

**North & East Metro Groundwater Management Area
Timing & Progress of Implementation Activities**

		Duration (Years)	Ongoing Work	Completed Annually	Completed Semi-Annually					
Action ID	Action	Status	2016	2017	2018	2019	2020			
Objective I. Groundwater use in the GWMA does not harm aquifers and ecosystems and does not negatively impact surface waters										
I.1	The DNR will improve monitoring of groundwater levels, basin water levels, stream flows, climate, groundwater-associated biological communities, and water use within the GWMA to inform the DNR permit decisions									
I.1.a	Hydrological and climate monitoring system. The DNR will coordinate with federal, state, and local agencies in these efforts									
I.1.a.i	Evaluate opportunities for stream flow monitoring collaboration or data collection	Ongoing		■ ■ ■ ■ ■ ■ ■ ■ ■ ■						
I.1.a.ii	Add lake gauges as needed	Complete	■ ■ ■ ■ ■ ■ ■ ■ ■ ■							
I.1.a.iii	Install DNR observation wells and work with permit holders on reporting groundwater data and adding observation wells	Ongoing		■ ■ ■ ■ ■ ■ ■ ■ ■ ■						
I.1.a.iv	Weather stations: Identify climate monitoring requirements and add weather stations as needed to provide precipitation, temperature, solar radiation, dew point, and wind speed for improved evapotranspiration estimates									
I.1.a.iv.i	Establish up to two weather stations to provide real time data from the GWMA	Complete			■ ■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■ ■				
I.1.a.iv.ii	Participate with cooperators in the monitoring of White Bear Lake evaporation	Complete			■ ■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■ ■				
I.1.a.iv.iii	Evaluate the benefits of evaporation monitoring networks on lakes in the GWMA	Ongoing		■ ■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■ ■				
I.1.a.iv.iv	Summarize available climatological data related to groundwater management for the new GWMA reporting system	Ongoing	■ ■ ■ ■ ■ ■ ■ ■ ■ ■							
I.1.b	The DNR will continue to improve information on water use within the GWMA									
I.1.b.i	Refine estimates of groundwater use that does not require a permit (<10,000 GPD or 1MM GPY)	Complete	■ ■ ■ ■ ■ ■ ■ ■ ■ ■							
I.1.b.ii	Develop guidance for consistent water use reporting categories	Complete		■ ■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■ ■				
I.1.c	The DNR will develop and use groundwater models for use in the permit decision process									
I.1.c.i	Develop and use standard groundwater models and methods to predict impacts from groundwater appropriations	Complete	■ ■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■ ■						
I.1.c.ii	Support Met Council/USGS refinements of the Metro Model 3 and use to understand groundwater-lake interaction where feasible.	Complete	■ ■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■ ■						
I.1.d	Develop additional information on groundwater associated biological communities									
I.1.d.i	Develop GIS model of wet prairie complexes	Complete	■ ■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■ ■						
I.1.d.ii	Wetland/native plant community field surveys	Complete				■ ■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■ ■			
I.1.e	Create GWMA reporting system for public access to data collected and analysis	Not Started			■ ■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■ ■			
I.2	The DNR will develop and apply sustainability thresholds for aquifers, ecosystems and surface waters in the GWMA									

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II.3	Work with other organizations to promote water storage, water re-use, and use of viable alternative water sources to conserve groundwater	Ongoing						
II.4	The DNR will promote the use of water conservation strategies in community water supply planning in the GWMA							
II.4.a	Require that water supply plans include measureable conservation goals.	Ongoing						
Objective III. Groundwater use in the GWMA does not degrade water quality								
III.1	The DNR will include compliance with local, state, and federal water quality regulations as permit conditions							
III.1.a	Identify water quality regulations that apply to groundwater use and clarify how best to include them in appropriation permits	Ongoing						
III.2	The DNR will ensure that permitted appropriations do not degrade water quality by moving known contaminants							
III.2.a	Evaluate new permit applications for their potential to move known contaminants	Ongoing						
III.2.b	Evaluate all existing permits in the GWMA for their role in moving contaminants	In Progress						
III.3	Ensure that water supply plans take into account contaminant plume management	In Progress						
III.4	The DNR will improve communication about known contaminants and pollution management in the GWMA							
III.4.a	Use the GWMA reporting system to describe the status of pollution plume management in the GWMA	Not Started						
Objective IV. Groundwater use in the GWMA does not create unresolved well interferences or water use conflicts								
IV.1	Continue to review permit applications to identify and reduce the likelihood of well interferences and water use conflicts	Ongoing						
IV.2	Resolve well interferences and water use conflicts applying the framework outlined in statute and rule	Ongoing						
IV.3	Improve information on aquifer characteristics in the GWMA to identify and reduce the interferences and conflicts prior to permit approval	Ongoing						
IV.4	Increase education and awareness about resolving well interferences and conflicts	Ongoing						
Objective V. All groundwater users in the GWMA have the necessary permits to use groundwater								
V.1	The DNR will improve its capacity to detect unpermitted groundwater use							
V.1.a	Complete periodic analysis to identify potential unpermitted groundwater use in the GWMA and take appropriate action	Ongoing						
V.1.b	Complete follow-up review of applications made for preliminary well approvals	Ongoing						
V.1.c	Provide updated information to well drillers and consultants on existing laws and the water appropriation permit application process as it is available	Ongoing						

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V.1.d	Facilitate the public's ability to report unpermitted use	Complete						
V.2	The DNR will ensure that permitted volumes reflect actual use and use does not exceed permitted volumes							
V.2.a	Evaluate water use reports and contact permit holders whose reports indicate inaccuracies	Ongoing						
V.2.b	Bring permittees into compliance when reported use is higher than established in permit	Ongoing						
V.2.c	Work with permit holders to adjust permitted volume to better match actual use and need	Ongoing						
V.3	The DNR will ensure that water users comply with conditions on appropriation permits							
V.3.a	Work with permit holders to bring them into compliance with their permit conditions	Ongoing						