



Groundwater Plan Implementation Report 2021-2022 Annual Update

Introduction

The 2020-2030 Groundwater Plan (Plan) describes the strategic approach for new and ongoing programs for Dakota County residents, agricultural interests, businesses, industry, and government to protect and improve groundwater quality and quantity. The implementation framework identifies prioritized, targeted, and measurable activities necessary to achieve the Plan goals. As part of implementation, the intent is to provide an annual Groundwater Plan Implementation Report that will identify priorities for the given year, report on annual measures, and track changes of measures and outcomes over time.

In July of each year, Environmental Resources staff report annual measures for each goal, strategy, and tactic to the County Office of Performance Analysis as part of the Program and Service Inventory. For a complete list of 2021 Groundwater Plan annual measures please contact at valerie.neppl@co.dakota.mn.us.

The below tables provide a status update for all tactics that were projected to start in 2020/2021 timeframe (Table 1) and 2022 timeframe (Table 2), per the Groundwater Plan Implementation Tables.

Table 1. Groundwater Plan tactics projected to start in 2020/2021 timeframe

Tactic	Short Description	Status
1A3C	Facilitate installation drinking water treatment systems for low-income households with a private well	Postponed to 2022 due to funding (see in 2022 upcoming highlights)
1A3E, 1A3F, 1A3H	Provide private well owners with the opportunity to have their water tested at no-cost; collect demographic data	Started implementation in 2020 (see highlights below)
1B1B, 1B1C	Develop, adopt, and Implement a Dakota County Agricultural Chemical Reduction Effort (ACRE); provide cost-share funding for ag. water quality practices	Started development in 2021 (see highlights below)
1B1D	Install monitoring wells to collect long-term water quality and water level data in high nitrate groundwater areas	Started in 2021 (see highlights below)
1B4A, 1B4B	Work with County Departments, and cities and townships to minimize salt use	Applied for MN Greencorps member to support, but was unsuccessful
1C3F	Review and track proposed sites for land application of wastewater treatment plant biosolids	Process started in 2021; intern hired to support work in 2022
1C4A	Amend Ordinance No. 50, Shoreland and Floodplain Management, to require additional info for mining permits	Completed in 2020

Tactic	Short Description	Status
2A1A, 2A1C	Work with DNR to ensure groundwater appropriation requests are sustainable; Revise County Ordinance 114, Well and Water Supply Management to protect long-term water supplies.	Completed in 2021 (see highlights below)
2A3A	Advocate with the State to clarify the rules and guidelines regarding water reuse.	Started in 2021
2B2C	Develop, monitor, protect, restore, and manage wetlands for water retention and habitat. (Includes wetland restoration initiatives like Wetland Banking)	Started in 2021
3A1A, 3A1B, 3A1F, 3A1G, 3A1H, 3B1C, 3B1H	Expand groundwater conservation and pollution prevention education and outreach efforts <ul style="list-style-type: none"> Assist annual Metro Area Children's Water Festival Leverage existing educational materials and programs Inform the public about DWSMAs Make non-private water quality data more readily available to homeowners and other stakeholders Develop and distribute educational information in multiple languages and accessible formats. 	Additional educational items were added to the Groundwater Website . A DWSMA educational application is under development for 2022. Language needs for educational materials are still being determined. (see highlights below)
4A1B	Establish a County Groundwater/Source Water Collaborative	Started in 2021 (see highlights below)
4B1A	Collaborate to streamline the groundwater appropriations permitting process to make the process more efficient and understandable.	Conversations were started with DNR in 2020/2021.
4B1B	Review the County's Well Program Delegation Agreement with MDH	Review is starting in 2022 due to COVID delays

