Policy Committee Meeting Agenda
Clean Water Council
November 21, 2025
9:30 a.m. – 12:00 p.m.
WebEx Only

Policy Committee: John Barten, Rich Biske (Chair), Gail Cederberg, Kelly Gribauval-Hite, Chris Meyer, Peter Schwagerl, Marcie Weinandt, and Jessica Wilson

9:30 Regular Business

- Introductions
- Approve today's agenda and previous meeting minutes
- Chair update
- Staff update

9:45 Public Comment

Members of the public who would like to provide comment about something not on the agenda are welcome to do so at this time.

10:00 Updating the Chloride Policy Statement (road salt)

Jessica Wilson has reviewed the current Chloride Policy Statement for updates, as there have been changes since the policy was last updated for FY22. Please see the packet for her notes on suggested changes as well as a letter from the Minnesota Cities Stormwater Coalition.

10:45 BREAK

11:00 Large-volume water users policy statement

The policy statement has been updated to reflect suggestions from the last Policy Committee meeting and incorporates substantial input provided by the working group that spent time on this over the last month. While some areas seem more close to complete, others will need further discussion. The meeting packet contains a marked up version from the working group, as well as the current draft.

12:00 Adjourn

Policy Committee Meeting Summary
Clean Water Council (Council)
October 24, 2025, 9:30 a.m. to 12:00 p.m.

Committee Members present: John Barten, Rich Biske (Chair), Gail Cederberg, Kelly Gribauval-Hite, Chris Meyer, Marcie Weinandt (Vice Chair), and Jessica Wilson.
Members absent: Peter Schwagerl.

To watch the Webex video recording of this meeting, please go to https://www.pca.state.mn.us/clean-water-council/policy-ad-hoc-committee, or contact Brianna Frisch.

Regular Business

- Introductions
- Approval of the October 24th meeting agenda and August 22nd meeting summary, motion by Marcie Weinandt, seconded by John Barten. Motion carries unanimously.
- Chair update:
    - Following the Full Council meeting, the committee has added wake boats back into our prioritization list. The presentation was compelling, and warrants reconsidering the policy topics this year. We should figure out how it fits into the calendar. We also had some reflections on the Water Resource Conference, pertaining to policy elements specifically.
        - John Barten: Do we need a policy piece to recommend a change at the federal level on the farm program legislation, so instead of heavily subsidizing the crops that have the most negative impact on water quality (like corn and soybean), to restructure to have crops that benefit water quality? What kind of change is required? How would we recommend this? We need to start that conversation, at the state- and nation-wide level.
        - Jen Kader: De-risking agriculture is an upcoming item, so that may fit well.
        - Chris Meyer: Parts of what John said are a way to pick a fight in the area I live. From our field tour, on discussion panel, there was the discussion about the application of manure throughout the course of the year. Looking at the different numbers, do I trust the numbers the University of Minnesota recommends for application, or do I trust farmers. We need to figure out a way to talk about this.
        - Marcie Weinandt: I was having the same thought. A long-standing conversation and discussion will be needed. We want to tread carefully on it.
        - Glenn Skuta, MPCA: This can be emotional. The Nutrient Reduction Strategy (NRS) will be finalized at the end of the year. They are putting together a workgroup on continuous living cover. This is to help get these conversations going. How do we get that scale up that we need. We need these folks at the table. Perhaps, the Council can start a conversation on it, have it on an agenda item, bring in speakers on it, a way to get ideas to move forward to help in this area.
        - John Barten: I have family members who are farmers, so I am understanding where they are coming from. What strikes me is the bankers report of the Ag Water Quality Certified Farms. Those farms tend to have more cover crops, living cover, than the other farms, but double their income within a year. It amazes me because we have the database, and a better system from an economic standpoint, especially from the smaller farms. However, we just can't get a lot of people to embrace it – that is my motivation. Does it take a policy, or something else? We need to get folks to embrace it.
        - Chris Meyer: I appreciate what John said. I am delighted with how the Soil Health Program in Olmstead County has gone. They have shared that twenty five percent of the farmers are participating. I recently read that the farmers are being hurt by the tariff situation in our country. They are having a difficult time selling their product. I understand one of the issues when switching from the traditional crops, is having a guaranteed way to sell their product. So many things in our system push farmer towards the traditional row crops (commodities and insurance). Farmers do what we ask them to do, and we need to figure out better ways to incentivize the things that we want to overcome the hurdles they face, when they want to be growing something more sustainable.
    - Rich Biske: Another topic for later in the year is sustainable aviation fuel (SAF) to track.

- Staff update:
  - Jen Kader has been going through the responses to the survey. It is open until October 31. There are over 130 responses, and the qualitative data is rich. Based on the conversations this morning, there is a lot of connections. Wake boats, large volume data centers, are all mentioned.

Public Comment *(Webex 00:23:45)*

- Trevor Russel (Friends of the Mississippi):
  - I think the group is right to think about the water consumption of the large-volume water users. There are two additional industries to consider. One would be SAF. If we want to scale up an industry in Minnesota, that would be a significant long-term increase on water consumption. Green hydrogen economy can also be a significant water use. My suggestions would be the long-term needs of those industries are at scale and compare it to what we think we will have for sustainable groundwater, and make some strategies (for the future), especially with shifting recharge across the state. Think about the future, and work backwards, so we can have accurate limits in place for the future.
  - Regarding the Ag concerns. There are places in the state where the nutrient application is well over economically optimal rates, contributing to water quality and public health risks. We have the sales and application data on nitrogen application in Minnesota. We have also created a system, that is more about what we grow, and less about how we grow it. Corn and soybeans that go in at May and are harvested in September, leave soils bare and unprotected for so many months throughout the year. It is not the farmers fault, it is the product of policies and incentives, the farmers are operating in. We need to change the incentives, in order to change the systems.
  - Regarding the continuous living cover, there is a continuous living cover campaign and task force as part of the NRS. The continuous living cover crops are featured as one of the most impacting things the state can do to get to clean water. If we are going to scale up certain cropping systems, the crop research and development needs to be the backbone that is funding for crop research and development, as well as pairing it with access to equipment, de-risking, market commercialization adoption and scaling investments, and having these things operating strategically. There is a team developing a one-million-acre camelina study, looking at the pathway for scaling up the first one million acres. It is to create a roadmap that do not leave farmers high and dry into a market they cannot sell. The hope is to take the model and replicate it for each of the Forever Green Initiative cover crops coming down the pipeline. I would suggest the Council be supportive of that project and the NRS task force.
  - Rich Biske: What is the timeline on the million acres scaling study? Trevor Russel: It kicked off in September and will be complete within one year. The first phase is the bulk of the work related to policy, environmental benefits, economic scaling pathways and analysis, and should be done at the end of the calendar year 2025. There is a second phase of work to take what is known and turn it into a strategy and timeline. The report should be available September 2026.

Follow up from presentation on wake boats at the October 20 Full Council meeting *(Webex 00:34:00)*

There were several policy recommendations offered as a part of the presentation from St. Anthony Falls Laboratory staff at Monday's Full Council meeting. While the topic is fresh, we will revisit the recommendations and discuss a possible response from the Clean Water Council.

