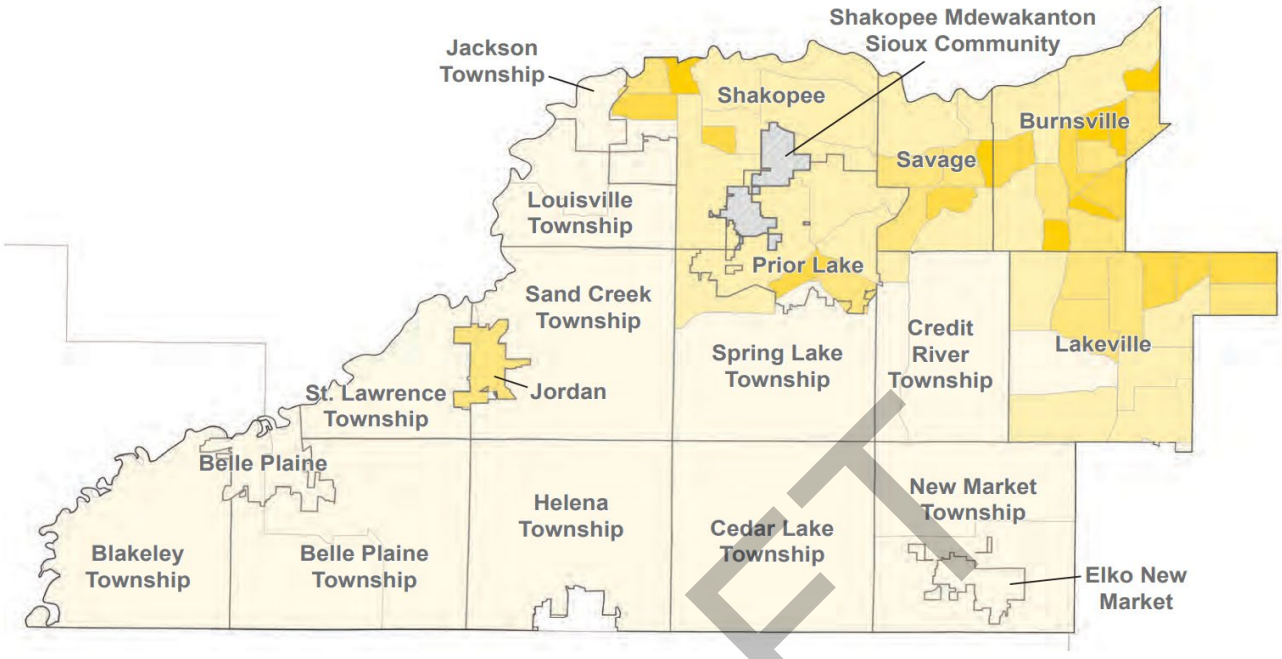
Southwest Metro subregion chapter and action plan



Water supply planning context and current conditions

Everything that happens on land impacts water, and water is all connected. Water is medicine, water is food, water is survival.

The Southwest Metro subregion spans Scott County bounded by Dakota County in the east and the Minnesota River to the north and west. This area includes the Shakopee Mdewakanton Sioux Community as well as growing suburban and rural communities. Water sustainability, as well as the increasing costs and demand pressures of ever-increasing growth, are challenges here as they are in many communities across the metro. Density in this part of the metro generally follows development and growth patterns, with most people being located in the north and east part of the county.

Communities in the Southwest Metro subregion rely on a variety of drinking water sources. The majority of communities in this subregion do not have public water supply systems. In those communities, residents operate private wells to get their drinking water. In rural centers and denser, more suburban areas of the subregion, communities operate public water supply systems that provide water services to residents and businesses. Communities with public water supplies primarily have groundwater as their source. In the north and east parts of the subregion, they can access the Prairie du Chien and Jordan aquifers. In the south and west parts, they may rely on the Tunnel City Wonewoc and deeper aquifers.

