Groundwater Plan Implementation Report
2024-2025 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, Dakota County 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 2024 Groundwater Plan annual measures please contact groundwater@co.dakota.mn.us.

The below table provides a status update for tactics completed or ongoing during 2024-2025.

Table 1. Progress on Groundwater Plan Tactics

Tactic	Short Description	Status
1A1B	Conduct Rural Water Feasibility Study (opportunity-based)	***COMPLETE*** Dakota County Rural Water Feasibility Study
1A3C	Facilitate installation of drinking water treatment systems for low-income households with a private well	Received grants from MDH and MDA in 2024 *(see 2024 Project Highlights)*
1A3E, 1A3F, 1A3H	Provide private well owners with the opportunity to have their water tested at no cost to them; collect demographic data	Continued to implement *(see 2024 Project Highlights)*
1B1B, 1B1C	Develop, adopt, and implement a Dakota County Agricultural Chemical Reduction Effort (ACRE); provide cost-share funding for ag. water quality practices	*ACRE Plan adopted in 2022 (see separate ACRE REPORT)*
1B1D	Install monitoring wells to collect long-term water quality and water level data in high nitrate groundwater areas	***COMPLETE*** ACRE Monitoring Well Dashboard
1B2B, 1B2C	Partner with Soil and Water Conservation District (SWCD), cities and townships, and watershed organizations to promote conversion of turf grass	Partnered with SWCD and VRWJPO to develop Lawns Reimaged Pilot Program *(see 2024 Project Highlights)*
1B4A, 1B4B	Work with county departments, and cities and townships to minimize salt use	Started Chloride Reduction Program *(see 2024 Project Highlights)*
1C4B	Review the County's model Mining Ordinance, update as appropriate, and distribute to cities and townships.	**COMPLETE** Dakota County Model Mining Ordinance

Tactic	Short Description	Status
2A1A	Work with Department of Natural Resources (DNR) to ensure groundwater appropriation requests are sustainable	Met with DNR and Met Council to discuss proposed large water users in Dakota County and next steps to ensure sustainable water usage.
2A1C	Reviews County Ordinance 114 to protect long-term water supplies	**COMPLETE** (ordinance revised in 2020) County Ordinance 114
2A2A	Develop and implement a county-wide water supply/conservation initiative	Water Wise Challenge, Lawns Reimagined and the Water Conservation Campaign *(see 2024 Project Highlights)*
3A1C	Host We Are Water MN exhibit (opportunity-base)	**COMPLETE** (hosted in 2022)
3A1D	Inform the public about groundwater levels by putting DNR observation well data on the County website.	**COMPLETE**, see Water Watch
3A1A, 3A1B, 3A1F, 3A1G, 3A1H, 3B1A, 3B1C, 3B1H	Expand groundwater conservation and pollution prevention education and outreach efforts • Assist annual Metro Area Children's Water Festival • Leverage existing educational materials and programs • Inform the public about drinking water supply management areas (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. The Find My DWSMA application was developed in 2022.
3B1F	Conduct stakeholder workshops for updated county Geologic Atlas, once updated	Part A Geologic Atlas Workshops were completed in 2024 *(see 2024 Project Highlights)*
4A1B	Establish a County Groundwater/Source Water Collaborative	Collaborative met once in 2024
4B1B	Review the County's Well Program Delegation Agreement with Minnesota Department of Health (MDH)	Meetings with MDH started in late 2024 to discuss update *(see 2024 Project Highlights)*

Leveraging External Funding

Dakota County continued to seek external funding and resources to assist with Plan implementation**. Staff successfully secured four funding grants plus a Minnesota GreenCorps member to support activities in the Groundwater Plan, for a total of $431,200**. Funding in 2024 was provided from the Board of Water and Soil Resources (BWSR), Minnesota Department of Health (MDH), Minnesota Department of Agriculture (MDA), and Community Development Block Grants (CDBG) focused on groundwater protection activities. The Minnesota GreenCorps member was provided through an application to the Minnesota Pollution Control Agency (MPCA).

The below table provides a status update for grants awarded since 2021 that support implementation of the Groundwater Plan.