- Reactions to the presentation:
  - Marcie Weinandt: After seeing the video images after the wake boats presentation, has brought up thoughts that people have been suspecting (alum treatment impacts, shoreline impacts, should we fund certain things if there are wake boats present, etc.). How does this relate the public funding of improving lakes, along side the public use of negatively impacting those actions (use of wake boats).
    - Rich Biske: Did the metro area watershed districts take any action, or follow up on any policy? Any next steps on the wake boats impacting the investing?
    - Response from Marcie Weinandt: We didn't get that far. There will be an annual conference, so I can see it coming up as a topic of discussion there. Additionally, we need more information for regulations on the use of wake boats. Does the Minnesota Department of Natural Resources (DNR)? *If* there is a law, who enforces it?

        - Rich Biske: That is something great about our committee, as we frame up policy statements, we can help identify what those authorities are and point out gaps and recommendations for different entities.
    - John Barten: We saw phase two in the presentation. However, phase one was about those transverse waves, and we saw how far those were from the shoreline and how much of an impact they made. There is a phase three coming as well.
    - Kelly Gribauval-Hite: The wake boats are a difficult one to police. One major thing for me was hearing about the aquatic invasive species in the ballasts water. We have a lot of fishing in the state, and the AIS can hitchhike between the lakes. Pine County has been working hard on that AIS prevention. So, hearing about the ballasts water, that is in the boats and is not removed, I was shocked. We need to educate on that ballasts water.
- The recommendations from the presentation by University of Minnesota with Andy Riesgraf and Jeff Marr:
    - When operating in planning mode, it is recommended that recreational powerboats like the ones studied here, should operate in ten feet of water or greater to minimize impacts on the lakebed.
    - When operating in sustained displacement mode (e.g., slow cruising), recreational powerboats like the ones studied here, should operate in ten feet of water or greater to minimize impacts on the lakebed.
    - At times, traveling in waters less than ten feed deep is unavoidable. In these scenarios, it is recommended to go as slow as possible to minimize the magnitude of the hydrodynamic phenomena.
    - Wake boats should operate in twenty feet of water or greater when in semi-displacement (surfing) mode to minimize impacts on the lakebed.
    - All boats have the potential to damage aquatic vegetation. In general, boats should avoid areas of the lake with aquatic vegetation to minimize disruption.

Discussion:

- Rich Biske: We will want to hear more about the third phase once it comes out. Perhaps we should aim for a framework. We can try to help identify gaps. Then, we can inform next steps, including with roundtable folks.
- John Barten: We may want to think about incorporating the whole wake boats in the shoreline policy statement, to include the variety of issues on the vanishing shorelines. This is adjacent. Alternatively, we can do a standalone for wake boats. However, that feels like we are picking on a particular boat and particular activity. It doesn't seem like such a direct attack if we focus on the shoreline.
- Jessica Wilson: It makes sense to put those together. We are not talking about the entire lakebed, but rather the area where the restoration is growing. Keeping it connected with the shorelines. We can frame it as protecting the whole space, versus the narrow space of the wake boats. There are other items in the future, that could be added, that we may not know about yet. That brings it forward as a way to protect the space, versus a policy to control a specific use of something. It is easier to defend.
- Rich Biske: Place the emphasis on the resource and not the threat to the resource.
- Jen Kader: Verifying what I'm hearing: the Council has shorelines listed as a policy topic in the policy priorities, the definition could be expanded to include shoreline and littoral zone, weaving it in. Acknowledge that we may need to leave phase three for future inclusion.

Large-volume Water Users Policy Statement *(Webex 01:05:30)*

Several suggestions for larger changes came out of the last review of the large-volume water users policy statement in August. Those changes have been incorporated. A report from the Alliance for the Great Lakes has also been included in the meeting packet. While acknowledging that this continues to be an evolving topic, the hope is that we will be able to finalize this statement to advance to the Full Council for review.

Discussion:

- Gail Cederberg: In the first sentence you swapped out groundwater resources for aquifers, and I am not sure if one is better than the other, or both? I don't know what we want to say on that, and we want to be consistent.
    - *Response from Jen Kader:* For plain language, I wonder if switching back to groundwater, but still dropping resources? We can connect it to groundwater supported surface waters and groundwater dependent ecosystems, in addition to water supply. I also wonder if we add in to protect groundwater across jurisdictional boundaries and for future generations. It would be a helpful addition in the intro paragraph. I see nodding heads, so I will add it in.

- *Rich Biske:* It is an easier cross reference back to the statutory authority and the Council's Strategic Plan.

- Jen Kader: There are concerns if a city guarantees an agreement with a large-volume water user or data center, that they will have water supply guarantee in there. Will that legal requirement compromise their ability to tell the large-volume water user to hold back during certain times of need for lower levels of water use due to emergency status? *Response from Jason Moeckel, DNR:* There is a legal question there. Fundamentally, the city's water supply plan that is submitted to the DNR, includes these emergency preparedness plan items included. Each one may have a different way of laying out the information. I am not sure a city can guarantee it. There may need to be attorneys involved to do it. I do not have definitive answer for it.
- Rich Biske: It references the state statute but alludes that the large-volume water user can circumvent the allocation priorities by using municipal infrastructure. Jason, even if it is under municipal water use, the hierarchy still stands under the statutory priorities.
- Gail Cederberg: These folks building the data centers have a lot more money (i.e., Amazon). They can fight lawsuits with a lot of money. We will get into water battles, whether there is state statute or not. So, we should have tight language and make it clear about our intent. We need to be clear.
- Jason Moeckel, DNR: The recent items we've been learning with data centers, and it is a hot topic, is that the data center industry and cooling technology has evolved and are advancing (at lightning speed). We are learning the data centers being built now, versus the ones five years ago, are more often using a closed loop hybrid option (recirculating water and glycol options). They are not using the big evaporative cooling approaches that were previously more common. They often have specific goals for their water use efficiency metrics, along with goals for electric efficiency metrics, and carbon metrics. There are two data centers that are the furthest along. One is the meta facility in Rosemount, and they are not using water at all for cooling. Ther other one in Cannon Falls is using water, but part of a hybrid system which is seasonal. So, it is moving quickly and evolving. They are important questions to ask but understand that data centers may need to share the full story, so we get the correct information on what will happen.
- Jessica Wilson: We have been talking a lot about a workaround, but do cities have extra capacity? If we are talking about a lot of water, or is it a little extra amount? How likely is it that a city could accommodate a large volume water user (fact check us on it). There are also real infrastructure capacity issue, that may reality check the issues too. Cities plan for these over decades, so I do not know how realistic it is. Cities are approving it at the leadership level, but the real infrastructure constraints occur. We are spending a lot of time on it. Response from Jason Moeckel, DNR: Those are all good questions. Every city is differently situated. So, I can't say for every municipality, that it is true. The water supply plan is planning in the future based on what is expected. The appropriation permit from the DNR, issued in the past, may need to change. Because the volume of water may have been authorized, but cities growing fast may not have as much capacity. They need to be re-authorized. Looking across lots of these permits, often they are only using about sixty percent of their capacity, except when it comes to draught years (when it goes up). This gives flexibility, so they do not need to get amendments on a regular basis.
- Jen Kader: There are several things that we did not talk about in here. There are some helpful clarifications that have come from these conversations. We are not ready to move this forward. However, at the last meeting, some folks said they would be able to look at it after the meeting, to make it feel right. Jason, would you be able to assist in this, and work with that group of Council members? So, we can come back with something that is ready.
  - *Jason Moeckel, DNR:* Yes.
  - *Jen Kader:* It looks like Rich Biske, Jessica Wilson, and Kelly Gribauval-Hite are available to connect on this item.