Savage receives some of its water from Burnsville, which gets water from a combination of groundwater and surface water sources. The Shakopee Mdewakanton Sioux Community and Prior Lake have a long-standing collaboration and interconnected water supply system. Additionally, 15 of 21 of the communities in the Southwest Metro subregion overlap with or are adjacent to land that has been identified as a Drinking Water Supply Management Area.

Overall water use peaked in the mid-to-late-2000s. Since then, communities have continued to grow, but overall water use has been slightly less. Increases in efficiency and wetter summers have likely led to this demand reduction. However, recent droughts and growth have led to a significant increase in water use. Increased impervious land cover, contaminants of emerging concern, groundwater/surface water interaction, and other quality concerns are also prevalent in the region.

With the region as a whole expected to grow by more than 650,000 people between 2020 and 2050, the Southwest Metro subregion will also see growth. Preliminary estimates, which are being evaluated with community input through spring of 2024, suggest that approximately 84,000 more people, 43,000 more households, and 53,000 new jobs will be added to the subregion by 2050 compared to 2020.

As the Southwest Metro subregion continues to grow, more people will rely on municipal/public water supplies for their water needs. To deliver service to more homes and businesses, communities may need new infrastructure like additional wells and new service lines. Expansion of water supply systems comes with costs and is not without financial, social, or environmental risk.

Municipalities and rural landowners all rely on sufficient, reliable, and safe water supply for health and prosperity. Safe water supply is also necessary to the function of unique community ecosystems in the southwest metro, like Boiling Springs and the Savage Fen. As growth continues and climate change amplifies water quality and quantity risks, it is important to plan and collaborate to ensure there is sufficient, reliable, and safe water supply for people, the economy, and the function of local ecosystems—now and for future generations.

The Southwest Metro chapter of the Water Supply Planning Atlas contains more details in the description of current challenges.

Stakeholder-defined vision of success for water supply planning in the Southwest Metro subregion

Water supply planning for the Southwest Metro subregion is successful if it achieves the shared goal of sustainable water supplies.

The Southwest Metro subregion will have a sustainable water supply when:

- Water supplies (sources and infrastructure) are resilient to unknown impacts.
- High-value water resources are protected from impacts of groundwater withdrawals and contamination (examples: Boiling Springs, Savage Fen, wetlands that support wild rice, and others).
- There is continued clean and plentiful water for communities and visitors.
- Aquifers recharge and replenish supplies faster than they are withdrawn.
- Growth is supported by investments in efficient expansion within capacity limits and that don't reduce funding to preserve existing infrastructure.

To successfully achieve a sustainable water supply for the Southwest Metro subregion:

- All the voices are heard as community plans are made and implemented – so that the full range of diverse water supply needs are met. For example, Tribes are affected by all decisions. Always have Tribes at the table for planning and public comment.
- Community planners know what water supply capacity exists to support growth and related water demand, including information about water supply quality threats and projects for the future.

- Tools and data are available (like monitoring networks and models), and people are confident in the information they provide.
- Local water plan objectives and implementation strategies are aligned (for example, stormwater versus wellhead protection), and neighbors are aware of each other's plans and those plans are compatible.
- Policies and organizational cultures support public water suppliers and communities to collaborate and share resources.
- There is strong public support for sustainable water supplies, based on everyone's (private well owners' and municipal customers') understanding of where their water comes from and goes and its connection to food and other community needs.
- Wasteful and harmful water uses are reduced.
- Communities, specifically the Shakopee Mdewakanton Sioux Community, have the ability to self-govern.
- Plans extend for 7 generations (~150 years).
- Climate variability is considered when permitting.
- Water rates reflect the true value of the resource.
- Nonpotable water is used for industrial purposes wherever possible and released cleaner than it started.
- Water regulations are enforced for conservation and efficiency measures, water allocation priorities during emergency, water quality, and source water protection.

Issues and opportunities

Achieving the identified success will require addressing barriers as well as advancing opportunities across the full water supply picture.

