

# **Snow and Ice Control Best Management Practices**

## **Parking Lots, Sidewalks, Roads**

**Minnesota Circuit Training and Assistance Program**  
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### **Overview**

There is much opportunity to improve the way we manage snow and ice in Minnesota. By using snow and ice control best management practices, you can improve your level of service and make the roads, parking lots, and sidewalks safer—while saving money and protecting water quality.

### **Current Situation**

The snow and ice maintenance community is just now gaining an understanding of the chemistry behind how salt works and the material's impact on the environment. Some information not widely known:

- All salt and sand we use will head downhill to the nearest lake, river, or wetland. Holding ponds will trap the sand, but they have no effectiveness against the dissolved salts.
- Salt dissolves into water and leaves chloride, which is incredibly difficult to remove from our waterways. It requires reverse osmosis or evaporation and removal of the solids.
- Chloride does not allow natural processes to occur, such as lake turnover. Chlorides kill aquatic organisms, harm roadside vegetation, and pollute our water.
- Of the Minnesota lakes and rivers tested, 40% are polluted enough to be put on the federal list of impaired waters. It is estimated that when all of Minnesota's lakes and rivers are tested, more than 10,000 will be put on the impaired-waters list.
- Minnesota has four creeks on the impaired-waters list for high chlorides. No law requires testing for chlorides. Other streams would exceed the standard for chlorides if they were tested.
- Shingle Creek is the first Minnesota stream studied for chloride exceedence. There is now a 71% reduction in chloride use recommended watershed-wide.

### **Best Management Practices (BMPs)**

These are just a few of the BMPs that will protect our water and improve your performance:

- Cover all salt and sand piles.
- Use road salt (NaCl) only if the pavement temperature is over 15°F.
- Use road salt treat with magnesium chloride or calcium chloride to improve melting power.
- Find ways to wet your salt. You can use 30% less material if it is wet
- Wet salt works faster than dry salt and stays in place better.
- Plow, shovel, blow, or use any mechanical means of snow and ice control prior to using any chemical control. There will be less dilution of the salt and you can use less.
- Do not mix salt and sand. Salt is a melter; sand is an abrasive for on top of ice. They work against each other.
- A liquid salt applied before the storm will prevent the ice from bonding to the pavement. This is *anti-icing*. Much less work and material is required to anti-ice than deice.

- Sweep up sand during the winter. Sand is ineffective after it is below the snow or ice.
- Adopt new, reduced application rates.
- Calibrate equipment annually so that you know how much material you are putting down.
- Plow and store snow away from surface waters, not in them.
- Plan to store salt and winter sand year-round.

### **How Can Following Best Management Practices Help Me?**

- **Improved level of service:** Providing a knowledgeable, well-planned, and executed winter maintenance program will reduce mistakes and lessen the chance for icy surfaces.
- **Improved safety:** By understanding the materials, the weather, and the application rates, you can minimize icy surfaces and not *cause* slippery situations by applying too much.
- **Protected water quality:** Your customers want to protect our lakes and rivers. The less material you use, the better for our lakes.
- **Save money:** Knowing how to use the right amount of material at the right time and at the right temperature will save you money and time.

### **Training**

Training is available and affordable. The training sessions focus on a wide variety of snow and ice maintenance topics, including application rates of materials, calibration, weather conditions, storing materials, materials selection, environmental effects, new maintenance methods, deicing, and anti-icing. Such training sessions emphasize snow and ice BMPs that keep surfaces safe, save money, and help protect our water. Parking Lot and Sidewalk Training attendees have the opportunity to take a test and become certified by the MPCA in Snow and Ice Control Best Practices.

For more information about road training, please contact Kathy Schaefer via e-mail at [Kathleen.Schaefer@dot.state.mn.us](mailto:Kathleen.Schaefer@dot.state.mn.us) or by phone at 651-366-3575.

For information about parking lot and sidewalk training, please contact Connie Fortin via e-mail at [connie@fortinconsulting.com](mailto:connie@fortinconsulting.com) or by phone at 763-478-3606.

### **Manuals**

State-of-the-art reference manuals are available at no cost. All training is based on these manuals. To print a copy, visit the following Web sites:

- 2006 Winter Parking Lot and Sidewalk Maintenance Manual:  
[www.pca.state.mn.us/programs/roadsalt.html](http://www.pca.state.mn.us/programs/roadsalt.html)
- 2005 Minnesota Snow and Ice Control Field Handbook for Snowplow Operators:  
<http://www.mnltap.umn.edu/pdf/snowicecontrolhandbook.pdf>