Jen Kader: With the time we have left, I would like to have a focus on a few items to review:

- How are folks feeling about the definition of large-volume water user?
  - John Barten: Some of the regulation that the DNR has for different water users, if there may be a criterion to use a certain amount (i.e., a 100 million gallons per year or exceeding a million gallons per day, etc.). Something that would have a burden on the system, and "either or" dual descriptor.
  - Rich Biske: Agreed. This accounts for any seasonal variation.

- Jessica Wilson: If a community uses up the water, then they would work on expanding to have more, right? We don't really tap out; you shift to a next expanding phase. Cities will not feel stuck. For water, or growth. The permits are based on growth. We must be careful how we word things.
- Rick Biske: Probably not for infrastructure, but perhaps a cap for water use. It may be a physical constraint.
- Jason Moeckel, DNR: We have our groundwater models, to look at the realistic model to know how much groundwater can be used. Cities individual permitted volumes are not authorized in the sense that cumulatively they stay below what is modeled to be sustainably available. There are different scales of things at play. What is available sustainably is different than what is our infrastructure in place to utilize it as a resource. The resource available is hard, and we have models, and we can use water more than once (so there are reuse opportunities).
- Jen Kader: If all of them used the full amount available to them, do we know what that might result in? Response by Jason Moeckel, DNR: I don't have that off the top of my head, but I believe it was done in a previous analysis.
- Jessica Wilson: I want to make sure we are thinking about the reality of these situations. I want a balanced response.

- *Jen Kader will follow up with the folks who volunteered to continue to work on this policy item and follow up with it at the next meeting.*

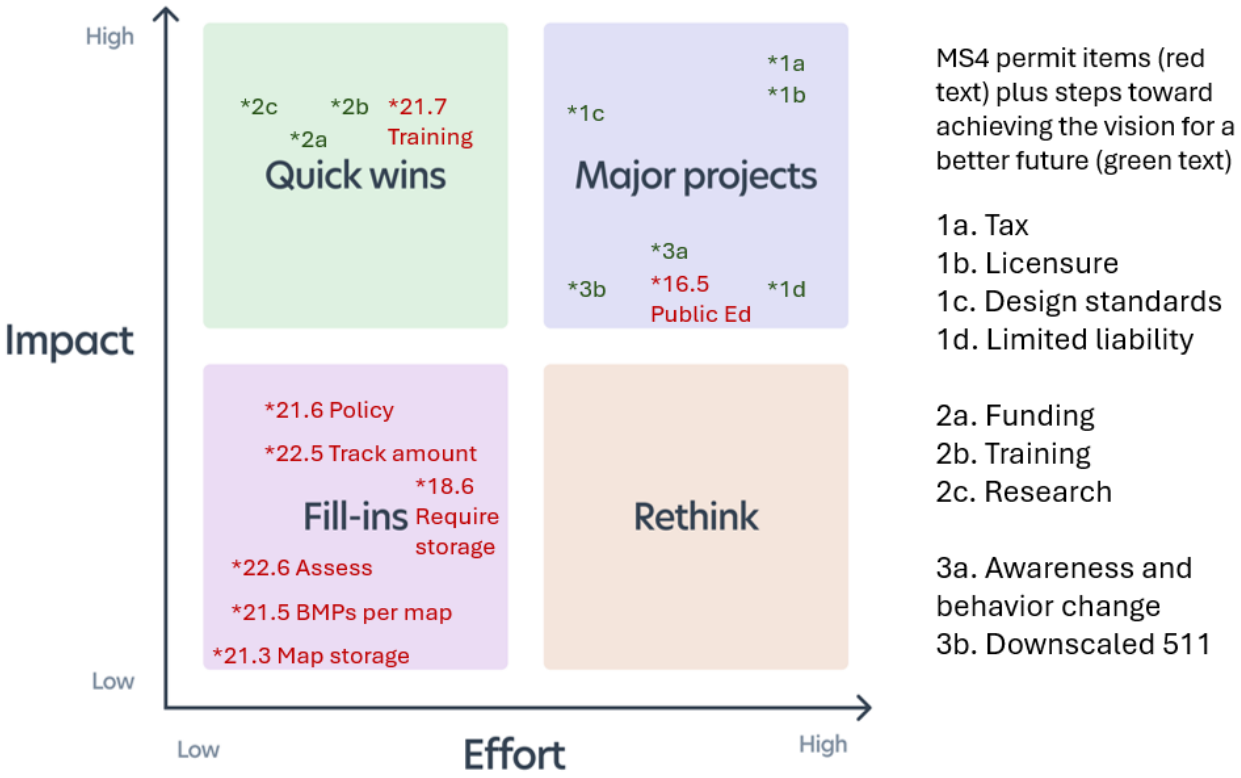
Adjournment *(Webex 02:14:13)*

Introduction

- Much of the chloride reduction emphasis and effort is routed through the regulatory MS4 program – this is appropriate, but not enough by itself. Status quo is a losing battle. If MS4 communities execute the MS4 permit perfectly, waterbody impairments will persist and worsen. The ideas in the MS4 permit are good, but can't meet the problem.

  Impact vs. Effort Matrix: This framework visually plots tasks or projects based on their potential impact and the effort required to complete them.

  High Impact, Low Effort ("Quick Wins"): These are the tasks to prioritize and tackle first, as they offer significant returns with minimal work.
  High Impact, High Effort ("Major Projects"): These are also valuable but require significant resources and planning.
  Low Impact, Low Effort ("Fill-in" or "Routine Tasks"): These are typically handled when there's extra capacity or when higher-priority tasks are blocked.
  Low Impact, High Effort ("Time Sinks") : These should ideally be avoided or eliminated, as they consume resources without offering much value.



- How do we make impact at scale?
  - Rather than asking what else we can require in the MS4 permit, i.e., "what more can cities do to increase operational efficiency?" we should pause and contemplate the broader question with a beginner's mind, "How do we make meaningful progress on this complex problem?"
- Continue to emphasize and expand source control but also advance a remediation pathway for existing impairments.
- This is a wicked problem that requires a combination of approaches and bold action.