Several issues and barriers make planning for a sustainable water supply challenging in the Southwest Metro subregion. These include:

- There is still uncertainty and gaps in information for factors like climate, geology in buried bedrock valleys, and emerging contaminants. Gaps in monitoring networks exist, so effectively guiding decision-making for resources like Savage Fen, Eagle Creek and Boiling Springs is challenging.
- There is an ongoing need to address large water supply users, including commercial pumping interests – both those who have been in the area a long time and new large water users who are looking to move to the area (for example, agricultural irrigators and bottled water businesses).
- The current business model for water supply service is broken; it isn't equipped to handle current and emerging water supply challenges and solutions. For example, water supply and wastewater are disconnected.

- Agency and legislative work is needed to reduce siloed decision-making, address regulatory barriers to new approaches, and support communities' abilities to enact local controls that support sustainable water supplies.
- Ongoing resources (money, staff) are needed for this work at the state, regional and local levels for efforts like shifting to more ambitious water efficiency and getting local information back from planning processes.
- Rural private domestic well owners need more support to ensure safe and adequate supplies.
- Current and future land uses are associated with increased water use and water quality risks. This includes urban and suburban growth, agricultural irrigation and fertilizer, manufacturing and industry (examples include Amazon, Shutterfly, and others near the Minnesota River). In some cases, contaminants may be present and released without regulation.
- Lakes, rivers, and groundwater are connected and impacted by industrial, power plant, and mining use.
- Multi-year droughts like we are currently experiencing continue to put demand on water supplies.

Many things are already in place and working well for water supply planning and plan implementation in the Southwest Metro subregion. These programs, practices and other strategies should continue to be supported and improved. Examples include:

- Where data and tools are available, they add good value. This includes existing groundwater and surface water monitoring networks (sites and data infrastructure), regional groundwater model information, and forecasts of groundwater levels for presentations.
- Existing collaboration is working well. Examples include agreements in place among agencies and communities, work group meetings, regional water policy and technical committees, and communities cooperating on projects and sharing resources and water.
- Sustainable water projects and programs are successful. Examples include projects that optimize pumping to manage aquifer drawdown, reuse water for irrigation, install more efficient fixtures, detect lead, and improve water quality through prairie restoration.
- Connections between local/subregional/regional planning that has led to grants and funding and partnerships.
- Communities and their neighbors in the Southwest Metro subregion have well trained staff and state of the art infrastructure.
- Currently, many communities (such as the Shakopee Mdewakanton Sioux Community) are independently able to provide safe, clean water.
- Where employee retention is strong (such as the Shakopee Mdewakanton Sioux Community) it helps with community water values adoption.

Additional work is also needed, particularly to address the issues and barriers discussed above. Examples:

- Gaps in data need to be filled, particularly for domestic residential wells and for unique resources like Savage Fen, Eagle Creek, and Boiling Springs.
- Partnerships between local water supply leaders and state organizations like Clean Water Council and the Department for Employment and Economic Development should be strengthened and leveraged.
- Collaboration on regional model updates and outreach should start up again and be continuously supported.
- Water planning and management should be approached from an aquifer scale. Policy is needed to protect surface water and groundwater. Regional water policy and technical committees should focus more on water supply and hydrology challenges.
- Support better approaches to water appropriation permitting. For example, allow better matches between source water quality to water use, and consider cumulative impacts.
- Strengthen local planning and local plan implementation tools to link energy and water planning and support more sustainable water conservation/efficiency practices (including at Homeowners Associations, for example).
- More information is needed about what is the most sustainable way to treat, produce, and distribute water.
- Communities in the Southwest Metro subregion should communicate with the Shakopee Mdewakanton Sioux Community and hire American Indian staff.
- Improve the feasibility/business case of using reclaimed wastewater.

Prioritized focus areas and draft action plan

To achieve the shared description of water supply planning success in the Southwest Metro subregion by 2050, considering the known issues and opportunities, work should be focused in six general areas: partnerships, education and engagement, enhancing data and tools, evaluating and managing water supply system capacity, efficiency, and plan alignment.

