

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

| ■ Du | ration (Years) Ongoing Work Completed Annually Completed Semi-Annually | | | | | | |
|----------------|---|-----------------------|----------------|------------------|-------------------|-----------------------|-------------|
| Action ID | Action | Status | 2016 | 2017 | 2018 | 2019 | 2020 |
| Objective I. C | Groundwater use in the GWMA does not harm aquifers and ecosystems and does not negatively impact surface waters | | | | | | |
| l.1 | The DNR will improve monitoring of groundwater levels, basin water levels, stream flows, climate, groundwater-associated biological developments and the provided by the provided by the provided biological developments and the provided by | gical communities, | and water use | within the GWM | 1A to inform the | DNR permit dec | sions |
| 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 | | | | ı | |
| 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, temper | erature, solar radiat | ion, dew point | , and wind speed | I for improved ev | ı vapotranspiratio | n 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 | | 1 | | | |
| I.1.b.ii | Develop guidance for consistent water use reporting categories | Complete | | | | | J |
| I.1.c | The DNR will develop and use groundwater models for use in the permit decision process | | | | | 1 | |
| 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 | | | | | |
| l.1.e | Create GWMA reporting system for public access to data collected and analysis | Not Started | | | | | |
| 1.2 | The DNR will develop and apply sustainability thresholds for aquifers, ecosystems and surface waters in the GWMA | | | | | · | |

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| 1.2.a | Use safe yield thresholds for aquifers | Ongoing | | | | | |
| 1.2.b | Prepare report to legislature with recommendations for thresholds for negative impacts to surface waters | Complete | | 1 | | | |
| 1.2.c | The DNR will use specified thresholds (Obj I.2.b) for determining negative impacts to streams from groundwater appropriations | , | <u> </u> | _ | | | <u>I</u> |
| I.2.c.i | Coordinate studies and work with permitted groundwater users having potential negative impacts on trout streams within the GWMA | Ongoing | | | | | |
| 1.2.d | The DNR will develop thresholds of negative impacts to water basins and wetlands as required by Minn. Stat. sec. 103G.287, subd. | 2 | | | | | |
| 1.2.d.i | Work with others to evaluate susceptibility of selected water basins to groundwater-level changes in the GWMA | Ongoing | | | | | |
| I.2.d.i.a | Work with USGS to model total annual volume withdrawn from White Bear Lake due to permitted groundwater appropriations | Complete | | | | | |
| I.2.d.i.b | Adjust permits if withdrawals from White Bear Lake exceed sustainability thresholds | Not Started | | | | | |
| I.2.d.i.c | Use procedures outlined in MN Rules part 6115.0740 to resolve water use conflicts identified in analysis of White Bear Lake | Not Started | | | | | |
| I.2.d.i.d | Set a protective elevation for White Bear Lake | Complete | | | | | |
| I.2.d.ii | Determine sustainability thresholds for withdrawals from wetlands in the GWMA due to groundwater appropriations | Not Started | | | | | |
| I.2.d.ii.a | Manage appropriations to meet the sustainability thresholds | Ongoing | | | | | |
| 1.3 | The DNR groundwater appropriation permits will integrate sustainability limits, individual and cumulative permit analysis, and will | include evaluation | on of existing p | ermits within the | : GWMA | | l |
| 1.3.a | Evaluate new permit applications individually and in conjunction with other appropriation permits | Ongoing | | | | | |
| 1.3.b | Review existing permits in the GWMA within 5 years | Ongoing | | | | | |
| 1.3.c | Limit current and future appropriations where needed to meet sustainability limits | Not Started | | | | | |
| 1.4 | The DNR will communicate the status of Objective 1 | <u>'</u> | | , | | | |
| I.4.a | Create a new GWMA reporting system | Not Started | | | | | |
| I.4.b | List applications for new or amended water appropriation permits in the GWMA reporting system | Not Started | | | | | |
| 1.4.c | Hold two GWMA Advisory Team meetings per year | Ongoing | | | | | |
| 1.4.d | Increase education and outreach to the public about groundwater use in the GWMA | Ongoing | | | | | |
| I.4.e | The DNR will encourage counties to participate in the County Geologic Atlas program | | | | | | |
| I.4.e.i | Complete Anoka County Geologic Atlas | Complete | | | | | |
| I.4.e.ii | Invite Ramsey County to participate in update to County Geologic Atlas | Complete | | | | | |
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| I.4.e.iii | Complete Washington County Geologic Atlas | Complete | | | | | |
| 1.5 | The DNR will improve access to data collected and analyzed by other organizations in the GWMA | | | | | | |
| I.5.a | Support and participate in a data management system, including website improvements | Ongoing | | | | | |
| I.5.b | Pursue hydrologic data collected by other organizations in the GWMA | Ongoing | | | | | |
| 1.6 | Community water supply plans include actions in response to negative impacts on surface waters due to groundwater withdrawals | In Progress | | | | | |
| 1.7 | The DNR will promote groundwater recharge in the GWMA, consistent with sound water quality management | | | | | | |
| I.7.a | Work with others to identify important groundwater recharge areas and opportunities to enhance recharge | Ongoing | | | | | |
| I.7.b | Support LGU efforts to protect important groundwater recharge areas through zoning and land use planning | Ongoing | | | | | |
| 1.7.c | Update groundwater sensitivity maps for the GWMA | Complete | | | | | |
| Objective II. | Groundwater use in the GWMA is reasonable, efficient, and complies with water conservation requirements | | | | | | |
| II.1 | The DNR will ensure that groundwater users are complying with water conservation requirements in their water supply plans and plans are complying with water conservation requirements in their water supply plans and plans are complying with water conservation requirements in their water supply plans and plans are complying with water conservation requirements in their water supply plans and plans are complying with water conservation requirements in their water supply plans and plans are complying with water conservation requirements in their water supply plans and plans are complying with water conservation requirements in their water supply plans and plans are complying with water conservation. | permits | | | | | |
| II.1.a | Include water conservation requirements in appropriation permits | Ongoing | | | | | |
| II.1.a.i | Work with Met Council to evaluate and update conservation goals | Ongoing | | | | | |
| II.1.b | Evaluate compliance with permit conservation requirements by permit | Ongoing | | | | | |
| II.1.c | Evaluate conservation actions when considering amendment requests | Ongoing | | | | | |
| II.1.d | Partner with LGUs to develop conservation requirements | Ongoing | | | | | |
| II.1.e | Update information used to develop water conservation requirements | Complete | | | | | |
| II.2 | The DNR will improve communication about and promote the values of water conservation in the GWMA | <u>'</u> | | | | · · · · · · · · · · · · · · · · · · · | |
| II.2.a | Promote lessons learned about water conservation by water users in the GWMA | Ongoing | | | | | |
| II.2.b | Report on water conservation practices being used in the GWMA | Complete | | | | | |
| II.2.c | Provide assistance to LGUs to encourage and implement water conservation measures that do not require a DNR appropriations permit | Ongoing | | | | | |
| II.2.d | Include links to organizations with water conservation information on DNR website | Complete | | | | | |

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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 | | | | | |
| 11.4 | 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 GWWA | | | | | | |
| 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 | | | | | |
| | process as it is available | | | | | | ļ |

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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 | <u> </u> | , | | , | | | |
| V.3.a | Work with permit holders to bring them into compliance with their permit conditions | Ongoing | | | | | | |