

## Salt Application Best Practices for Winter Maintenance Contracts



**Help reduce damage to your property and protect the environment by ensuring your winter snow and ice maintenance contractor is not applying too much salt.** Salt is a critical component of any good winter maintenance plan. But applying too much salt shortens the life of pavements and hastens the corrosion of building materials. Salt applied to parking lots and roads also finds its way into streams and rivers, where it harms fish and other aquatic life, many of which are very sensitive to even low amounts of salt.

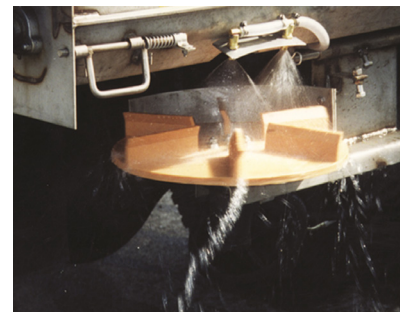
Businesses can help reduce over-salting by ensuring that salt is applied responsibly on parking lots and walkways. An easy way to do this is by ensuring that your snow and ice maintenance contract includes provisions requesting that industry best practices be employed and operators are adequately trained. These will not only help ensure the 'right' amount of salt is applied to manage risk, but can also save money and prevent damage to building infrastructure.

### PROCUREMENT BEST PRACTICES INCLUDE:

**Effective pricing of services** - Often payment for services is based on the amount of work or the quantity of salt applied which can encourage using more salt than is necessary. Contract pricing structures based on a lump sum by season, a fixed sum per event with extra paid for standby costs, or some combination of these payment options creates a financial incentive to apply less salt.

**Accurate salt delivery** - Calibration of salt spreaders helps ensure that the equipment is functioning properly and the amount of salt applied matches the rate of application set by the driver. Automated salt delivery systems that control application rates by vehicle ground speed can significantly reduce the amount of salt applied compared to conventional spreaders. These delivery systems ensure a more even spread of salt and allow contractors to precisely track the amount of salt applied.

**Reducing liability risk** - Slip and falls may occur, even when contractors and owners have tried their best to maintain a safe environment. In the event of lawsuits, it helps to have good records as evidence of the care that has been taken. Knowing and presenting accurate records of where, when, and how plowing and salting has occurred is the best form of defense against lawsuits.



**Efficient application** - The amount of road salt needed to keep parking lots clear of snow and ice can be significantly reduced by using anti-icing application techniques and pre-wetted salt. Anti-icing involves applying a liquid (such as salt brine) to paved surfaces before the storm arrives. This prevents snow and ice from bonding to the pavement, reducing the amount of salt needed after plowing. Pre-wetting involves coating the surface with a liquid to accelerate melting by providing initial moisture, while helping salt adhere better to the road surface.

**Low chloride alternatives** - A number of low chloride alternatives to road salt are currently available, such as acetates, formates, and organic products made from sugar beets, and other plant materials. Road salt alternatives provide effective snow and ice control at a wide range of temperatures. Many can be used as anti-icing or pre-wetting agents, delivering the same benefits as conventional salts and brines, while using considerably less salt.

**Well informed decision making** - Making good decisions about application methods and timing requires the use of supporting tools. Skillful use of local weather forecasts, road weather information systems, internet



based radar systems, and infrared thermometers to determine pavement temperature trends can help make decisions that save on salt, time and money.

**Trained professionals** - Applying the right material in the right amount at the right time and place can only be achieved by knowledgeable contractor and property management staff. Developing this knowledge requires training and experience. Requesting evidence of this experience and requiring training and certification through the **Ontario Smart about Salt Program** will help to ensure that the contractor and property operation staff have the skills necessary to implement best practices for road salt use.

## KEY FACTS:

1. In a comprehensive study in the US, the use of closed loop electronic controllers resulted in salt savings of up to 47% when compared with manually controlled systems (Blackburn et al, 2008).
2. In the City of Toronto, the implementation of a road salt management training program for winter maintenance supervisors and operators reduced salt use by almost 37,000 tonnes over two winter seasons and saved nearly \$1.9 million dollars. (Environment Canada 2003).
3. In the Niagara Region, municipal application of a beet juice compound as an anti-icing and pre-wetting agent to roads has reduced the amount of road salt on the roads by as much as 30% while also lowering winter road maintenance costs. (Regional Municipality of Niagara).
4. In a study of Ontario roadways, prewetted salt was more effective than dry salts in 5 of 7 cases, reducing snow cover by between 18% and 40% compared to dry salt (Fu et al., 2006).

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