well's drinking water.

Recommendations for water resource policy and related strategies/actions

The document's intent is to share our current understanding of issues, identify current policy connections or gaps, and propose future policies and strategies to ensure sustainable water resources. Not all the recommendations included in this paper will move forward for inclusion into the Water Resources Policy Plan, and conversely, the Water Resources Policy Plan may include policies not

discussed in this paper. The intent is to begin to develop a shared understanding and conversation about the water quality topic, which is connected to all aspects of our core services.

Proposed policy recommendation on environmental justice and water equity:

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 Met 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.

Proposed policy recommendation rural wastewater:

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 improvement can meet environmental and regulatory requirements,*** *after soliciting customer input and conducting a public hearing on the request."*

The following implementation strategies relate to wastewater concerns under this policy:

- Accept the wastewater service request only when the following criteria are met:
    - The community accepts the Met Council's growth forecasts, as well as preserves at least 1,000 developed or developable acres for growth through the land use planning authority of the county or adjacent township(s) or through an orderly annexation agreement or similar mechanism to provide for staged, orderly growth in the surrounding area.
    - The community has a Department of Natural Resources approved water supply plan.
    - The community has a watershed approved local surface water plan.
    - The community has adequate transportation access.

    - The community lies within the Long-Term Wastewater Service Area or other regional benefits would result, such as economic development unique to the rural area or preservation of high-value water resources.
    - There are feasible and economical options for siting and permitting an expanded wastewater treatment plant or for extending interceptor service.
    - The Met Council has sought customer input, has conducted appropriate financial analysis, and has conducted a public hearing on the community's wastewater service request.
- Require that, if the most economical and beneficial wastewater service option is to construct a regional interceptor to serve the community, the Met Council will not acquire the community's wastewater treatment plant, and the community will be responsible for decommissioning its treatment plant.
- Not allow connections to the regional wastewater system outside the sewered rural community. The Met Council may construct capacity to serve the long-term needs of the rural and agricultural planning areas, but will not provide service until the Met Council, in consultation with the appropriate community, designates the area as a developing community and the community amends its comprehensive plan accordingly.
- Preserve areas outside the Long-Term Wastewater Service Area for agricultural and rural uses while protecting significant natural resources, supporting groundwater recharge, protecting source water quality, and allowing limited unsewered development.

Additional recommendations to implement this policy, resulting from an analysis of the Crucial Concerns outlined in this paper and from the Wastewater Planning and Service Considerations white paper include:

- 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.

<u>Proposed rural water quality policy recommendation:</u>

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.
- The Met Council will continue to support the Wetland Conservation Act and wetland preservation, enhancement, and restoration.
- When drainage systems are upgraded, the Met Council will support incorporation of practices to reduce peak flows and nutrient loading.
- The Met Council will support the agriculture certification program and soil health/regenerative agriculture in rural areas through partnerships with metro soil and water conservation districts.

- The Met Council supports preservation of regionally significant ecologic areas as rural areas develop through educational outreach 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 educational outreach to local governments and plan review.
- The Met Council will continue to partner with the Minnesota Department of Agriculture to monitor pesticides.
- Water quality credit trading is a potential strategy for meeting National Pollution Discharge Elimination System permit requirements but will require strong policies and careful implementation to provide regulatory certainty. The Met Council will develop a water quality credit trading policy and explore potential agreements that conform with it.

Proposed rural water supply policy recommendation:

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 support rural water systems by advocating for funding to improve or build new water supply infrastructure as needed.
- 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 partner with local and regional experts to identify needs and develop tools that help to improve public understanding around contamination, well testing and maintenance, source water protection, and publicly available resources.
- The Met Council will support efforts to estimate the pumping volume and impacts of private wells in rural areas and the broader metro region.
- The Met Council will support funding or programs proposed by other state agencies to fund and enhance monitoring in the metro region and in significant source water areas that serve the metro region.

The Met Council will support the evaluation of how growth and development, rural land uses, and overall land use change impact and influence water supplies and local water needs.

Clear policies and guidance are vital to preserve, improve, and protect our rural waters. This paper includes policies to address region-specific rural water concerns to help ensure abundant and clean water for future generations.