

BEST MANAGEMENT PRACTICES

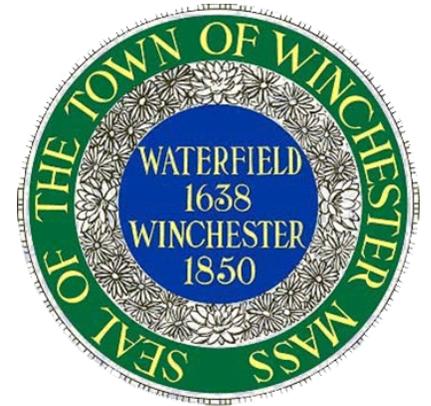
Snow & Ice Removal: Use mechanical means before applying de-icers.

De-icer Application: Follow manufacturer's instructions and use only enough to break the ice/pavement bond. Do not apply on vegetation or near waterways. Use less harmful de-icers such as Calcium Magnesium Acetate or Sodium/Potassium Acetate.

Snow & Ice Disposal: Do not dispose of snow & ice in wetlands, creeks, harbors, or other waterways or directly on top of storm drains.

MORE INFORMATION

For more information about ways to prevent stormwater pollution, please visit Winchester's Stormwater Webpage: <https://www.winchester.us/466/Stormwater-Information>



WINTER MAINTENANCE AND DE-ICING

OVERVIEW

Snow and ice on roads, parking lots, driveways, and sidewalks can create hazardous conditions. Snow and ice removal is best done non-chemically with plows and shovels but, admittedly, the results are not always adequate to ensure safety. Chemical ice melters and/or sanding is often part of a comprehensive strategy to make winter's passage a safe one.

IMPACTS OF SALT & SAND

Salt and sand have traditionally been perceived as the cheapest and most effective materials for de-icing driving and walking surfaces. However, many people do not realize that they have hidden impacts that can detract from their overall effectiveness.

Even in small quantities, salt can:

- Deplete the oxygen supply needed by aquatic animals and plants;
- Leach into the ground and change soil composition, making it hard for plants to survive;
- Contaminate groundwater and surface waters; and,
- Deteriorate paved surfaces, buildings, infrastructures, and the environment.

Similarly, sand can:

- Bury the aquatic floor life, fill in habitats, and cloud the water;
- Cause premature deterioration of floor surfaces as it is tracked into buildings;

- Lose its effectiveness after becoming embedded in snow and ice;
- Enter catch basins, storm drains, and surface waters if it is not swept up each spring; and,
- Contribute to clogged storm drains, which can cause flooding.

HOW DE-ICERS WORK

Generally, chemical ice melters depress the freezing point of snow and ice and turn the mixture into a liquid or semi-liquid slush. Solid chemical salts bore through ice or snow and form a strong brine solution. This brine spreads under the ice or hard-packed snow and undercuts, breaking the bond to the surface. Once loose, the ice or snow is easily removed.

PROPERTIES OF DE-ICERS

Sodium Chloride: Also known as rock salt, it provides adequate economical performance at temperatures at or just below 32F; though it loses most of its effectiveness when temperatures fall below 22F. It can be corrosive to steel, is harmful to roadside vegetation, and can contaminate surface water and drinking water.

Calcium and Magnesium Chloride: Though they cost 2-3 times more than rock salt, they are effective at lower temperatures, less corrosive to metals, and less harmful to roadside vegetation. They leave a white residue on surfaces when dry.

Potassium Chloride: Though it costs about 10 times more than rock salt, it is effective at lower temperatures, less corrosive to metals, and considered to be more environmentally-friendly

than other salts because of its lower chloride content.

Sodium or Potassium Acetate: Though they cost about 8 times more than rock salt, they are effective at lower temperatures, are not corrosive to metals since they contain no chlorides, and are safer for the environment.

Calcium Magnesium Acetate: Though it cost about 5 times more than rock salt, it is effective at lower temperatures, it is not corrosive to metals, and is one of the most environmentally-friendly ice melting compounds.

WHAT IS WINCHESTER DOING?

Snow storage: When necessary snow is disposed of at the Transfer Station. Snow melt flows into a vegetated swale and is infiltrated. This practice reduces the amount of snow melt entering a waterbody.

Salt Storage: Salt is stored in a 4,670 square foot Salt Shed, providing protection from precipitation.

Standard Operating Procedures (SOPs): SOPs provide the framework for optimization of de-icer application and equipment maintenance.

Salt alternatives: Alternatives are used in environmentally sensitive areas prior to the accumulation of snow.