These subregionally identified focus areas also relate to the Metro Area Water Supply Advisory Committee's proposed framework to achieve progress on regional goals (figure 15).

Figure 15. The framework for action to achieve MAWSAC goals includes four general steps. Southwest Metro subregion focus areas generally fall across the framework steps.

COLLABORATION AND CAPACITY BUILDING

- Partnerships
- Education and engagement

SYSTEM ASSESSMENT

- Enhancing data and tools
- Evaluating and managing water supply system capacity

MITIGATION MEASURE EVALUATION

- Efficiency

PLANNING AND IMPLEMENTATION

- Plan alignment

Partnerships

If work focusing on partnerships is successful, in 10 years there will be ongoing regional communication and cooperation among the communities of the Southwest Metro subregion. No community in the will be an outlier in terms of its approach to water conservation or water supply planning. Water supply planning and conservation efforts will be coordinated and tap into the knowledge and experience of the Indigenous community.

Some barriers that may need resources in order to address them include:

- Cities shy away from Met Council trying to regionalize water supply, but there may be value to that
- Political will/desire
- Perceived loss of control – what if partnerships fail?
- Needs to be a reason for the partnership (mandated?)
- There has to be value in the partnership
- Punishes growing communities
- Know the true value of water – building up a “war chest” of funding does not work
- Tiered rates theoretically address this (value of water)
- Metro Cities board involvement
- Western education isn’t hands-on or conversational; should tap into indigenous people as educators who know history from a young age; they may lack academic credentials but will share personal knowledge

Several entities will have roles to play in this work:

- All water users (residents, HOAs, industrial, recreation)
- Growing communities may be unfairly impacted
- Metro Cities board

- Met Council can continue to support water efficiency grant program
- Can the Met Council directly administer the water efficiency grant program?

Education and engagement
If work focusing on education and engagement is successful, new water supply management-related technology will be understood and wanted – trusted – by citizens and their local governments. This work will tap into the knowledge and experience of the Indigenous community.

In 10 years, government staff and citizens should have access to and take part in more water supply education. Educational resources should tap into real world metro region examples (like White Bear Lake) and should with start young audiences. This will lead to changing expectations and habits.

Some barriers that may need resources in order to address them include:

- Groundwater is hard to visualize
- Water use for commercial profit
- Not enough commonly available educational resources
- No formal education requirements regarding groundwater
- Need for materials
- Publicly available information about water quality
- The development of predictive water models

Some barriers that may need resources in order to address them include:

- The Minnesota Legislature often opposes funding requests for monitoring. How to provide political cover for legislators, Council members?
- Agricultural lobbyists (corn, soy, irrigators associations) may oppose
- Staffing levels, attrition, and lost knowledge
- Funding limitations for:
    - Drilling monitoring wells, upgrading to telemetry, auto data loggers
    - Staffing
    - Continuing ongoing work
    - Modeling; more data is needed on the purpose of models (inputs)

Several entities will have roles to play in this work:

- DNR Eco Waters will need to ensure staffing is available [to install and maintain monitoring stations and collect, analyze, and provide access to data].
- High-level decision makers and the science community
- Water supply system operators will be interested

- The general public needs to be able to trust the data
- High water-use businesses and industries
- Met Council should continue to contract for good groundwater models

Evaluating and managing water supply system capacity
If work focusing on evaluating and managing water supply system capacity is successful, in 10 years:

- Consensus among local governments in the county as to what our system capacity is
- Reduced consumption
- Reuse (stormwater is the most practical)
- Recharge
- Plain language communication
- Smart salting to reduce chloride levels in water for future reuse

Some barriers that may need resources in order to address them include:

- Lack of information specific to the county leading to lack of consensus
- Hydrogeology is more of an art form, less linear
- Inconsistent enforcement of regulation
- Ability to get data from private wells
- Available supply
- Supply needs differ from city to city: growing versus build-out, redevelopment. Where there are differences, how do we explain that locally?

Participants noted that everyone will have roles to play in this work:

Efficiency
If work focusing on efficiency is successful, public water supply systems will see fewer extremes between winter and summer use because of a change in the perception of traditional green lawn being better than other ecological landscapes.