Table 2. Grants Awarded in 2021-2025 (as of 3/1/2025)

Grant Description	2021	2022	2023	2024	2025
Mississippi East Watershed Based Implementation Funding (WBIF), BWSR – Awarded to Dakota County to support Smart Salting Workshops and Well Seal Grants within the watershed area	$54,274				
Groundwater Accelerated Implementation Grant, MDH – Awarded to Dakota County to support ACRE and groundwater quality/quantity outreach efforts	$50,000		$50,000	$50,000	*TBD*
Community Development Block Grant – Awarded to Dakota County to complete Well Seal Grants	$30,000		$30,000	$30,000	
Black Dog Watershed WBIF, BWSR – Awarded to Dakota County to complete Well Inventories and Well Seal Grants within the Black Dog Watershed area		$25,000			
Groundwater Accelerated Implementation Grant, MDH – Awarded to SWCD to update the County Model Mining Ordinance		$50,000			
Community Development Block Grant – Awarded to Dakota County to complete Rural Water Feasibility Study		$50,000			
Competitive Clean Water Fund Grant, BWSR – Awarded to Dakota County to complete Well Inventories and Well Seal Grants			$110,000	$90,000	$200,000
Safe Drinking Water for Private Well Users Grant, MDH – Awarded to Dakota County to support water testing and treatment for private well owners with elevated contaminants				$100,000	
South Metro Private Well Pesticide Mitigation, MDA – Awarded to Dakota County in collaboration with Scott and Washington counties for water treatment for well owners with elevated pesticides				$161,200	
Groundwater Accelerated Implementation Grant, MDH – Awarded to VRWJPO to for the Landscaping for Clean Water and Water Conservation Media Campaign				$50,000	
Vermillion and North Cannon WBIF, BWSR – Awarded to Dakota County to develop media material for the Leave a Legacy Campaign (outreach to farmers)					$50,000
TOTAL	**$134,274**	**$125,000**	**$190,000**	**$481,200**	**$250,000**

2024 Project Highlights

Strategy 1A2 & 1C2: Protected Groundwater by Regulating Well Construction and Sealing, & Seal Unused Wells

Administered Delegated Well Program (tactic 1A2A):

Dakota County is one of ten local boards of health that administers a Delegated Well Program under the direction of the MDH. There has been a Delegation Agreement between Dakota County and MDH since 1989; the most recent agreement has been in effect since July 1, 2020.

The Delegation Agreement is enforced through 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 2024, staff reviewed and approved 98 well construction permits and 116 well seal permits.**

Noteworthy well sealing:

Staff worked with MDH and the Department of Natural Resources (DNR) to seal one of four Ranney Wells. Four Ranney Wells were constructed in the 1940's to supply water for gun powder production during World War II at Gopher Ordnance Works. Ranney Wells are unique because they are constructed using a concrete caisson 13 feet in diameter, in this case to a depth of 112 feet within a pump house. Eight horizonal radial screens of varying lengths near the base of the Ranney Well extended out like spokes for a total length of approximately 1,800 feet.

Sealing the well was challenging because of its location at the base of a steep hill on the Mississippi River bluffs within the DNR Pine Bend Bluffs Scientific and Natural Area. The DNR hired a well contractor to seal the well and surrounding observation wells and remove the pump house. Because of the location, the contractor used a barge to bring in all material and equipment for completing the work. Sealing Ranney Well #4 required 66 cubic yards of neat cement, 472 cubic yards of sand, and 96 cubic yards of bentonite; totaling 634 cubic yards of material – roughly 80 cement truck loads.

Figure 1. Pump house and well before (left) and after (right) demolition and sealing.

Figure 2. Barge with sand and bags of bentonite used for the well sealing.

Supporting Submerged Close Loop Heat Exchanger (SCLHE) Advisory Committee

Environmental Resources staff, representing Delegated Well Programs, were invited to participate on an advisory committee for permitting and installing submerged closed loop heat exchangers in water supply wells. Rule revisions to MN Rules Chapter 4725, Wells and Borings, was required due to changes in Statute 103I allowing geothermal systems to be installed in a water supply well. Additional information is posted to the Rulemaking for Submerged Closed Loop Heat Exchangers website.