Table 2. Groundwater Plan tactics projected to start in 2022 timeframe

Tactic	Short Description	Status
1B1E	Partner with SWCD to facilitate, promote, and potentially provide cost-share funding for irrigation practices and technologies	Provided funding for Irrigation Management Tool; to be rolled out in 2022
1C3E	Provide training for realtors regarding the property transfer requirements for wells and septic systems.	Projected to start in 2022
1C4B	Review the County's model Mining Ordinance, update as appropriate, and distribute to cities and townships.	Projected to start in 2022 (see highlights below)
2A2A	Develop and implement a County-wide water supply/conservation initiative	Included in 2022 Collaborative agenda
2A3B	Provide cost-share funding for water reuse projects.	Pending if grant funding is available
2B2A	Encourage communities to complete or update wetland protection and management plans	TBD based on staff availability
2C1A	Encourage adoption and coordination of advanced technologies, such as "Smart Wellfield" technologies	Included in 2022 Collaborative agenda
3A1D	Inform the public about groundwater levels by putting DNR observation well data on the County website.	Some information added to Dakota County Website: Water Watch

2021 Project Highlights

The Dakota County Groundwater Plan was adopted by the County Board of Commissioners in January 2021. Upon adoption, County staff immediately started seeking funding and resources to assist with Plan implementation. Staff were successful in receiving over \$100,000 in grant awards focused on groundwater protection activities. Below are several highlights of projects performed in 2021.

Assisted Private Well Owners: Continued Community Focused Sampling and Water Supply Testing Services (tactics 1A3A, 1A3E, 1A3F, 1A3H – 2020/2021 Plan Start):

The Community Focused Sampling program started in 2020 (during development of the Groundwater Plan), with the objective to offer every private well owner in Dakota County the opportunity to have free drinking water testing at least once every five years. Free water testing provides multiple benefits – it removes barriers for well owners to help them understand health concerns related to their drinking water and improves the County’s understanding of community risks from groundwater contamination. The County provides each participant a copy of their individual results as well as a customized packet with risk communication, contaminant factsheets, water treatment options (if applicable), and resources to help ensure residents have safe drinking water.

In 2020, water sample kits were sent to private well owners in 13 communities, of which 619 households participated (32 percent response rate). In 2021, 403 private well owners in 11 communities participated (19 percent response rate). The cities and townships included in the 2020 and 2021 sampling are identified in the table below.

Table 3. 2020 and 2021 Community Focused Sampling Participation

Year	City/Township	No. of Private Wells	No. Samples Returned	Response Rate
2020	APPLE VALLEY	74	22	30%
2020	COATES	50	16	32%
2020	DOUGLAS TWP	250	82	33%
2020	EAGAN	295	58	20%
2020	HAMPTON (CITY)	11	4	36%
2020	HASTINGS	159	16	10%
2020	MARSHAN TWP	387	147	38%
2020	MIESVILLE	52	26	50%
2020	NEW TRIER	33	6	18%
2020	NORTHFIELD (within Dakota County)	14	3	21%
2020	RANDOLPH (CITY)	61	6	10%
2020	ROSEMOUNT	554	231	42%
2020	VERMILLION (CITY)	11	2	18%
2021	EMPIRE TWP	259	55	21%
2021	HAMPTON TWP	335	84	25%
2021	LILYDALE	5	0	0%

Year	City/Township	No. of Private Wells	No. Samples Returned	Response Rate
2021	MENDOTA	65	0	0%
2021	MENDOTA HEIGHTS	135	8	6%
2021	NININGER TWP	321	78	24%
2021	SOUTH ST PAUL	14	1	7%
2021	SUNFISH LAKE	196	44	22%
2021	VERMILLION TWP	453	91	20%
2021	WATERFORD TWP	235	39	17%
2021	WEST ST PAUL	84	3	4%
	TOTAL	4,053	1,022	25%

Community Focused Sampling results summarized by city and township can be found on the [Wells & Drinking Water Website](#).

In addition to providing free drinking water testing, the County also facilitated a fee-for-service Water Testing Service through a certified laboratory. In 2021, over 120 residents participated in routine testing of arsenic, bacteria, fluoride, lead, manganese, and nitrate.