In 10 years:

- Building and development codes are designed to prioritize efficiency rather than just allow or permit.
- Better yard and lawn management is widespread (smart irrigation controllers).
- It's easy for landowners to take advantage of funding and technical resources.
- There is increased reuse.
- Prairie and natural areas are restored and protected.
- Conservation measures are promoted, specifically measures to curtail summer demands. How can we make a bigger dent on reduction and by approaching larger water users to look at reuse potential, etc.?

- Develop a program to approach homeowners associations and commercial property owners and look at their irrigation demands. This might make a bigger dent as we have more control versus individual users.

Some barriers that may need resources in order to address them include:

- Technology needs to be affordable for all users and dependable so the public has trust in it.
- Efficiency programs are scattered and constantly changing.
- Current ordinances, building codes and lack of requirement at the local government level.
- Need to be able to retrofit on a large scale – access to reuse facilities – not just new development.
- Conservation may encourage additional use elsewhere.

Several entities will have roles to play in this work:

- Producers who depend on rates
- Local leaders
- Elected officials

Plan alignment
If work focusing on plan alignment is successful, in 10 years:

- There will be useful plans
- Comprehensive plans that are approved or accepted across state agencies especially for grants and funding such as city local water plans (submitted to Met Council and DNR) being accepted by the Board of Water and Soil Resources for Clean Water Fund Grants.
- Prairie and natural areas are restored and protected

Some barriers that may need resources in order to address them include:

- Public culture and expectations
- Multiple regulations and agencies' barriers to reuse (irrigation, stormwater management)
- Contaminants of emerging concern (CECs)
- Accommodate infiltration/flood protection land use needs

Several entities will have roles to play in this work:

- Cities
- Counties
- Watersheds
- Homeowners associations

Actions to support success

The following pages reflect an action plan drafted by participants in a subregional water supply planning workshop series. It is possible and expected that actions not reflected here may emerge as important steps needed to be taken in subsequent years. This list, therefore, is a reflection of what was being considered in late 2023. They have been organized according to the Metro Area Water Supply Advisory Committee's 2022 proposed framework to achieve progress on regional goals.

Table 1. Subregional water supply stakeholders proposed several actions to work on over the next 10 years (and in some cases, 25 years) to set the subregion up for long-term success in the priority focus areas discussed in this chapter. The action plan includes possible roles for leads, Met Council, subregional groups, and local entities. This action plan is intended as a high-level, long-term, collaborative planning tool. The details may change as collaboration gets underway and on resource availability.

ACTION	RELATED FOCUS AREAS	RELATED WPP POLICY	10-YEAR PLAN		25-YEAR PLAN			POSSIBLE INVOLVED PARTIES
			2025-2030	2030-2035	2035-2040	2040-2045	2045-2050	
COLLABORATION AND CAPACITY BUILDING								
Reach out more to the Indigenous community – human connection is important and relevant	All	All						Municipalities
Scope actions by thinking more broadly by aquifer as opposed to political boundaries	Partnerships	Conservation & Sustainability, Pollution Prevention, Integrated Water						All
Update and/or develop new agreements for coordinated water supply planning and implementation	Partnerships, Plan Alignment	Conservation & Sustainability, Pollution Prevention, Integrated Water, Water-centered Growth & Development	x					Regional users
Develop and use coordinated tools for tracking water supply planning and implementation partnerships	Partnerships	All	x					Metropolitan Council
Create educational and training materials that can be adapted for various communities, audiences	Education/ Engagement	All						Met Council, Indigenous communities
Provide local public education opportunities to understand, support, and implement water management technologies	Education/ Engagement	Conservation & Sustainability, Pollution Prevention						MDH, DNR, MGS, Indigenous communities
Collaborate (workshops, meetings) to agree on and communicate about what data is needed and what is useful for water supply-related planning and implementation	Data and Tools, Education/ Engagement	Monitoring/ Data/ Assessment						Water providers, regulators, Indigenous communities
Create a change in social norms that extreme weather is the new normal within a year; Met Council policy needs to incorporate this	Education/ engagement, Plan Alignment	Climate Change Resilience						
Build up state-level capacity to enforce water quality regulations		Pollution Prevention						MDA, MPCA, DNR