Proposed changes for policy document

- Preamble
    - The preamble and policy statements are primarily focused on winter maintenance and source control. The document could be broadened to incorporate research, planning, design standards, behavior change, and remediation for a more comprehensive approach to addressing the problem.
- Keep/reinforce/modify/enhance
    - Sustain and enhance funding for the Smart Salting training program and the MPCA's chloride reduction budget.
        - Dedicate a portion of chloride reduction budget to capital investments in equipment modernization to reduce deicing salt use.
    - Provide liability protection for Smart Salting certified applicators.
    - Provide research funds to develop new technology, alternative materials, and treatment technologies.
    - Have the MPCA convene and lead a stakeholder process to develop recommendations for new labelling requirements.
- Deletions
    - Charging a fee – this has been achieved.
    - Adoption of MPCA model ordinance items – proposing instead to add occupational licensure as state action.
- Additions
    - Implement a granular salt tax to incentivize more judicious use, drive a shift toward more sustainable practices, save taxpayers money on costly repairs and remediation down the line, and invest funds in chloride reduction programs.
    - Incorporate low salt design standards into building and site development standards including in sustainability program guidelines for state-funded projects.
    - Research and develop a remediation pathway for surface waterbodies that are already impaired.
    - Establish an occupational licensure program for winter maintenance professionals.
    - Establish a broad community-based social marketing campaign centered on chloride reduction.
    - Require Smart Salting certification, utilization of established industry best practices, and proper bulk storage for winter maintenance contracts let by state agencies and state-owned facilities.

Clean Water Council Policy Statements 2020

Chloride Reduction: De-Icer [Approved Policy Committee 26 June 2020]

Revised Policy Statement

The Clean Water Council recommends that the State of Minnesota implement the following actions to reduce chloride in Minnesota surface and groundwater:

- Fund the **Smart Salting applicator training and certification** program, and the MPCA's **chloride reduction budget** to support the development and maintenance of tools, resources, policies, trainings and assistance programs to reduce chloride pollution.
- Request that the Legislature give the MPCA the **authority to charge a fee** for chloride training.
- Provide **liability protection** for the Smart Salting program certified private winter de-icing applicators for reduced salt applications.
- Provide **research funds to develop new technology and alternatives** to chloride-containing de-icing chemicals, and best management practices.
- Encourage and support the **adoption of the MPCA's Chloride Reduction Model Ordinance Language** by local governmental entities.
- Have the MPCA convene and lead a stakeholder process to develop recommendations for **new labelling requirements** on bags of de-icing chemicals sold in Minnesota.

Problem

Chloride is a naturally occurring ion found in low levels in Minnesota surface and groundwater. Salt used for winter de-icing and water softening contain chloride. Chloride is not toxic in small concentrations. However, above 230 mg per liter (about one teaspoon in 5 gallons of water), chloride becomes toxic to freshwater fish and other aquatic life under long-term exposure. Once chloride enters our surface water (lakes, streams, and wetlands) and groundwater, it is not feasible and extremely expensive to remove it.

Winter de-icing salts are among the primary sources of chloride in Minnesota waters.

In the Twin Cities Metro Area (TCMA) winter maintenance activities use approximately 365,000 tons of chloride de-icer per year. The de-icing salts eventually wash into nearby lakes, streams and wetlands. Recent monitoring shows increasing chloride concentrations in surface water and shallow groundwater. Since it is very difficult and expensive to remove chloride from our surface and groundwater once it gets into water, reducing chloride at the source is necessary.

- **Inconsistent labeling** for de-icers creates confusion for consumers. De-icers can be labeled as "eco-friendly" or as an alternative to salt, but they may pose other problems for water quality. Currently there is not a standard for labeling de-icers for their potential threats to water quality.

Links to Clean Water Council Strategic Plan

Goal 3: Surface waters are swimmable and fishable throughout the state

- Prevent and reduce impairments in surface waters
- Maintain and improve the health of aquatic ecosystems
- Invest in activities and research that can accelerate improvement in water quality through new approaches (e.g., perennial crops and other "landscape drivers", chloride management or alternatives, etc.).

Solution

1. **Training and Certification**. Continue the Smart Salting applicator training and certification program: The MPCA has a training program for private and public salt applicators, such as snow removal contractors and snowplow drivers. This has been a very successful program and has assisted winter maintenance programs in reducing salt application rates by 30% to 70%, without compromising public safety. The TCMA Chloride Management Plan and Statewide Chloride Management Plan include the Smart Salting training program as the top implementation strategy to reduce salt use in the winter. In the past, MPCA conducted this training with federal funds, but those funds are temporary. The estimated operating cost for the training program in FY22 is $350,000/year. To qualify for the liability protection to private salt applicators, the applicator must complete Smart Salting training program to be certified. The State should continue to provide adequate funding to the MPCA's **Chloride Reduction Program** budget to support the development and maintenance of tools, resources, policies, trainings and assistance programs like MnTAP to assist communities in their effort to reduce chloride pollution.
2. **Allow the MPCA to Charge a Fee**. Currently the MPCA does not have the authority to charge a fee for the training that would defray some of the cost. Legislative authority will be required. There is more demand for these chloride reduction training than the MPCA can meet. By charging a fee to willing customers, the agency can meet the demand.
3. **Liability Protection**. Provide liability protection to certified private salt applicators against slip and fall lawsuits: The notion here is that private applicators certified through the Smart Salting program would be able to apply for liability protection. The private applicator industry and local stakeholders strongly support this proposal. Various groups introduced bills to this effect in the last three legislative sessions and it has passed several committees and one house; however, none was enacted into law.
4. **Research Funding for Alternatives**. Make research funds available to develop new technology and alternatives to chloride-containing de-icing chemicals. Research on new technologies and alternative de-icing solutions may allow for a shift in snow and ice management that protect water resources while maintaining public safety. A full list of needed research areas can be found in Section 5 of the TCMA Chloride Management Plan.
5. **Adopt Local Chloride Reduction Ordinances**. Encourage and support the adoption of the MPCA's Chloride Reduction Model Ordinance Language by local governmental entities. The model ordinances provide guidance for creating and implementing ordinances that will assist with reducing chloride pollution. The proposed new municipal stormwater general permit for the State (also known as the MS4 general permit) would require adoption of several of these ideas. The four focus areas in the guidance include:
    a. Occupational Licensure for Winter Maintenance Professionals
    b. Deicer Bulk Storage Facility Regulations
    c. Land Disturbance Activities
    d. Parking Lot, Sidewalk and Private Road Sweeping Requirements
6. **De-icing product labeling requirements**. The MPCA should convene and lead a stakeholder process to develop recommendations for new labeling requirements on bags of de-icing chemicals sold in Minnesota. The goal of this effort will be to convene a knowledgeable group of stakeholders from a variety of sectors to create language that will ensure that consumers are provided accurate and necessary information about the de-icing products they are purchasing

and applying to Minnesota's environment. Some key areas that should be evaluated include, but would not be limited to:

- Require complete ingredients list with percentages provided
- Third party certification requirements for any statements about the products' environmental, pet and human safety
- Provide "practical' temperature ranges (not temperature ranges that can only be achieved in a lab setting or over a time period of weeks for melting to occur)
- Report possible negative impacts of the product on surfaces, vegetation, water quality, and other
- Safety protocols for handling the products
- Guidance for proper application that includes:
    - Snow and Ice removal prior to application
    - Application rates that are based on research
    - Suggested equipment for proper application and proper spread patterns
    - Conditions in which product will not be effective or may create unsafe surfaces

Minnesota Cities Stormwater Coalition

Municipal stormwater professionals working together for clean water

November 3, 2025

Jen Kader
Administrator
Clean Water Council

Re: MCSC Chloride Reduction Position

Dear Ms. Kader:

The Minnesota Cities Stormwater Coalition is an organization of over 130 municipalities implementing MS4 programs within the state. As our cities work to manage deicing salt usage and protect water quality, we find that chloride pollution presents a unique set of concerns and challenges. Cities and road authorities have made considerable progress in reducing the use of deicing salts. We believe the comprehensive changes needed to meet the chloride challenge will require an expanded focus that establishes statewide policies and regulations, increases funding and knowledge, and promotes awareness and shared accountability. MCSC outlined a position statement with our stance on chloride pollution, an outline of the scope of the issue, a vision for a better future, and a set of actions to generate momentum toward achieving that vision.

We understand that the Clean Water Council is reviewing its chloride policy and provide the attached MCSC Position Statement as an opening for further discussion on a comprehensive approach to deicing salt management over statewide, regional, and local efforts in both the public and private sector.

Respectfully,

Elizabeth Stout

Elizabeth Stout, Chair MCSC Steering Committee
Minnesota Cities Stormwater Coalition

Enclosures: Minnesota Cities Stormwater Coalition Position Statement: Reduction of chloride pollution from deicing salt

Minnesota Cities Stormwater Coalition Position Statement: Reduction of chloride pollution from deicing salt

This position statement outlines the MCSC's stance on chloride pollution from deicing salt to advance the conversation with policy makers, decision-makers, and the public. This position statement summarizes the scope of the issue, proposes a vision for a better future, and outlines actions to generate momentum toward achieving that vision.

THE CHLORIDE POLLUTION PROBLEM

Chloride pollution from the application of deicing salt for winter maintenance of roads, parking lots, and sidewalks disrupts aquatic ecosystems, damages soil and infrastructure, and contaminates groundwater and drinking water. Many waterbodies in the metro area have elevated levels of chloride pollution with a trend that is increasing. Further, climate change is likely to bring more frequent and intense freezing rain events and freeze/thaw cycles which could drive the demand for more deicing salt use.

TIME TO BUILD A BROADER COALITION

Cities and other road authorities are on the front lines of safety and pollution prevention, with decades of experience and innovation in winter maintenance. While there is still work to do, progress has been made, and the sources and scale of deicing salt use go beyond what cities and other road authorities can shoulder themselves. Comprehensive regional and statewide approaches can and must enhance the work cities and other road authorities are doing so we can focus on the most impactful solutions to reduce pollution in surface water and groundwater while maintaining public safety.

VISION FOR A BETTER FUTURE

We envision a future where **people are safe from winter snow and ice hazards, people can continue to enjoy a high level of service from cities and public road authorities, and water resources are protected from the impacts of deicing salt overuse**.

To make progress toward this vision, we must;

1. **Re-balance the economic equation which currently incentivizes needless overuse of deicing salts**.

   While cities and other road authorities have made strides, the private sector has remained largely idle. Private applicators and property managers overapply for a variety of reasons: salt is cheap, it's a billable commodity, and the general public and property managers subscribe to a fallacy that more salt means more safety.

   A change is needed to shift the cost of infrastructure and environmental damage to the over-users, incentivizing more judicious use and driving a shift toward more sustainable practices, and saving taxpayers money on costly repairs and remediation down the line.

2. **Set the winter maintenance industry on a precision trajectory.**

Deicing salt applicators that lack training and proper equipment are inclined to overapply. To move toward a precision industry, public and private sector operators need to be trained and empowered to adopt established industry best practices, and they need funding to modernize their equipment.

Setting the winter maintenance industry on a trajectory for success also means working upstream of the problem to design spaces that consider future winter maintenance operations. Winter maintenance has often been an afterthought of a building, road, parking lot, or sidewalk design. Designing sites with winter maintenance in mind can reduce operational costs and damages, while improving safety. Designers need training and standards so they can incorporate low salt design principles early in their process.

Investments in innovation and research are needed to continue to pioneer alternative materials, precision technology, and refine best practices.

3. **Make service-cost-risk tradeoffs more visible to manage public expectations for service and promote long-term behavior change.**

Winter maintenance and snow removal have an impact on the quality of life for Minnesotans. The challenge for local road authorities is to meet the extremely high level of service expectations, while also being fiscally and environmentally responsible.

The service-cost-risk tradeoff model can be used to find the ideal balance between minimizing costs, maximizing service levels, and mitigating risks. The core principle is that improving service levels typically comes with increased costs and may involve taking on risk.

When calls for more deicing salts are made to meet service level expectations that go above and beyond safety, to manage perceived safety issues or allow for behaviors inconsistent with the weather conditions, the tradeoff is increased costs and environmental harm.

STEPS TOWARD ACHIEVING OUR VISION FOR A BETTER FUTURE

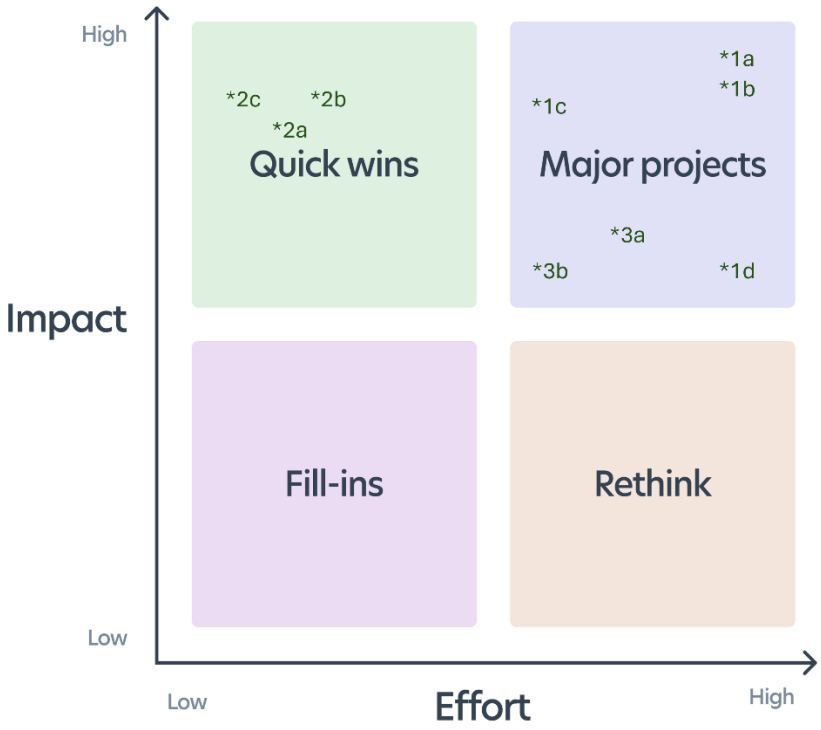
MCSC supports a combination of statewide, regional, and local efforts across public and private sectors to reduce chloride pollution.