Addressed Agricultural Chemical Contamination: Executed Agricultural Chemical Reduction Effort and Monitoring Well Network Installation (tactics 1B1B, 1B1C, & 1B1D – 2021 Plan Start):

Dakota County was awarded \$50,000 from the Clean Water Land and Legacy Amendment, distributed by the Minnesota Department of Health (MDH), to assist with development of the Agricultural Chemical Reduction Effort (ACRE) Plan. The Groundwater Plan identified agricultural chemicals, especially nitrate, crop herbicides, and chloride as drinking water issues in rural Dakota County. ACRE intends to reduce these chemicals in groundwater to levels that no longer pose health threats.

Starting in mid-2021, Dakota County, the Soil and Water Conservation District (SWCD), and hired consultant, Environmental Initiative, began work with farmers, agricultural businesses, other rural residents, and local officials to develop strategies to reduce agricultural chemicals in groundwater. Outreach included several meetings with an Agricultural Advisory Group, the agricultural and rural community, cities, townships, and watershed management organizations. Dakota County also hired Barr Engineering to develop a groundwater nitrate leaching model with the purpose of identifying nitrate leaching reduction goals at the local level. Additional information is provided on the [ACRE Website](#). A draft ACRE Plan is projected to be available for public review in the summer 2022.

In conjunction with developing the ACRE Plan, staff partnered with the Minnesota Department of Agriculture (MDA) to develop a long-term monitoring well network in high nitrate groundwater areas of the county. Dakota County installed seven shallow groundwater monitoring wells in late 2021. An additional 7-10 monitoring wells will be installed in the spring 2022. The county monitoring well network is meant to complement the monitoring network MDA is establishing within the Hastings’ drinking water supply management area (DWSMA).

Once wells are installed in the spring of 2022, the wells will be sampled three times per year (spring, summer, and fall) for nitrate, chloride, and general chemistry parameters. This information will enable the county and

MDA to establish baseline groundwater conditions and observe changes in shallow groundwater quality at each site.

Dakota County also provided \$150,000 in cost-share funding to the SWCD to support technical assistance and installation of water quality best management practices. Cost-share grants supported 1,289 acres of cover crops on 16 fields, and 23.8 acres of native prairie restoration, resulting in 131 pounds of nitrate reduction per year.