ACTION	RELATED FOCUS AREAS	RELATED WPP POLICY	10-YEAR PLAN		25-YEAR PLAN			POSSIBLE INVOLVED PARTIES
			2025-2030	2030-2035	2035-2040	2040-2045	2045-2050	
SYSTEM ASSESSMENT								
Establish a data portal, such as the Minnesota Geospatial Commons and/or a cooperative groundwater monitoring website, to consolidate data and information in a clearinghouse or data repository	Data and Tools, Education/ Engagement	Monitoring/ Data/ Assessment						DNR, MDH, MGS, USGS, other agencies working together
Submit required information into one location and government, so agencies are able to spit out what they need or reduce duplicative work	Data and Tools, Partnerships	Monitoring/ Data/ Assessment						Agencies, locals
Secure funding and technical support for studies and reports, including funding drilling monitoring wells, staffing, upgrading telemetry/data loggers, modeling	Data and Tools	Monitoring/ Data/ Assessment						Met Council
Improve large-scale groundwater modeling to help systems understand supply	Data and Tools	Monitoring/ Data/ Assessment						DNR and cities
Drill monitoring wells to fill gaps where information is needed and useful (including at unique features like fens, springs, and trout streams)	Data and Tools	Monitoring/ Data/ Assessment	x	x				DNR Eco Waters
Develop and implement data standards to connect monitoring datasets to support a total water balance analysis (stream, lake, groundwater, weather)	Data and Tools	Monitoring/ Data/ Assessment	x	x				Water agencies, cities and townships
Maintain or increase Met Council monitoring program (and fix billing issues)	Data and tools	Monitoring/ Data/ Assessment						
Evaluate monitoring data to ensure its credibility	Data and Tools	Monitoring/ Data/ Assessment	x	x				DNR, Academics, MN Ground Water Association
Work with Met Council and MDH to better understand arsenic contamination	Data and Tools	Pollution Prevention						
Update the Scott County geologic atlas	Water System Capacity	Conservation & Sustainability	x					MGS, DNR, Scott County
Work to leverage and make funds available to make necessary upgrades and improvements to systems, including lead replacement	Water System Capacity	Conservation & Sustainability, Pollution Prevention						Local
MITIGATION MEASURE EVALUATION								
Research the connection of wastewater treatment plant discharge versus aquifer recharge	Water System Capacity	Reuse, Integrated Water						Metropolitan Council
PLANNING AND IMPLEMENTATION								

ACTION	RELATED FOCUS AREAS	RELATED WPP POLICY	10-YEAR PLAN		25-YEAR PLAN			POSSIBLE INVOLVED PARTIES
			2025-2030	2030-2035	2035-2040	2040-2045	2045-2050	
Extend plans to 7 generations (~150 years)	Plan Alignment, Water System Capacity	Conservation & Sustainability						
Identify stable funding for long-term planning and implementation; create more mechanisms for proactive versus reactive funding	Water System Capacity	Conservation & Sustainability	x					Multiple partners
Update the Scott County Groundwater Plan to leverage resources	Water System Capacity	Conservation & Sustainability	x					Scott County
Support grant funding for and local implementation of water efficiency programs, especially for cities and counties to replace turf with prairie/native plants	Efficiency, Partnerships	Conservation & Sustainability						Met Council
Support building and development codes that prioritize water efficiency, such as ordinances to permit stormwater reuse for irrigation	Efficiency, Partnerships	Conservation & Sustainability	x					Municipalities
Update plans for developing fringe areas taking into account water supply as much as land use (and not just structural systems)	Efficiency, Partnerships, Plan Alignment	Water-centered Growth & Development						LGUs and County along the edge of urban expansion
Update plans for developing fringe/urban expansion in a way that regional stormwater reuse is planned and developed just before/ahead of land use development	Efficiency, Partnerships, Plan Alignment	Water-centered Growth & Development, Reuse						LGUs and Townships and Cities and maybe County and WD/WMOs
Continue work between agencies to streamline plans	Collaboration	Integrated Water						Met Council
Collaborate with wellhead protection plans	Collaboration	Integrated Water, Pollution Prevention						Counties
Align plans and messaging around water conservation	Efficiency, Plan Alignment	Conservation & Sustainability						Communities, public
Collect data that supports issue of plan alignment	Plan Alignment	Monitoring/ Data/ Assessment						
Address land use practices and PONDS to restore and protect prairie and natural areas and water supply sources	Plan Alignment	Integrated Water,						
Deal with PFAS in a coordinated way	Plan Alignment	Pollution Prevention						

