

Salting strategies practice

Introduction

The purpose of this document is to set practice for how the City of St. Louis Park will fulfill this responsibility and to identify those individuals who are authorized to set subordinate policies and make judgments in carrying out deicing chemical application activities.

Setting a practice for winter chemical usage involves evaluating and weighing a number of considerations, including the following:

Public safety

The safety of those traveling by motor vehicle, on foot and by other modes of transportation is of high priority. The goal of the City of St. Louis Park is to provide surface conditions that are safe for travel in consideration of surrounding conditions and circumstances.

Cost

The City of St. Louis Park's funds are limited, and taxpayers require that they be spent cost-effectively. It is not possible to address all snow and ice issues simultaneously and completely. It is also not practical to maintain equipment and personnel availability at a level that is sufficient for all possible situations.

Environment

Materials to maintain or improve surface traction contribute pollutants such as sand and chlorides to surface waters, stormwater basins and other facilities, which in turn can increase the cost of maintaining those facilities. It is important not to use an excess of these materials. Chlorides harm fish and other freshwater aquatic life and negatively affects infrastructure, vehicles, plants, soil, pets and wildlife, as well as impairs groundwater. Once in the water, chloride becomes a permanent pollutant and continues to accumulate in the environment over time. The data shows that salt concentrations are increasing impairments to both surface waters and groundwater across the state.

Priority setting to optimize outcomes

Because consideration must be given to all factors, it is necessary to set priorities for snow and ice management activities. Considerations include, though are not limited to, maintenance area classification and vehicle use level, need for emergency vehicle access, areas of known safety risk, reported conditions, costs and impact on the environment.

Management/professional/technical judgment

Policies and practices rest on management, past experience and technical knowledge, prevailing forecasted weather and travel conditions, and on other circumstances that operators encounter.

Need for adaptability

Particularly with respect to effectiveness, cost and environmental consequences, it is important that the City of St. Louis Park's policy allows for personnel to maintain awareness of developments and allow for winter chemical usage practices to be adjusted as appropriate. The public must practice due care given the continuously changing hazards presented by natural snow and ice concerns.

Experience **LIFE** in the Park

The City of St. Louis Park encourages and expects that residents and other members of the traveling public will at all times conduct their activities mindful of conditions, hazards and what is necessary to remain safe. The public must practice due care given the continuously changing hazards presented by natural snow and ice concerns.

Maintenance responsibilities Deicing (salting) priorities

Providing a safe surface for pedestrians or other modes of transportation responsibility is a high priority. In an effort to balance environmental and fiscal responsibility, it is not possible or practicable for snow and ice to be fully removed to create a bare surface for vehicle, pedestrian or other mode of transportation. The City of St. Louis Park differentiates among maintenance areas based on a variety of factors, including traffic volume and location (e.g., business district).

The supervisor or his designee will also consider localized safety concerns, reported hazard conditions, weather and other relevant information in adjusting priorities. The supervisor can adjust priorities during an event to address safety concerns, improve effectiveness, reduce costs and limit environmental impacts.

The City of St. Louis Park is not responsible for winter maintenance activities on any surface not owned by or dedicated to the City of St. Louis Park except as may be provided in a legally binding, written acceptance of that responsibility in the context of a development approval or otherwise.

- Priority A: main thoroughfares where higher speed and volume is prevalent
- Priority B: know hills and safety concerns,
- Priority C: residential streets

Training

Due to environmental concerns, it is important that personnel involved in snow and ice management receive appropriate training to increase their awareness and the judgment that they must exercise when applying salt. The supervisor is delegated the authority to determine and provide for appropriate training such as, but not limited to, Smart Salting Level 1 certification. The supervisor will document or require documentation of all training that it requires or conducts.

Deicing chemical application practice

The supervisor or designee in his or her judgment will adjust protocols giving particular consideration to weather conditions, safety, environmental and cost concerns, while maintaining best practices according to the Minnesota Snow and Ice Control Field Handbook for Snowplow Operators

Anti-icing

Anti-icing is a proactive treatment which liquid brine (23 percent salt brine) is applied directly to the roadway surface before the storm. The purpose of anti-icing is to prevent the hard bonding of snow and ice to the road surface. The chemical is applied to the roadway surface by application equipment as an application rates are between 20 – 50 gallons per lane mile base on weather conditions. This product must be applied to a dry road surface prior to storm. Anti-icing operation can be expanded to an economical frost prevention program to bridge decks and low-lying areas. At temperatures below 10 degrees, a blend of chemicals may be used for to assist lower the freezing point of water.