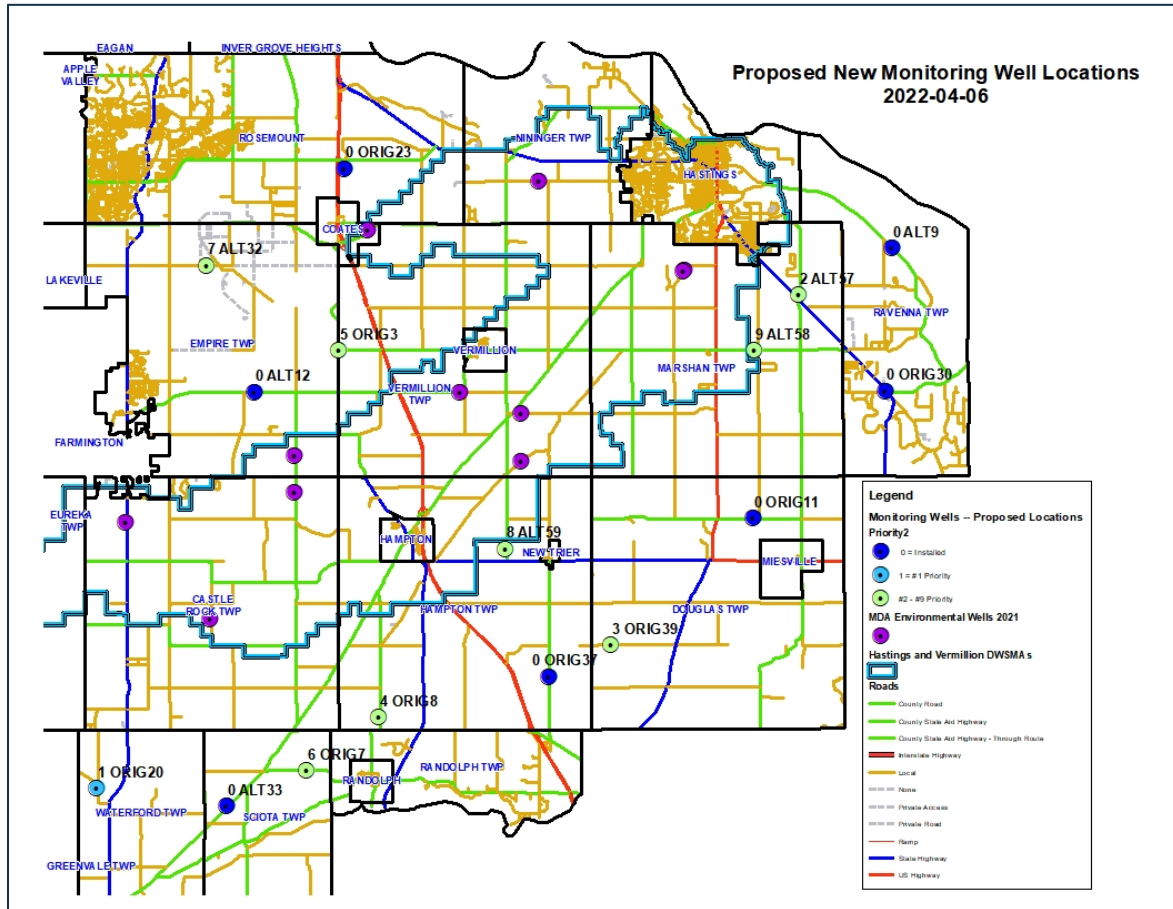


Figure 1. Groundwater Monitoring Network

Protected Groundwater by Regulated Well Construction and Sealing: Administered Delegated Well Program and Targeted Well Seal Grants (tactic 1A2A, 1C2A, 1C2B - Ongoing):

Dakota County continued to administer the Delegated Well Program and enforce County Ordinance 114, Well and Water Supply Management, to ensure that new wells are constructed, and unused wells are sealed to meet health standards and protect Dakota County aquifers. In 2021, staff completed 108 well construction permits and 182 well seal permits.

Dakota County received \$51,000 from the Clean Water Land and Legacy Amendment, distributed by the Board of Soil and Water Resources (BWSR) to seal unused wells within the Mississippi East Watershed Area. Unused or abandoned wells are a potential threat to health, safety, and the environment since they provide a direct conduit to the groundwater aquifer. With the grant dollars, the County provided up to 50% cost-share grants

through the County's existing well seal grant program to permanently seal unused and unsealed drinking water wells within the Watershed Based Implementation Funding (WBIF) Metro Mississippi East Watershed area – this includes the cities of Mendota, Mendota Heights, West St. Paul, South St. Paul, Inver Grove Heights, Sunfish Lake, and Lilydale.



Figure 2. Open Groundwater Well

With the help of the 2021 Environmental Resources Intern, staff identified potentially 1,500 unsealed, unused wells within the Mississippi East Watershed Area. Letters were sent to landowners with potentially unsealed wells, with priority on properties located within city DWSMAs. Thirteen wells were sealed in 2021 using WBIF grant funding, with 5 additional wells under contract to be sealed. In addition to focusing well seal grants in the Mississippi East Watershed area, Community Development Block Grant funding and Dakota County funds were utilized to seal an additional 32 wells throughout the county. In total, over \$50,000 of cost-share grants were awarded, and 44 unused wells were sealed.

Ensure Sustainable Groundwater Appropriation Requests & Prevented Groundwater Exportation (tactic 2A1A, 2A1C – 2020/2021 Plan Start):

Dakota County ensured protection of the county’s long-term groundwater resources by coordinating with the Department of Natural Resources (DNR) to propose Minnesota Statute language that would prevent groundwater exportations, and by updating County Ordinance No. 114 (Well and Water Supply Management) through the County’s Delegated Well Program.

The County Board of Commissioners adopted Amended [Ordinance No. 114](#) on April 20, 2021, which included amendments that prohibit the construction of new wells estimated to use a water volume greater than 50 million gallons per year for water use types defined by the DNR as commercial/institutional. The reason behind the amendment language was this would not negatively impact current water usage in the county, but would prevent bulk water exportation that would fall under commercial/institutional water use (one of the lowest use priorities per Minnesota Statute 103G).