Reviewing Delegation Agreement

The Groundwater Plan proposes to review the current Delegation Agreement and expand the county's well construction delegation authority based on what is allowed within Minnesota Statute § 103I. Delegated Well Agreement discussions with MDH restarted in late 2024, with a goal of having an updated agreement by the end of 2025.

Targeted Well Seal Grants (tactics 1C2A, 1C2B):

In 2024, Dakota County received $90,000 from the Clean Water Land and Legacy Amendment, distributed by BWSR to conduct a well inventory and seal unused wells. Unused or abandoned wells are a potential threat to health, safety, and the environment since they provide a direct conduit to the groundwater aquifer. An Environmental Resources intern was hired to conduct a well inventory with focus within the Hastings Drinking Water Supply Management Area (DWSMA), the intern identified over 900 potentially unsealed, unused wells within the City of Hastings. Letters were sent to landowners with potentially unsealed wells, with priority on properties located within city DWSMAs. **In total, $80,848 of cost-share grants were awarded, and 56 unused wells were sealed.**

Strategy 1A3: Assisted Private Well Owners

Water Supply Testing Services (tactic 1A3A)

The County facilitated a fee-for-service Water Testing Service through a certified laboratory. In 2024, approximately 80 residents participated in routine testing of arsenic, bacteria, fluoride, lead, manganese, and nitrate.

Water Treatment (tactics 1A3B, 1A3C)

In response to the growing concern surrounding per- and polyfluoroalkyl (PFAS), Dakota County formed an Emerging Contaminants Workgroup. The Workgroup created a PFAS website resource for residents, to include information about PFAS testing results in Dakota County, and water treatment recommendations. The Workgroup includes experts from multiple county departments, SWCD, and watersheds. The purpose of the Workgroup is to provide education and outreach to the public regarding PFAS and other emerging contaminants (e.g., microplastics, pesticides, etc.), form strategic partnerships for information sharing, and serve as a technical resource in the county.

In addition, Dakota County implemented two new programs in 2024 to support water treatment system grants for private wells owners:

(1) Developed a Safe Drinking Water Grant Opportunity program utilizing funding from MDH. The grant will provide no-cost testing options for private well owners; and will pay up-to 100 percent of the cost for purchase of water treatment system equipment for low-income households with elevated arsenic, manganese, nitrate, lead, or bacteria contamination in drinking water. Most of the work in 2024 focused on grant program material development, and outreach to private well owners with known drinking water exceedances. One water treatment system was installed in 2024. Environmental Resources staff are partnering with the Public Health Department, Veteran Affairs, and the SWCD for education and outreach in the program to increase participation.

(2) Developed a South Metro Private Well Pesticide Mitigation Grant Program utilizing funding from MDA. The program is in collaboration with Scott and Washington counties. The grant provides 100 percent of the cost for purchase of a reverse osmosis treatment system for households with elevated pesticides in their drinking water. In 2024, staff conducted initial outreach to private well owners MDA identified as having total cyanazine above the health risk limit (HRL) of 1 microgram per liter (µg/L). Monitoring from 2019-2023 identified 105 private wells with total cyanazine concentrations at or above the HRL in Dakota, Scott, and Washington counties (Figure 3).

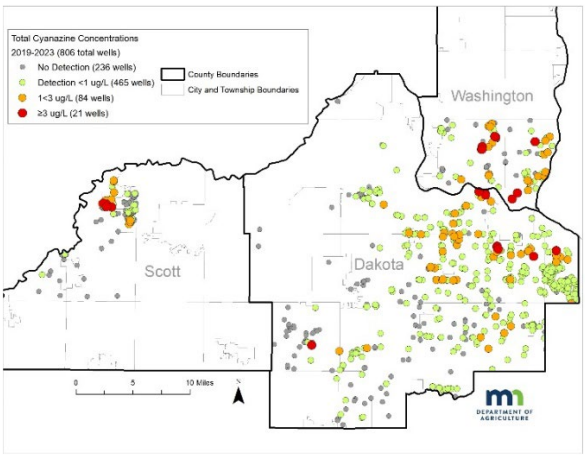

Figure 3. MDA Private Well Cyanazine Testing Results (2019-2023)

Community Focused Sampling (tactics 1A3E, 1A3F, 1A3H):

The objective of the Community Focused Sampling program is to offer no-cost water testing to private well owners in Dakota County. No-cost 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 2024, water sample kits were sent to 645 private well owners in Apple Valley, Burnsville, Farmington, and Lakeville, of which 119 test kits were returned (18% participation). A total of 2,283 private well owners have participated in the program, and all private well owners have been offered the opportunity to participate in no-cost testing at least once. Community Focused Sampling results summarized by city and township can be found on the Community Sampling Results Website.