ACTION	RELATED FOCUS AREAS	RELATED WPP POLICY	10-YEAR PLAN		25-YEAR PLAN			POSSIBLE INVOLVED PARTIES
			2025-2030	2030-2035	2035-2040	2040-2045	2045-2050	
Identify and implement changes to water plans and agency funding sources to allow plans to be accepted by multiple agencies for funding	Plan Alignment	Integrated Water						
Implement high water use industry zones near wastewater treatment plants to create water reuse loops at the industrial scales during the 2050 comprehensive plan process	Water System Capacity, Efficiency, Plan Alignment	Reuse, Water-centered Growth and Development						
Increase regional water supply and quality management at the regional/aquifer level, not as a “pipe system” but as a cycle/framework		Conservation & Sustainability, Integrated Water, Pollution Prevention						
Plan for need to upsize current water treatment plants by identifying costs required to upsize to handle emerging contaminants	Water System Capacity	Conservation & Sustainability, Pollution Prevention						MDH and suppliers
Where feasible, implement a water reuse system as a demo project in a city(ies) in the subregion and provide information and education as a case study.		Reuse						Local
Promote natural/alternative drought resistant lawns through education and outreach in partnership with the University of Minnesota. Include information on how much water lawns need.		Reuse, Climate Change Resilience	x	x	x	x	x	Watersheds, Met Council, Cities
Work to make implementing stormwater reuse for irrigating a viable option. Continue to promote rain barrels to the public for irrigation purposes.		Reuse	x					Watershed districts
Implement high water use industry zones near wastewater treatment plants to create water reuse loops at the industrial scales during the 2050 comprehensive plan process.		Reuse, Water-centered Growth & Development						
Create and implement model ordinances to permit stormwater reuse for irrigation		Conservation & Sustainability	x					Local water suppliers
Implement ordinances for common sense outdoor water use (ex. No water between 10 am – 6 pm).		Conservation & Sustainability	x					Local water suppliers
Construction/storage of surface water withdrawal systems to protect groundwater use		Conservation & Sustainability			x	x	x	State agencies, local water suppliers

ACTION	RELATED FOCUS AREAS	RELATED WPP POLICY	10-YEAR PLAN		25-YEAR PLAN			POSSIBLE INVOLVED PARTIES
			2025-2030	2030-2035	2035-2040	2040-2045	2045-2050	
Promote and implement actions to further protect water supply from runoff, including working with watershed districts, developers, and state agencies.		Pollution Prevention, Integrated Water						Local water suppliers
Provide education about contaminants of concern by geographic location, with action steps		Pollution Prevention	x	X				Met Council, local governments, MDH
Coordinate with area labs to inventory the different analyses available at each and make it easier to pickup/drop-off water samples		Pollution Prevention	x					Met Council with local support from cities
Conduct a technical review of biosolid applications and impacts to groundwater		Pollution Prevention	x					Met Council, MPCA
Develop regional low-salt design guidance (less chloride, de-icing)		Pollution Prevention	x	x				Met Council, MPCA
Provide guidance on treatment design/development for emerging contaminants such as PFAS		Pollution Prevention		x				MDA, MPCA