Expand Water Education (3A1A- 2021 Plan Start) & Apply to Host “We Are Water MN” (tactics 3A1C – Opportunity-based):

Dakota County started efforts to expand groundwater conservation and pollution prevention education, which included providing additional educational materials on the [Groundwater and Wells & Drinking Water Website](#), leveraging existing materials to create a Dakota County specific [Our Groundwater Connection Video](#), and applied and was selected as a 2022 Host Site for [We Are Water MN](#). We are Water MN will comprise of both an indoor exhibit at the Pleasant Hill Library (Hastings) and an outdoor exhibit at Lebanon Hills Visitor Center (Eagan) from October 13 to December 5, 2022.

Hosted Smart Salt Classes (3B1D - Ongoing):

Dakota County received \$3,000 from the Clean Water Land and Legacy Amendment, distributed by BWSR to support annual Smart Salt Training Classes. The Mississippi East WBIF Grant supported a *Smart Salting for Property Managers* workshop in November 2021, conducted in collaboration with Washington County. A total of 18 property and facility managers attended. Additional Smart Salt Classes will be funded with WBIF Grant dollars in 2022 and 2023.

In addition to the *Smart Salting for Property Managers* workshop, the County hosted two other Smart Salting workshops (Level 1 and Level 2 certifications), training over 70 people total.

Provided Technical Assistance to the City of Coates for Water Supply Planning (1A1A - Ongoing).

Dakota County is helping the City of Coates develop plans to connect all the households in Coates to the City of Rosemount’s municipal water supply system and the Metropolitan Council sewer system. This plan is driven in large part by the high levels of nitrate found in private wells within the city limits. In October, the County Board approved a Joint Powers Agreement with the City of Coates to fund the completion of a Water and Sewer Facility Plan. This plan was submitted to the MPCA in March 2022 and is required to be eligible for Public Financing Authority funding.

Established County Groundwater - Source Water Protection Collaborative (4A1B – 2021 Plan Start):

Dakota County created and hosted its first Groundwater - Source Water Protection Collaborative (Collaborative) meeting in October 2021. The Collaborative is planned as a forum to facilitate benchmarking, data-sharing, idea-sharing, and collaboration between the County and drinking water stakeholders in order to increase protection of the County’s groundwater and ensure sufficient and healthy drinking water to all residents. The Collaborative is open to all organizations that have an interest in protecting Dakota County drinking water. This includes state and regional agencies, cities, townships, watershed management organizations, SWCD, and other interested parties such as non-profit organizations, local businesses, and industry. The Collaborative is planning to meet three times in 2022 to discuss topics such as water conservation and reuse, wellhead protection, and education and outreach opportunities.

2022 Upcoming Highlights

Dakota County has a number of projects planned for 2022. This includes several Board and Department priority projects that were started in 2021, such as the ACRE Plan and installation of monitoring wells. A highlight of 2022 priority projects are discussed below.

Develop Drinking Water Treatment System Grant Program (tactic 1A3C – 2021 Plan Start):

Dakota County staff are planning to implement a Drinking Water Treatment System Pilot Grant Program for low-income private well owners with contaminated water. The goal of the grant program is to ensure all private well owners in Dakota County have equal access to safe and healthy drinking water that meets MDH’s drinking water guidelines, and position Dakota County for future external funding opportunities. The Pilot Grant Program will provide 100% of cost for the water treatment system equipment and installation for 10-15 households in 2022. Future program implementation will be dependent upon success of the program in 2022.

Complete ACRE Plan and Monitoring Well Installation (tactics 1B1B & 1B1D – started in 2021):

Dakota County will develop, adopt, and begin to implement the ACRE Plan by fall 2022. The County is hosting a second round of stakeholder engagement meetings for the ACRE Plan to request feedback on proposed solutions and ensure a reasonable and successful ACRE Plan. Based on feedback received during stakeholder engagement, staff will prepare a draft ACRE Plan with identified goals, strategies, and tactics. The intent of ACRE is to develop prioritized, targeted, and measurable strategies that are protective of health and the environment. The ACRE Plan will be able for public review in summer 2022.

