

Winter Road Safety Frequently Asked Questions (FAQ)

The City of Prior Lake has developed a cost effective and environmentally friendly program for keeping our roads safe during the winter months. Using a brine mixture the city can effectively prevent most ice from ever forming.

What is "brine"?

Brine is a mixture of salt dissolved in water.

What is in the brine mixture?

The brine mixture is made up of salt and water. The concentration of salt dissolved in the water is 23%. When the temperature falls below a certain mark, additives are added to the brine to increase the melting power of the salt. The City uses different brine mixtures from an 80% salt brine mixture with 20% additive to a 90% salt brine mixture with a 10% additive.

Why not just use salt?

Salt contains chloride, a chemical that, even in small amounts, can have serious impacts on our environment. Excess chlorides change the concentration of salt in water and kills aquatic plants and fish. Chlorides can also impact soils and prevent them from draining properly increasing the risk of flooding.

What about sand?

As snow melts sand washes off the roadway and into stormwater drains. Sand builds up in storm drains and prevents them from draining properly. This increases the risks of flooding. These drains empty directly into our lakes and water bodies increasing sedimentation. This increase reduces the amount of available oxygen for aquatic plants and wildlife resulting in unhealthy lakes.

How does the brine mixture work?

When the brine mixture is applied to roads before a snow event it helps prevent ice from forming. The anti-icing product prevents a strong bond from forming between the snow and the paved surface. Without an anti-icing product snow becomes compacted by people and vehicles using the paved surface. Ice that has bonded requires a physical force to break that bond. This is what, traditionally, salt is used for. Salt breaks the bond between the ice and the pavement. By anti-icing a pavement the city reduces the amount of salt used during and after a snow event.

How does this benefit the environment?

By using this brine mixture the city reduces the amount of chlorides introduced into the environment during winter. 78% of salt applied to roadways stays within the local watershed. Since roads are treated season after season this chloride begins to add up. While salt application may not have visible short-term effects it has serious long-term effects that we may not see for years to come. Using this mixture the city has reduced the amount of chlorides introduced into the watershed by 83% each season.

Are there other benefits to this brine mixture?

Yes! By reducing the amount of salt the city purchases by 77% the city saves \$10,000 to \$15,000 every season! These savings help the city keep taxes low.

What else is the city doing to help?

Snow plows also play an important role in preventing ice formation. During periods of significant snow fall snow plows are available 24 hours a day. During smaller snow events the city plows roads as soon as the snow stops falling. Quick removal of snow from city streets prevents vehicles from compacting snow to street surfaces and preventing ice from forming. Careful calibration of the city's snow plows multiple times per year ensures the most effective amount of the salt mixture is being used on city streets. Snow plows are equipped with GPS technology that allows the city to track how much chemical is being used on city streets. Combine plowing, calibrations, and pre-treatment with an anti-icing mixture and ice becomes a rare occurrence.

Does every city do this?

No, but the city of Prior Lake has been nationally recognized for its environmentally friendly practices. In 2010 the American Public Works Association recognized the city with an award for Excellence in Snow and Ice Control.

Where can I learn more about chlorides and road safety?

If you are interested in learning more check out the Minnesota Pollution Control Agencies website at www.pca.state.mn.us/r0pqb86.