1. Establish Policies and Regulations
    a. Implement a granular salt tax.
    b. Establish an occupational licensure program.
    c. Establish development design standards for buildings, roads, parking lots, and sidewalks.
    d. Adopt limited liability legislation.

2. Increase Funding and Knowledge
    a. Fund capital investments in equipment modernization.
    b. Keep training and continuing education targeted, modern, and accessible.
    c. Invest in research and innovation on best practices, alternative materials, and treatment technologies.

3. Promote Awareness and Shared Accountability
    a. Implement a broad community-based social marketing strategy for increased awareness of chloride pollution and shared accountability for long-term behavior change.
    b. Enhance the MnDOT 511 tool to provide winter driving advisories and road condition reports for local roads at a township-block scale that upholds typical municipal public works snow and ice management policies that balance service, cost, and risk.

An impact versus effort matrix is a useful tool for visualizing potential actions so that efforts can be focused on the ideas that are likely to produce the most significant results. Each of the steps toward achieving our vision for a better future have high impact, with varying levels of effort.



High Impact, Low Effort
"Quick Wins"
These are the tasks to prioritize and tackle first, as they offer significant returns with minimal work.

High Impact, High Effort
"Major Projects"
These are also valuable but require significant resources and planning.

Low Impact, Low Effort
"Fill-ins"
These are typically handled when there's extra capacity or when higher-priority tasks are blocked.

Low Impact, High Effort
"Rethink"
These should ideally be avoided or eliminated, as they consume resources without offering much value.

Clean Water Council

Group drafting of Policy Statement on Large-volume water users, beginning October 29, 2025

Large-volume water users

Policy Statement

In response to recent increases in interest from prospective large-volume water users, the Clean Water Council is interested in understanding risks associated with overuse or contamination of water from large-volume water users, and in addressing the potential gaps in the statewide, regional and local decision-making processes. To that end, this policy recommendation summary will:

- Summarize the Clean Water Council's policy statement with high level recommendations
- Explore the current conditions and future concerns
- Elaborate on the recommendations for policies or actions needed

Individual large-volume users of water, or those using more than 100 million gallons of water per year or one million gallons per day, are not new to Minnesota. As a state, Minnesota has an identity synonymous with water, and there is a perception that water is abundant and limitless. There is concern that large-volume water users are being attracted to Minnesota without appropriate consideration of water needs, limitations or water sustainability. Increased interest from large-volume water users, particularly data centers, have raised concerns about siting large-volume water users in locations where sustainable water supply could become (or already is) an issue. The concern becomes more acute when groundwater is the source of water for local water supply.

While the demand for new data centers has spurred the development of this policy statement, the Council is looking at this more holistically in considering large-volume water users in general, including those already permitted and operational. Additionally, while concerns exist around energy, air pollution, long-term economic development, and other issues, the Council within its charge is interested predominantly in the implications specific to water.

Problem

In response to a recent increase in interest from prospective large-volume water users and demonstration of clear need for a coordinated response, the Clean Water Council recommends that the State of Minnesota implement the following actions to protect groundwater across jurisdictional boundaries and for future generations:

- Require sufficient information from proposers in order to fully evaluate proposals.
- Protect drinking water, and keep liability with the large-volume water user.
- Enhance regional groundwater models and use them to prevent negative impacts before they occur.
- Increase intention around siting and design of new facilities.

Clean Water Council

Group drafting of Policy Statement on Large-volume water users, beginning October 29, 2025

- Incorporate large-volume water users as considerations in existing state, regional, and local water plans.
- Develop and proactively promote capacity building programs or activities for local governments so that they can evaluate risks to groundwater supplies more quickly.

While Minnesota is a water rich state, water is not an unlimited resource. Large increases in water use can increase the risk for over-using our water resources. Over-use can impact individuals, businesses, communities and ecosystems. People are concerned about the risk of over-allocating water for large water volume users. The environmental nonprofit, Freshwater, notes in their data center-focused fact sheet that "a single data center can use 1 to 5 million gallons of water per day, as much as a small to medium size city." The addition of one data center alone can dramatically impact local groundwater levels. Quality is also impacted, as pumping of large volumes of water can change groundwater chemistry through changing flow patterns and mobilizing contaminants such as arsenic, manganese, and others. The addition of multiple large-volume water users within a single community (or adjacent communities) can therefor create significant impacts on local and regional groundwater sustainability, local water quality, groundwater-dependent waters and ecosystems, .

In considering these impacts, it is important to note that water for domestic consumption is considered by the State of Minnesota as a higher priority than water for large-volume water users, as identified in State Statute (Minn. Stat. §103G.261). The prioritization of uses is an important safeguard, ensuring that water is available for domestic consumption as long as possible in the event of an emergency. Designated as a fifth priority use (of six), appropriations for large-volume users are one of the first to be limited in the event of an emergency. However, recent proposals have demonstrated how large-volume water users can currently circumvent these allocation priorities by using existing municipal infrastructure and water supply. By tapping into existing supply without a mechanism to shut off their access, they are able to continue operations well past when they would otherwise have been required to cease operations to protect drinking water availability. It also reduces the availability of water to support a community's future population growth and economic development and puts liability on the water supplier—not the large-volume water user—if there is well interference with private wells. Additionally, the volume of water needed for supply or being added to wastewater streams can create challenges for local infrastructure capacity, leading to additional financial and planning implications for a community.

The potential economic benefit that can be provided to a community is a strong driver for the interest in bringing a large-volume water user in. However, when selecting a site, private industry is balancing a variety of considerations and may not always prioritize minimizing water impacts. . Communities, in evaluating proposals or considering possible locations, may not have a comprehensive understanding of possible water impacts and what that would mean for their community, and the information available can be lacking: it does not often match the level of

granularity needed, it can be out of date, or it is accurate for what is built but does not reflect what has been planned and agreed to. Likewise, communities have limited resources and time for evaluating proposals, and nondisclosure agreements can make it difficult or impossible to access important information to support sound decision making. When faced with tight timelines, a sense of competition between communities, and insufficient information including regional groundwater sustainability planning resources and outdated emergency response plans, communities may advance proposals with limited clarity and information on both risks and benefits.

Finally, as a state, we do not yet have a good way to understand the cumulative impact of large-volume water users on a regional basis. Water in aquifers, like water on the surface, does not adhere to jurisdictional boundaries. Decisions in one community impact the communities around it, and vice versa. As demonstrated above, large-volume water users impact both groundwater quantity and quality. Whether we look at individual proposals or cumulatively, we do not have the tools to fully understand regional impact.

At the end of the 2025 legislative session, the State Legislature set new expectations for pre-application and early coordination with the Department of Natural Resources for any new data centers. This provides an opportunity to discuss the regulatory framework, but also do an assessment of possible locations under consideration and share resource concerns, trends, other wells, etc. While this can help to address some siting concerns and support private industry and communities in making early informed decisions regarding data centers, additional action with regard to all large-volume water users is needed to safeguard water availability for today and the future.