Table 3. Community Focused Sampling Schedule & Participation

Year	City/Township	No. of Private Wells	No. Samples Returned	Response Rate
2020 & 2024	**APPLE VALLEY**	**30**	**23**	**77%**
2018 & 2024	**BURNSVILLE**	**210**	**84**	**40%**
2022	CASTLE ROCK TWP	568	111	20%
2020	COATES	50	16	32%
2020	DOUGLAS TWP	250	82	33%
2020	EAGAN	295	58	20%
2021	EMPIRE TWP	259	55	21%
2023	EUREKA TWP	528	112	21%
2024	**FARMINGTON**	**81**	**7**	**9%**
2019	GREENVALE	278	89	32%
2020	HAMPTON (CITY)	11	4	36%
2021	HAMPTON TWP	335	84	25%
2020	HASTINGS	159	16	10%
2023	INVER GROVE HEIGHTS	1598	444	28%
2019 & 2024	**LAKEVILLE**	**323**	**113**	**35%**
2021	LILYDALE	5	0	0%
2020	MARSHAN TWP	387	147	38%
2021	MENDOTA	65	0	0%
2021	MENDOTA HEIGHTS	135	8	6%
2020	MIESVILLE	52	26	50%
2020	NEW TRIER	33	6	18%
2021	NININGER TWP	321	78	24%
2020	NORTHFIELD (WITHIN DAKOTA COUNTY)	14	3	21%
2020	RANDOLPH (CITY)	61	6	10%
2022	RANDOLPH TWP	317	50	16%
2022	RAVENNA TWP	835	219	26%
2020	ROSEMOUNT	554	231	42%

Year	City/Township	No. of Private Wells	No. Samples Returned	Response Rate
2022	SCIOTA TWP	182	31	17%
2021	SOUTH ST PAUL	14	1	7%
2021	SUNFISH LAKE	196	44	22%
2020	VERMILLION (CITY)	11	2	18%
2021	VERMILLION TWP	453	91	20%
2021	WATERFORD TWP	235	39	17%
2021	WEST ST PAUL	84	3	4%
	TOTAL	8,929	2,283	25.6%

Strategy 1B1: Reduce Agricultural Chemical Contamination

The 2020-2030 Dakota County Groundwater Plan identified farm chemicals, especially nitrate, crop herbicides, and chloride as significant risks to drinking water in rural parts of the county. Dakota County staff, in collaboration with the SWCD, developed the ACRE Plan with input from an Agricultural Advisory Group and other state, regional, and local stakeholders. The ACRE Plan was finalized and adopted by the County Board of Commissioners in October 2022.

A separate ACRE Plan annual progress report is available on the ACRE website.

Strategy 1B4: Prevent Groundwater Contamination from Chloride

Partner with cities and townships develop and implement a chloride reduction plan (tactic 1B4B)

Staff successfully applied for a 2024-2025 Minnesota GreenCorps member to support development of the Dakota County Chloride Reduction Program, in collaboration with local government units and water stakeholders. The member will support Dakota County from September 2024 – August 2025. Most of the work in 2024 was focused on researching existing programs and materials. The member developed a Chloride Reduction Program modeled off the Low Salt, No Salt Minnesota initiative that was approved for the County Board in February 2025 for implementation.

The purpose of Low Salt No Salt – Dakota County Chloride Reduction Program is to "build community capacity to maintain winter safety while reducing chloride-based deicer use and its associated damages through relationships with local properties." It is an outreach program that provides support and resources for local properties to effectively and confidently reduce their use of deicing salts without sacrificing safety and to educate their community members about the problem of chloride pollution.

