

The Pembroke Stormwater Times

Winter 2023



ROAD SALT AND DEICING MATERIALS FOR BUSINESS FACILITIES

Road salt and other deicing materials are common and effective ways to keep roadways, sidewalks, pathways, parking lots, or driveways clear of ice. It is essential that users manage their deicing practices to lessen potential harmful effects on water resources and the environment.

Road salt is comprised of sodium and chloride ions that will separate as snow and ice melts. The chloride molecule is not held within soil making it easily transferred with any water flow. Additionally, chloride will not be removed by natural processes such as evaporation or vegetation, ensuring that most all the excess chloride used during the winter will end up in surrounding surface and groundwaters.

Better Understanding the Impacts

New Hampshire winters require frequent deicing, leading to a greater risk of impacts. The potential impacts of road salt are far reaching affecting things such as personal health, aquatic life, pets and wildlife, infrastructure, vegetation, and soil.

Chloride from snowmelt or runoff can degrade the quality of water bodies and aquifers, including those water supplies that are used as wells for drinking water and other household uses. In 2020, New Hampshire listed 50 waterbodies as chloride impaired. The increased concentrations in waterbodies threaten the aquatic species health, reproduction, and food sources.

The excess salt on roads during the winter can irritate pets' paws and skin or be harmful upon ingestion. Wildlife such as deer and moose are attracted to the taste of the salt crystals, increasing the probability of accidents on the road. Excess deicing materials on roads also puts a strain on infrastructure. The salt compound accelerates corrosion of porous materials affecting road surfaces, vehicles, bridges, sidewalks, and buildings.

Dissolved salt absorbs groundwater in the soil, leaving dry conditions for vegetation and alters the soil's natural chemical composition. These chemical changes damage many species of vegetation, especially impacting those located directly along roads. The changes in soil chemistry effect water infiltration rates reducing soil stability, pH, and fertility.

MUNICIPAL UPDATE

Pembroke's Year 3 Annual Report was submitted to the EPA at the end of September 2021. The town achieved all its Year 3 goals which included: adoption of Illicit Discharge and Post Construction Stormwater ordinances, written procedures for site inspection and enforcement of sediment and erosion control measures, and logging all catch basin inspections and cleaning.

The town will continue to meet its goals for stormwater protection in the new year.

We will continue to provide information to the public on these ongoing efforts. For more information, check out our website:

www.ThinkBlueSuncook.org

Storage and Use

As leading users of deicing materials, industrial facilities can play a large role in minimizing environmental degradation from salts. The following tips provide useful ways for facilities to ensure they are doing their part in minimizing the damage caused by road salts:

- ❖ Store deicing materials in dry enclosures on an impervious surface with adequate drainage control. Keeping salts covered prevents them from being washed or blown away from storage piles.
- ❖ Avoid storage in places near reservoirs, aquifers, wetlands, or other surface waters.



Photo of effective storage facility: USA Today

- ❖ Transport vehicles should be properly loaded. Overloading increases the chance of spills and excess salt entering the environment. If a spill does occur, the materials must be collected and returned to the safely located storage enclosure.
- ❖ Vehicles used for deicing should only be washed in locations where the water can be properly treated before being released.
- ❖ Storage and distribution of road salts should only be conducted during fall and winter seasons.
- ❖ A winter snow and ice control policy should be created to outline levels of service, salt application rates, and plowing practices to help staff make informed decisions about applying deicing materials.
- ❖ A winter storm log should be kept recording storm events, time, and application rates to avoid over salting.
- ❖ Businesses can hire Certified Green SnowPro applicators, who are trained in the most up to date technologies and snow management practices. These individuals are most adept at properly using deicing materials for optimal performance and environmental protection. Under RSA 508:22, certified applicators and those who hire them are granted liability protection from claims arising from snow and ice conditions.

Ways to Decrease Use

In addition to proper usage techniques there are also methods of decreasing the overall salt use which is beneficial for the environment and users. The following are tips to cut down on total road salt usage:

- ❖ Pre-wet the salt to add a brine that starts the melting process and keeps the salt in place by reducing bounces and scattering, potentially reducing salt rates by 20%.
- ❖ Do not mix salt and sand because they work counter to each other as salt is for melting and sand is for traction.
- ❖ Use anti-icing methods, by being proactive and applying prior to snow and ice accumulation the amount of salt needed can be reduced by 30%.
- ❖ Utilize a windrow pattern near the centerline to allow traffic to work the salt into a brine and move it to the shoulder of the road minimizing wasted salt.
- ❖ Do not use de-icing materials to melt snow, first plow, shovel, or blow snow away.
- ❖ Consider using other chemical compounds such as magnesium chloride or calcium chloride.

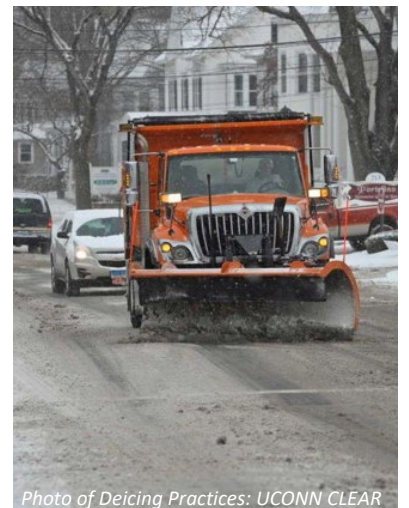


Photo of Deicing Practices: UCONN CLEAR

Resources:

- ❖ NH DES Road Salt Reduction: <https://www.des.nh.gov/land/roads/road-salt-reduction>
- ❖ UNH Technology Transfer Center Salt Reduction Resources: <https://t2.unh.edu/salt-reduction-documents>
- ❖ EPA: <https://www.epa.gov/snep/winter-coming-and-it-tons-salt-our-roads>

This flyer is intended for educational purposes as part of Pembroke's Municipal Separate Storm Sewer System (MS4) requirements. Check out more at www.thinkbluesuncook.org.



Town of Pembroke

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