Solution

The Council is a statutory role to foster coordination and cooperation as part of the Clean Water Legacy Act.The Council is interested in protecting aquifers across jurisdictional boundaries and encourages improved data sharing, local government capacity building, and broader intergovernmental collaboration. Doing so would protect groundwater in a way that also provides efficient and coordinated responses for industry decision-making.

To address these concerns, the Council recommends the following.

- Require sufficient information from proposers in order to fully evaluate proposals.
    - All proposals should provide information about anticipated water use and the intended water source in order for state and regional agencies and local communities to evaluate potential risks.

    - Remove the ability for Non-Disclosure Agreements to pertain to water use when that use is in excess of 10,000 gallons per day, 100 million gallons per year, or greater than 40% of a community's municipal supply.
- Protect drinking water, and keep liability with the large-volume water user.
    - As a fifth priority use, if a new large-volume water user is seeking to use existing municipal infrastructure and supply:
        - Require the local water supplier to have a mechanism and policy protection to shut off water supply in the event of an emergency in order to protect high-priority water uses (Minn. Stat. §103G.261). If this is not possible, require the developers to drill their own well.
        - Require that all costs for well interference, contamination, and other damages to other public and private wells and respective current and future uses associated with the increased withdrawal be paid by the large-volume water user.
    - Require large-volume water users (current and future) to track and report their water use, especially if on a municipal supply.

- 1. Enhance regional groundwater models and use them to assess and manage risks to groundwater.
    - Enhance regional groundwater models in order to better understand current conditions, the influence of new proposals, and cumulative impacts on water supply, aquifers, and groundwater dependent surface waters and ecosystems. Ensure these regional models are translated for and integrated into local water plans for communities across the state and factor in forecasted population growth and climate change.
    - Modernize the Statewide Drought Plan.
    - Collaborate with neighboring states, Tribal governments, and Canada to more fully reflect conditions along borders.
    - Amend state statute 103G.287 to allow the Commissioner for the Minnesota Department of Natural Resources to set diversion limits, water appropriation limits, or designate a groundwater management area where appropriations for large-volume water uses would likely have a negative impact of surface waters or groundwater aquifers.
    - Identify areas of the state where large-volume water users should not be allowed without use of closed loop geothermal systems, water use, or non-groundwater water sources due to the potential for impact on groundwater levels. Similarly, identify areas of the state with plentiful groundwater where cooling use would not interfere with higher priority uses or groundwater-dependent waters and ecosystems, and determine a threshold beyond which they should no longer be considered.
- 2. Increase intention around siting and design of new facilities.

- With sufficient information around use as described above as well as an increased understanding of conditions, early coordination with the Minnesota Department of Employment and Economic Development and the Minnesota Department of Natural Resources (and the Met Council, where appropriate) could allow them to assist with siting of new facilities from a groundwater availability and water supply perspective.
- Develop a framework or tool to aid the public and private sector in better evaluating water risk and more strategically site or design large-volume water use industries
- Encourage co-location of large-volume water uses with wastewater treatment facilities or other beneficial industries, and consider opportunities for recharge of treated discharge.
- Incentivize closed loop geothermal systems and water reuse systems.

- 3. Incorporate large-volume water users as considerations in existing state, regional, and local water plans.
  - Include large-volume water users as considerations in Groundwater Restoration and Protection Strategies (GRAPS) and the development or amendment of comprehensive watershed management plans (One Watershed One Plan or other approved plans). Groundwater use and discharges to surface waters from data centers should be of particular interest. Encourage amendments for comprehensive watershed management plans in areas which have recently seen an increased interest from developers.
  - Include large-volume water users as considerations for municipal planning efforts, including local and regional Wellhead Protection Plans, Water Supply Plans, Local Water Plans, and Local Comprehensive Plans in the metro area. When new large-volume water users are proposed, the DNR should review impacts on high-priority current and future water use and, in the metro area, the Metropolitan Council should review whether impacts to water availability will require a change to population forecasts or service availability. These local planning resources should be informed by statewide risk management plans including the Statewide Drought Plan.
    - Develop and proactively promote capacity building programs or activities for local governments so that they can evaluate risks to groundwater supplies more quickly.
  - Develop a framework or tool that local communities could use to ensure they have full access to needed information to evaluate proposals and understand risks to water availability and infrastructure capacity.
  - Work with the Metropolitan Council, the League of Minnesota Cities, and the Coalition of Greater Minnesota Cities, and Minnesota Association of Townships for proactive outreach and training opportunities.

Large-volume water users

Introduction

In response to recent increases in interest from prospective large-volume water users, the Clean Water Council is interested in understanding risks associated with overuse or contamination of water from large-volume water users, and in addressing the potential gaps in the statewide, regional and local decision-making processes. To that end, this document will:

- Summarize the Clean Water Council's policy statement with high level recommendations
- Explore the current conditions and future concerns
- Elaborate on the recommendations for policies or actions needed

Individual large-volume users of water, or those using more than 100 million gallons of water per year or one million gallons per day, are not new to Minnesota. As a state, Minnesota has an identity synonymous with water, and there is a perception that water is abundant and limitless. There is concern that large-volume water users are being attracted to Minnesota without appropriate consideration of water needs, limitations, or water sustainability. Increased interest from large-volume water users, particularly data centers, have raised concerns about siting large-volume water users in locations where sustainable water supply could become (or already is) an issue. The concern becomes more acute when groundwater is the source of water for local water supply.

While the demand for new data centers has spurred the development of this policy statement, the Council is looking at this more holistically in considering large-volume water users in general, including those already permitted and operational. Additionally, while concerns exist around energy, air pollution, long-term economic development, and other issues, the Council within its charge is interested predominantly in the implications specific to water.

Policy Statement

In response to a recent increase in interest from prospective large-volume water users and demonstration of clear need for a coordinated response, the Clean Water Council recommends that the State of Minnesota implement the following actions to protect groundwater across jurisdictional boundaries and for future generations:

- Enhance regional groundwater models and use them to prevent negative impacts before they occur.
- Increase intention around siting and design of new facilities.
- Incorporate large-volume water users as considerations in existing state, regional, and local water plans.
- Require sufficient information from proposers in order to fully evaluate proposals.
- Protect drinking water, and keep liability with the large-volume water user.

Clean Water Council

Draft version for 11/21/25 Policy Committee Meeting

Problem

While Minnesota is a water rich state, water is not an unlimited resource. Large increases in water use can increase the risk for over-using our water resources. Over-use can impact individuals, businesses, communities and ecosystems. People are concerned about the risk of over-allocating water for large water volume users. Hyperscale data centers, for instance, can use 1-5 million gallons of water per day, or the equivalent of a small city[1]. The addition of one data center alone can dramatically impact local groundwater levels. Quality can also be impacted, as pumping of large volumes of water can change groundwater chemistry through changing flow patterns and mobilizing contaminants such as arsenic, manganese, and others. The addition of multiple large-volume water users within a single community (or adjacent communities) can therefor create significant impacts on local and regional groundwater sustainability, local water quality, groundwater-dependent waters, ecosystems, and future availability of groundwater.