Strategy 2A2: Promote Water Conservation

Develop and implement water conservation initiatives (tactic 2A2A)

While groundwater in Dakota County is plentiful, it is not unlimited. Increasing population growth, continued development (resulting in increased impervious surfaces and less groundwater recharge), and unpredictable climate patterns are all contributing factors impacting our groundwater resources. After three years of drought (2021 -2023), water usage in Dakota County reached an all-time high, resulting in significant summer-seasonal

water usage increases. In 2022, over 30 billion gallons of groundwater in Dakota County were used – enough to fill the Empire State Building 108 times.

The following programs were implemented in 2024 in support of promoting water conservation strategies, these include:

(1) Developed and implemented the Dakota County Water Wise Challenge. The Challenge was a friendly competition between cities in Dakota County to see who could be the most "water wise". Cities were encouraged to challenge their residents to take action and conserve water. Residents participated by pledging to reduce water. A total of 111 residents participated pledging to reduce water usage by 3.4 million gallons per year.

Figure 4. Facebook Water Wise Challenge Post

(2) Collaborated with SWCD and VRWJPO to develop and implement a pilot incentive program for installation of low-input turf grass (e.g., fescues) on residential lawns that are more drought tolerant. The SWCD launched the Lawns Reimagined pilot program in 2024, which included workshops to learn about low-input turf that require less water, fertilizer and mowing. Those that attended the workshop could apply for a grant for free fescue seed for their lawn. SWCD hosted two workshops with 47 attendees, of which 11 installed projects. A total of 36,000 square feet of lawn was converted to a low-input fescue turf mix.

Figure 5. Lawns Reimagined Project: Lawn mid-project prepared for fescue grass seeding

(3) Partnered with the VRWJPO, SWCD, Eagan-Inver Grove Heights Watershed Management Organization (WMO), Lower Mississippi River (WMO), and Black Dog WMO to apply for a $50,000 MDH Groundwater Protection Initiative, Accelerated Implementation Grant to support a Landscaping for Clean Water and Water Conservation Marketing Campaign. Costs not covered by the grant were shared between the partners. The Campaign project aims to conserve groundwater through increased citizen interactions via relatable video advertisement and digital marketing. The videos were created in 2024 and were launched in 2025. Check out the videos:

- Landscaping for Clean Water Video – the video directs residents to consider native plants, such as rain gardens, and directs them to the SWCD Landscaping for Clean Water Program.
- Lawn Watering Wisdom Video teaches residents about efficient landscape irrigation practices to reduce groundwater consumption, and encourages them to take the pledge on the Water Wise: Lawn Water Wisdom website.

Conduct water efficiency/conservation efforts at County Facilities (tactic 2A2C)

Environmental Resources and Facilities staff collaborated on projects to reduce irrigation water usage at Dakota County properties. It is estimated that over 30 percent of the county's groundwater supply is used outdoors, resulting in five times the water usage in summer months compared to winter months largely due to lawn irrigation. Experts estimate that upwards of 50 percent of water used outdoors is wasted due to inefficient irrigation systems.

The Capital Improvement Plan (CIP) budget was utilized to upgrade to smart irrigation controllers at the Administration Center, Judicial Center, Northern Service Center and Western Service Center in Fall 2024. Smart irrigation controllers save water by automatically adjusting irrigation schedules based on weather and soil moisture levels to deliver the precise amount of water needed for optimal plant growth and health. This means no more watering in the middle of a summer rainstorm. Irrigation water savings are anticipated in 2025, which could be upwards of 40-60 percent on landscape water bills.

In addition, a licensed consultant completed an Irrigation Audit of the Western Service Center to identify areas of improvement to the system to maximize water efficiency. The report will be the basis for identifying irrigation maintenance priorities in 2025 to save water and dollars.

Figure 6. Smart Irrigation Controller

Strategy 3A & 3B: Expand Water Education

Conduct stakeholder workshops for the updated Geologic Atlas *(3B1F):*

County hosted two events in March 2024 to introduce the public, business, and other water stakeholders to the newly published Geologic Atlas of Dakota County and outline the new resources. Minnesota Geological Survey geologists and data scientists spoke at both events. More than 100 people attended these two events, with about a 50/50 split in virtual vs. in-person attendance.