Staff has created an anti-icing route which focus on bridge decks, major thoroughfares and public safety locations.

Deicing

Deicing is a reactive treatment of applying chemicals to the top of accumulated snow, ice or frost that is already bonded to the pavement surface. The process can be applied to the driving surface to melt existing snow and ice during or after a snow event. Deicing chemicals will be applied to the driving surface at a set application rate based on weather conditions.

Standard road salt

Standard road salt is used citywide to create the brine needed with temperatures 32 degrees to 10 degrees. The mixing action of vehicle traffic will spread this brine up and down the street to promote melting.

Treated salt

Treated salt is used when temperatures are below 10 degrees. The salt is treated with calcium chloride by the supplier to lower the freeze point of water to 0 to 5 degrees. A heat source is still needed (friction by traffic), which will create the brine to promote melting. Treated salt is 30 percent more costly than standard road salt, so it is only used on mains and intersections in the neighborhoods only.

Pre-wetting salt

Introducing a 23 percent solution of salt brine liquid into the sander and thoroughly mixing it with the salt prior to hitting the street provides three benefits:

- It prevents bounce and scatter. It keeps more of the salt in the drive lanes where it is needed to create the brine versus bouncing into the gutter where there is no value.
- It jump starts the brine making process to promote melting.
- It reduces the amount of salt needed to deice the surface.

Sand and salt

Sand and salt are used for temperatures below 0 degrees when deicing chemicals no longer work. The sand provides an immediate improvement in traction, and the salt is available to attack the ice should pavement temperatures reach 15 degrees during the day. The concern about using the sand and salt mixture is that it is temporary at best for a few hours before vehicle traffic will cause the mixture to migrate to the curb lines. Sand is also an environmental concern for the waterways and must be swept up in the springtime to prevent it from entering the stormwater system.

Operational practice

Anti-icing or deicing operations will start under the direction of the supervisor. This action may include application of salt or a combination of chemicals for ice control. The supervisor will determine the chemical application, manpower and equipment needed based on the environmental conditions and the provisions of this practice. Cold, wind, visibility, equipment failure or disability, rapid snow and ice accumulation, and/or other unforeseen conditions or emergencies may prevent or delay safe and effective management of the storm.

Weather conditions

The City of St. Louis Park will use various weather services (public and contracted) to provide staff with up-to-date forecasts to develop a deicing chemical usage strategy. This information will determine appropriate application rates to be effective for both costs and environmental concerns.

Best management practices

The supervisor or designee will follow current accepted best management practices, set forth in the latest editions of the Winter Parking Lot and Sidewalk Maintenance Manual (MPCA) and the Minnesota Snow and Ice Control Field Handbook for Snowplow Operators (Minnesota Local Road Research Board).

Calibration

Deicing equipment will be calibrated each year or when anomalies are observed to achieve the optimal delivery rate in relation to the ground speed of the vehicle.

Salting locations

Application of ice control chemicals “salt, sand/salt mixture, or other combinations based on weather conditions” is generally limited to major routes, steep grades and intersections. Application is limited on site specific, lower volume streets, alleys and cul-de-sacs. Sidewalks and trails are not treated, except for emergency situations as determined by the supervisor.

Damage repairs

The City of St. Louis Park is not liable for damage to grass caused by ice control chemicals, and therefore will not make repairs or compensate residents for deicing chemical damage to trees or turf areas in the street right of way.

Documentation

The City of St. Louis Park and its operators will document and record all anti-icing and deicing chemical usage for each application. The record should include operating times, weather conditions, material used, personnel and equipment used.

Emergency situations

The City of St. Louis Park will dispatch operators and equipment as soon as possible to the routes required by emergency vehicles—fire, medical, police—responding to emergency situations. The City of St. Louis Park will salt outside their jurisdiction only if emergency vehicles require access.

Deviation from practice

If a person responsible for the execution of this practice determines deviation from this practice to be in the best interest of the City of St. Louis Park, the deviation will be documented. Documentation includes identifying the cause, why the response was necessary and how long the deviation will be in effect.

Review and modification of practice

The supervisor will review annually and modified the salting strategy practice when necessary.