In considering these impacts, it is important to note that water for domestic consumption is considered by the State of Minnesota as the highest priority use, higher than water for large-volume water users, as identified in State Statute (Minn. Stat. §103G.261). The prioritization of uses is an important safeguard, ensuring that water is available for domestic consumption (public and private) as long as possible in the event of an emergency. Requests from proposers of new data centers to have water guaranteed have caused concern that this statute could be circumvented, or water suppliers could feel pressure to continue supply in the event of an emergency longer than they should. Private well impacts also are concern, as well interference and quality changes can create hardship for users and financial risks for municipalities. Additionally, the volume of water needed for supply or being added to wastewater streams can create challenges for local infrastructure capacity, leading to additional financial and planning implications for a community.

The potential economic benefit that can be provided to a community is a strong driver for the interest in bringing a large-volume water user in. However, when selecting a site, private industry is balancing a variety of considerations and may not always prioritize minimizing water impacts. Communities, in evaluating proposals or considering possible locations, may not have a comprehensive understanding of possible water impacts and what that would mean for their community, and the information available can be lacking: it does not often match the level of granularity needed, it can be out of date, or it is accurate for what is built but does not reflect what has been planned and agreed to. Likewise, communities have limited resources and time for evaluating proposals, and nondisclosure agreements can make it difficult or impossible to access important information to support sound decision making related to water needs. When faced with tight timelines, a sense of competition between communities, and insufficient information including regional groundwater sustainability planning resources and outdated emergency response plans, communities may advance proposals with limited clarity and information on both risks and benefits.

---

[1] (Include reference to Freshwater data centers fact sheet, McKinsey & Company Report, and MCEA documents)

Finally, as a state, we do not yet have a good way to understand the cumulative impact of large-volume water users on a regional basis. Water in aquifers, like water on the surface, does not adhere to jurisdictional boundaries. Decisions in one community impact the communities around it, and vice versa. As demonstrated above, large-volume water users impact both groundwater quantity and quality. Whether we look at individual proposals or cumulatively, we do not have the tools to fully understand regional impact.

At the end of the 2025 legislative session, the State Legislature set new expectations for pre-application and early coordination with the Department of Natural Resources for any new data centers. This provides an opportunity to discuss the regulatory framework, but also do an assessment of possible locations under consideration and share resource concerns, trends, other wells, etc. While this can help to address some siting concerns and support private industry and communities in making early informed decisions regarding data centers, additional action with regard to all large-volume water users is needed to safeguard water availability for today and the future.

Recommendations

The Council has a statutory role to foster coordination and cooperation as part of the Clean Water Legacy Act. The Council is interested in protecting groundwater across jurisdictional boundaries and for future generations. The Council encourages improved data sharing, local government capacity building, and broader intergovernmental collaboration. Doing so would protect groundwater in a way that also provides efficient and coordinated responses for industry decision-making.

To address these concerns, the Council recommends the following.

1. Enhance regional groundwater models and use them to assess and manage risks to groundwater.

- Enhance regional groundwater models in order to better understand current conditions, the influence of new proposals, and cumulative impacts on water supply, aquifers, and groundwater dependent surface waters and ecosystems. Ensure these regional models are translated for and integrated into local water plans for communities across the state and factor in forecasted population growth and climate change.
- Modernize the Statewide Drought Plan.
- Collaborate with neighboring states, Tribal governments, and Canada to more fully reflect conditions along borders.
- Amend state statute 103G.287 to allow the Commissioner for the Minnesota Department of Natural Resources to set diversion limits, water appropriation limits, or designate a groundwater management area where appropriations for large-volume

water uses would likely have a negative impact of surface waters or groundwater aquifers.

- Identify areas of the state where large-volume water users should not be allowed without use of closed loop geothermal systems, water reuse, or non-groundwater water sources due to the potential for impact on groundwater levels. Similarly, identify areas of the state with plentiful groundwater where large-volume use would not interfere with higher priority uses or groundwater-dependent waters and ecosystems, and determine a threshold beyond which they should no longer be considered.

2. Increase intention around siting and design of new facilities.

- With sufficient information around use as described above as well as an increased understanding of conditions, early coordination with the Minnesota Department of Employment and Economic Development and the Minnesota Department of Natural Resources (and the Met Council, where appropriate) could allow them to assist with siting of new facilities from a groundwater availability and water supply perspective.
- Develop a framework or tool to aid the public and private sector in better evaluating water risk and/or more strategically site or design large-volume water use industries.
- Encourage co-location of large-volume water uses with wastewater treatment facilities or other beneficial industries, and consider opportunities for recharge of treated discharge.
- Incentivize closed loop geothermal systems and water reuse systems.

3. Incorporate large-volume water users as considerations in existing state, regional, and local water plans.

- Include large-volume water users as considerations in Groundwater Restoration and Protection Strategies (GRAPS) and the development or amendment of comprehensive watershed management plans (One Watershed One Plan or other approved plans). Groundwater use and discharges to surface waters from data centers should be of particular interest. Encourage amendments for comprehensive watershed management plans in areas which have recently seen an increased interest from developers.
- Include large-volume water users as considerations for municipal planning efforts, including local and regional Wellhead Protection Plans, Water Supply Plans, Local Water Plans, and Local Comprehensive Plans in the metro area. When new large-volume water users are proposed, the DNR should review impacts on high-priority current and future water use and, in the metro area, the Metropolitan Council should review whether impacts to water availability will require a change to population forecasts or service availability. These local planning resources should be informed by statewide risk management plans including the Statewide Drought Plan.

- Develop a framework or tool that local communities could use to ensure they have full access to needed information to evaluate proposals and understand risks to water availability and infrastructure capacity.
- Work with the Metropolitan Council, the League of Minnesota Cities, and the Coalition of Greater Minnesota Cities, and Minnesota Association of Townships for proactive outreach and training opportunities.

- **Require sufficient information from proposers in order to fully evaluate proposals.**
- All proposals should provide information about anticipated water use and the intended water source in order for state and regional agencies and local communities to evaluate potential risks.
  - Remove the ability for Non-Disclosure Agreements to pertain to water use when that use is in excess of 10,000 gallons per day, 100 million gallons per year, or greater than 40% of a community's municipal supply.
- **Protect drinking water, and keep liability with the large-volume water user.**
  - As a fifth priority use, if a new large-volume water user is seeking to use existing municipal infrastructure and supply:
    - Require the local water supplier to have a mechanism and policy protection to shut off water supply in the event of an emergency in order to protect high-priority water uses (Minn. Stat. §103G.261). If this is not possible, require the developers to drill their own well.
    - Require that all costs for well interference, contamination, and other damages to other public and private wells and respective current and future uses associated with the increased withdrawal be paid by the large-volume water user.
  - Require large-volume water users (current and future) to track and report their water use, especially if on a municipal supply.