

Road Salt Use in Oshawa Report

Oshawa Environmental Advisory Committee: Road Salt Working Group

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Introduction

This working group formed to begin addressing the negative environmental impacts of road salt application in the City of Oshawa. Road salts are most commonly the chloride salts of sodium, calcium, magnesium, and potassium. These salts were scientifically assessed under the *Canadian Environmental Protection Act, 1999*, the results of which determined that road salts pose a significant problem when large amounts of chloride ions enter into waterways. Freshwater plants, fish and invertebrates are particularly affected by road salt application because they are not adapted to saltwater environments (Government of Canada, 2018). Chlorides from road salts can also enter groundwater sources. Road salts have been recommended for addition to Schedule 1 of the Toxic Substances list (Government of Canada, 2013).

The City of Oshawa applies a salt brine solution to road surfaces prior to an anticipated storm to prevent ice from forming (City of Oshawa, n.d.). This is a practice that uses less salt than if rock salt were applied. However, private businesses and residents in the city would likely use rock salt, and apply it in such a volume as to pose a risk to the Oshawa Creek watershed. Elevated concentrations of chloride have been detected at Oshawa Creek surface water quality monitoring stations (Greenbelt Foundation, 2021). In northern, rural parts of Oshawa, salted sand (12% w/w) is used to prevent salinization of groundwater supplies that are used for drinking water (City of Oshawa Road Operations, 2022).

Alternatives to Road Salt

Other municipalities in Canada have used alternative anti-icing/de-icing substances to road salt with success. For example, Calgary and Winnipeg use beet brine (Dormer, CBC News, 2018; Dacey, Global News, 2018). Winnipeg also uses *treated sand* (sand with 5% salt added by weight) (City of Winnipeg, 2022). These alternatives have the advantage of not containing chlorides that will subsequently enter our waterways. However, it should be noted that the by-products of beet, corn, and similar products can reduce dissolved oxygen in water, impacting aquatic organisms (Salt Vulnerable Areas Working Group, 2018). Suitable quantities and proportions of chloride salts and alternative anti-icing/de-icing substances will likely depend on Oshawa's specific circumstances, although salted sand is already being used in the City's rural areas.

Our Recommendations

- O.E.A.C. recommends that City Council formulate and implement a plan to educate the public and private property owners on the detrimental environmental impacts of chloride salts and give them the tools to apply road salt more responsibly. Brochures and online materials explaining the toxicity of road salts and encouraging their responsible application should be disseminated widely.
- O.E.A.C. recommends that the City identify, and make publicly available, *salt vulnerable areas* of Oshawa, and establish risk management plans accordingly (see *Good Practices for Winter Maintenance in Salt Vulnerable Areas* under Additional Resources).
- O.E.A.C. recommends that the concentration of salt in salted sand currently being used in rural parts of the city be cut in half.
- O.E.A.C. recommends that the City make data pertaining to their road salt application accessible to the public. In particular, key performance indicators (KPIs) should be tracked and published to demonstrate the effectiveness of their best management practices.
- O.E.A.C. recommends that the City estimate the externalities associated with road salt application (including impacts on the natural and built environments) and incorporate these figures into their budget. These estimates should also be made accessible to the public.
- O.E.A.C. recommends that the City estimate liability costs incurred from injuries caused by slipping on ice on City property.
- Finally, O.E.A.C. recommends that the City implement a pilot program to expand areas where salted sand is used in place of road salt. This pilot program should include free salted sand giveaways for the public.

Next Steps

The Road Salt Working Group intends on doing further research and continuing to meet to address salt contamination of freshwater ecosystems. We plan on potentially connecting with other environmental advisory committees and wetland advocacy groups in Durham Region to collectively work towards solutions.

Works Cited

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Additional Resources

The Road Salt Working Group recommends consulting the following web pages and documents:

Road salts: Frequently asked questions. <https://www.canada.ca/en/environment-climate-change/services/pollutants/road-salts/frequently-asked-questions.html>

Good Practices for Winter Maintenance in Salt Vulnerable Areas. https://www.cloca.com/files/ugd/b3995f_9d715c2601cd4181a59ccaa753f8d837.pdf

Water Quality in Ontario 2014 Report. <https://www.ontario.ca/page/water-quality-ontario-2014-report>