The Geologic Atlases are widely used by environmental consulting and well drilling industries, engineers and designers, and federal, state, and local government professionals working in Dakota County.

In 2025, staff are partnering with the Minnesota Department of Natural Resources (DNR) to plan well sampling for Part B of the Groundwater Atlas to increase accuracy of the hydrogeologic model.

Figure 7. Geologic Atlas Workshop

2025 Upcoming Highlights

No new programs are planned for 2025. Focus will be on implementing projects started in 2024. A highlight of 2025 priority strategies are discussed below.

Assist Private Well Owners (strategy 1A3)

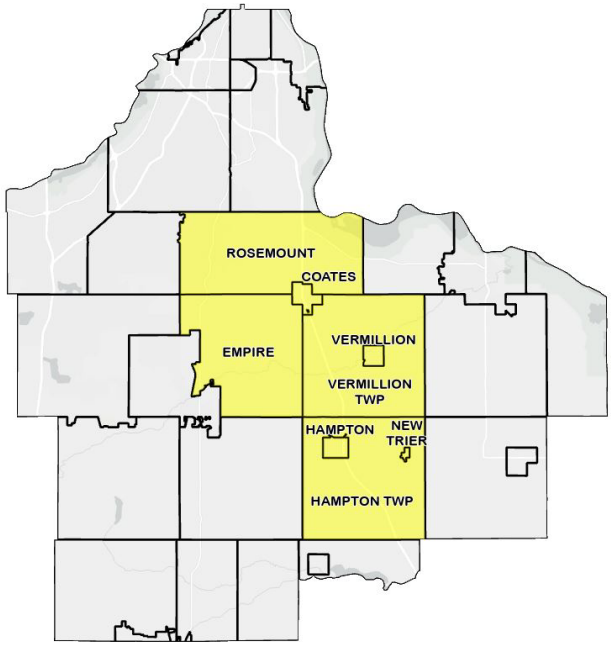

Figure 8. 2025 Community Focused Sampling Area

Dakota County will continue to offer no-cost private well testing opportunities through the Community Focused Sampling program. To increase participation rates, staff are partnering with the Public Health Department, SWCD, Veterans Affairs Services and other local community organizations to encourage private well testing though a variety of platforms. No-cost testing will be offered to private well owners in the Rosemount, Coates, Empire, Vermillion, Hampton, and New Trier geographic area (Figure 5).

In addition, Dakota County will continue to offer water treatment system grants through the MDH Safe Drinking Water Grant Opportunity and MDA South Metro Private Well Pesticide Mitigation Grant Program.

Reduce Agricultural Chemical Contamination (strategy 1B1):

Dakota County will focus on the following ACRE Plan implementation actions in 2024:

1) Continue to collect information for decision making purposes, to include conducting annual sampling of the long-term monitoring network (ACRE strategy 1);
2) Continue to increase communication, outreach efforts, and educational opportunities to the farming and rural communities (ACRE strategy 2); and

Additional information is provided in the 2024-2025 ACRE Implementation Report on the ACRE Website.

Prevent Groundwater Contamination from Chloride (strategy 1B4)

Dakota County will start implementation of the Chloride Reduction Program, which will include the following:

- Develop education and outreach materials for partners (cities, townships, and watershed management organizations). Examples of educational and outreach materials to be developed by Dakota County (or are already developed as part of the current Low Salt No Salt program) for the program include:

- Recruitment Letter Template
- Instructional Videos
- Consultation Presentation Slides
- FAQ and Card Handouts
- Social Media Kits
- Newsletter Articles
- Dakota County Webpage
- MS4 Education (including proper storage of salt, illicit discharge)

- Conduct outreach to large de-icing salt users to encourage commitments to reduce salt use. Outreach will first be to faith-based communities and schools. Organizations like homeowner/townhome/condo associations, property managers and commercial properties will be targeted for outreach in later years of the program.

Thank you to the Dakota SWCD and other 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 Groundwater Plan implementation has been provided through the Clean Water and Legacy Amendment, distributed by MDH and BWSR

CLEAN WATER LAND & LEGACY AMENDMENT