



# Twin Cities Metropolitan Area Chloride Management Plan

## What is the Twin Cities Metropolitan Area Chloride Management Plan?

The Minnesota Pollution Control Agency (MPCA) has partnered with local and state experts in the 7-County Twin Cities Metropolitan Area (TCMA) to create a plan for effectively managing salt use to protect our water resources in a responsible and strategic approach. Solutions were developed collaboratively to find a balance between clean water and safe winter travel conditions. As part of this effort the MPCA and partners collaborated to monitor, evaluate and better understand the level of chloride in lakes, streams, wetlands and groundwater. The Chloride Management Plan incorporates water quality conditions, sources of chloride, salt reduction strategies, protection strategies, monitoring recommendations as well as measurement and tracking of results. The goal of this plan is to provide strategies to assist local partners in reducing salt use while providing safe and desirable conditions for the public.

## How does salt get into the water?

The primary source of chloride, particularly in urban areas, is salt applied in the winter months to roads, parking lots and sidewalks. A secondary source of chloride, particularly in more rural areas, is water softeners.

The Twin Cities has thousands of miles of roads to maintain and managing ice and snow is necessary to the safety of residents. The use of salt, primarily sodium chloride, is currently the common method for ice control during the winter. However, when snow and ice melt, the salt goes with it, washing into our lakes, streams, wetlands and groundwater.

Salt from local water softeners used to remove hardness (minerals) from water supplies travels to municipal wastewater treatment facility or septic systems where it is discharged to shallow groundwater or local streams.

## Why does it matter?

High levels of salt can be harmful to fish and other freshwater aquatic life and can also negatively affect infrastructure, vehicles, plants, soil, pets, wildlife as well as groundwater and drinking water supplies.

Roughly 75% of Minnesotans rely on groundwater for their drinking water. MPCA has found 30% of the shallow monitoring wells, often in urban areas, have exceeded the state standard for salt levels. As water moves from shallow to deeper aquifers, the salt contamination could penetrate our sources of drinking water.

Once in the water, chloride becomes a permanent pollutant and continues to accumulate in the environment over time. It is estimated that roughly 78 percent of the salt applied in the TCMA stays within the region's watershed. The only known method of removing chloride in groundwater and wastewater is through reverse osmosis, which can be a costly and challenging large scale treatment process.

## What is happening with salt in the water?

There are currently 39 waterbodies that tested above the water quality standard for chloride in the TCMA. An additional 38 surface waters are near the chloride standard and many others are unknown. The data show that salt concentrations are continuing to increase in both surface waters and groundwater across the state.

## How can you make a difference?

How can we protect our waters, maintain safe roads in the winter and have desirable water in our homes? Currently, there are not environmentally safe, effective and inexpensive alternatives to salt. However, we can reduce salt at the source through application strategies. Smarter application of salt will also save money on labor and products as well as reduce damage to infrastructure, vehicles, plants and water supplies.

Each person contributes to the attitudes and practices that have created a high and steadily growing volume of salt to be used each year. Shifting public attitude toward more sustainable salt application is required to meet demands. Citizens form public policy, set the expectations that winter maintenance crews must meet and use salt on personal property such as water softening and sidewalks in the winter. Below are a few simple steps the public can take to protect water resources.

### Winter Safety – a few ideas to reduce salt use

- Support local and state winter maintenance crews in their efforts to reduce their salt use.
- Work together with local government, businesses, schools, churches and non-profits to find ways to reduce salt use in your community.
- Shovel. The more snow and ice you remove manually, the less salt you will have to use and the more effective it can be.
- Slow down. Drive for the conditions and make sure to give plow drivers plenty of space to do their work. Consider purchasing winter (snow) tires.
- More salt does not mean more melting. Use less than 4 pounds of salt per 1,000 square feet. One pound of salt is approximately a heaping 12-ounce coffee mug. Consider purchasing a hand-held spreader to help you apply a consistent amount.
- Watch a video. This video, produced by the Mississippi Watershed Management Organization, provides tips to homeowners about more environmentally friendly snow and ice removal: [Improved Winter Maintenance: Good Choices for Clean Water](#)

### Water Softeners – a few ideas to reduce salt use

- Consider whether a water softener is even needed. Get a water test for hardness as typically only water with hardness greater than 120 mg/L CaCO<sub>3</sub> needs to be softened. See the University of Kentucky's Guidance: [Hard Water- To Soften or Not to Soften](#) for more information.
- Change from a timer-based to a demand-based softener that recharges only when needed, based on how much water is used.
- Install a bypass so landscape irrigation water is not softened.

## Your actions matter

Get involved. The public has a critical role in helping solve this challenge of providing safe winter travel conditions and protecting our valuable water resources.