In addition to completing the ACRE Plan, staff anticipate installing an additional 7-10 shallow groundwater monitoring wells within high nitrate areas of the county. Baseline sampling for nitrate, chloride, and general chemistry parameters will be completed to evaluate progress and success of the ACRE Plan in nitrate reduction over the next 5-10 years.



Figure 3. ACRE Agricultural Advisory Group Meeting

Host “We Are Water MN” (tactic 3A1C – Opportunity-based):

As mentioned previously, Dakota County will host We Are Water MN from October 13 to December 5, 2022. The exhibit examines water matters in local communities and statewide through personal stories, histories, and scientific information. The indoor exhibit will be hosted at the Pleasant Hills Library in Hastings, and the outdoor exhibit will be hosted at the Lebanon Hills Visitor Center in Eagan.

Dakota County Library and Environmental Resources are leading the effort with Dakota County Parks; as well as external partners: the Vermillion River Watershed Joint Powers Organization (VRWJPO), SWCD, Hmong American Farming Association (HAFA), Hastings Environmental Protectors, City of Hastings, and Carpenter Nature Center. During the goal setting meeting, the group identified six goals for the exhibit and events:



1. Build and strengthen lasting relationships
2. Increase awareness of relationships between our water, our communities, and ourselves
3. Reduce barriers that will help residents take individual and collective actions to protect water
4. Reach diverse audiences using inclusive and effective communication methods
5. Seek and include diverse voices, partners, and communities
6. Facilitate communication and education around connection between land use and water

Figure 4. We Are Water Exhibit Panel

Dakota County and its partners are identifying potential interviewees/story tellers for the exhibit and organizing water education and connection events. Examples include a Hastings Drinking Water Treatment Plant Tour, Smart Salting for Local Leaders Workshop, a Story Trail: We Are Water Protectors, Nitrate Prevention Field Day, and other educational lessons, activities, and workshops. Additional information will be provided on the [Dakota County We Are Water Website](#) once available.

If you or your organization is interested in partnering on We Are Water MN events, please contact valerie.nepl@co.dakota.mn.us.

Seek Resources to Implement the Groundwater Plan:

In accordance with Groundwater Plan principles, the County plans to “use financial and human resources prudently; leverage non-County funding to the extent possible.” Dakota County staff, in collaboration with partners, are in the process of seeking additional resources and funding to implement the strategies and tactics in the Groundwater Plan. Staff are actively seeking resources to complete the following:

- **Rural Water Feasibility Study (tactic 1A1B – Opportunity-based):** Staff are requesting grant funding to support completion of a feasibility study to evaluate the establishment of a rural water supply, or extension of existing public water connections, to residents who currently rely on private wells.
- **Groundwater Education and Outreach Efforts (strategies 3A & 3B – 2021/2022 Plan Start):** Staff are applying for a 2022-2023 Minnesota GreenCorps member. The Member would develop and implement county-based engagement, outreach, and education centered around waste reduction, chloride reduction, and surface water and groundwater pollution prevention. They would also coordinate and lead We Are Water MN engagement and community events.
- **Model Mining Ordinance (tactic 1C4B – 2022 Plan Start):** Staff are partnering with SWCD to seek resources to help with review of local mining ordinances, and review and updating of the County’s model mining ordinance. The goal is to provide sustainable protection of groundwater resources from aggregate mining operations in the county.

Thank you to Dakota County partners for your assistance in implementing the Groundwater Plan.

For questions on the Groundwater Plan or annual report please contact groundwater@co.dakota.mn.us, or 952-891-7000.

Funding for the ACRE Plan is provided through the Clean Water and Legacy Amendment, distributed by MDH to Dakota County.

Funding for the Mississippi East Watershed Well Seal Grant is provided through the Clean Water Land and Legacy Amendment, distributed by BWSR.

