Robert Roszell

SAVE Program: Encouraging Salt Management Best Practices on Sidewalks and Parking Lots

11:00 AM CDT

SAVE Program:

Encouraging Salt Management Best Practices on Sidewalks and Parking Lots

Robert Roszell: Program Director

under contract to TRCA, CVC, and LSRCA

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Background

History

Key Events

1995-2000

- 5 year federal science assessment of environmental impact of road salt under Canadian Environmental Protection Act (CEPA)

2001

- Concludes that road salts harm freshwater ecosystems, vegetation, drinking water, and wildlife
- Declared as 'toxic' under section 64 of CEPA

2003-2004

- Multi-stakeholder panel formed by federal government to address issue
- Developed voluntary Code of Practice for the environmental management of salt, primarily for local roads and highways

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History

Key Events

2007

- Road salt application on private parking lots and sidewalks up to 13 times greater than roads
- MTO and contactors association (Landscape Ontario) meet to discuss and find solutions

2010

- Landscape Ontario engages University of Waterloo to develop scientifically defensible salt application rates for parking lots
- Rates provide liability defense against slip and fall suits

2014-2015

- Application rate standards published, peer reviewed and validated
- SAVE program developed to help contractors achieve rates by ensuring contractors use minimum standard of equipment and equipment is calibrated

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Parking Lots and Sidewalks

- Road salts are the primary de-icing tool in Ontario
- 4 to 6 million tonnes applied annually in Canada
- No regulations for salt usage in the snow clearing industry
- Parking lots receive up to 13 times more salt than roads
- Over salting on parking lots is due to:
  - Desire to minimize legal exposure and risk from civil suits
  - Increased expectation of ‘bare pavement’ conditions
  - Avoidance of need for repeat application
  - Outdated and ineffective salt application equipment
  - Lack of knowledge regarding appropriate application rates
  - Lack of records needed to challenge civil suits
  - Highly competitive industry

Salt Impacts

Salt Impacts

- Excess use of salt leads to several undesirable outcomes:
  - Corrosion of infrastructure (steel, concrete, asphalt, parking garages, etc)
  - Higher winter maintenance costs
  - Harm to fish and aquatic life
  - Damage to soils and vegetation
  - Pollution of groundwater



Infrastructure Damage

Damage to vegetation

Infrastructure damage due in part to salt induced corrosion

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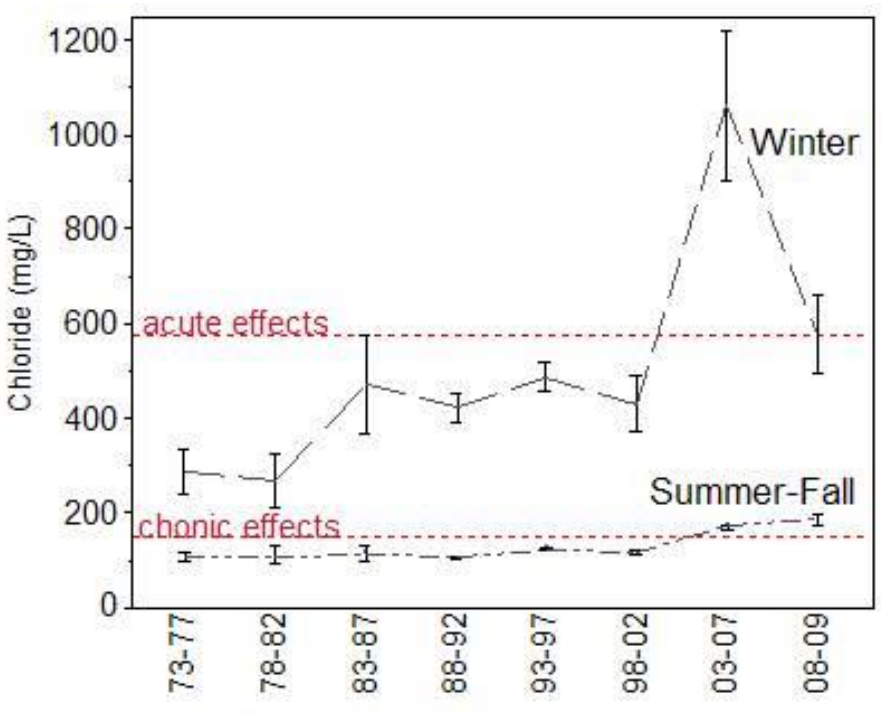
Damage to Creeks and Groundwater



Rising salt concentrations in Toronto creeks.

Regularly exceed toxicity thresholds for aquatic life protection

Salt concentrations in Toronto creek are high enough to salt water crabs to survive

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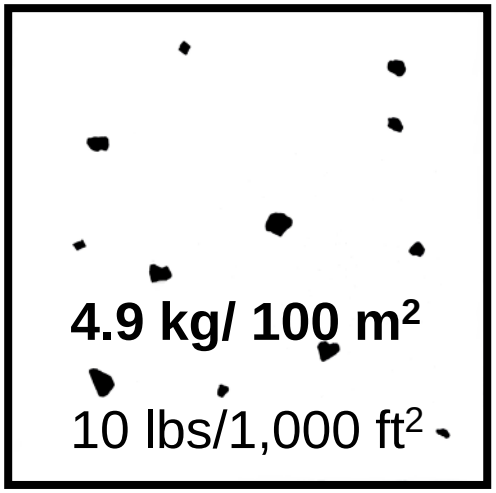
How Much is ‘Enough?’

Careless application and storage



Recommended application rate

Actual Application Rates (Newmarket)

Improper parking lot storage

Malfunctioning Spreader (Vaughan)

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Potential cost savings from applying at correct rates

Cost savings calculations from a 142,000 m2 parking lot in the Town of Newmarket.

Based on continuous monitoring of salt runoff from a parking lot (adapted from Lake Simcoe Region Conservation Authority, 2016)

Parking lot size	142,000 m^2
Measured quantity of salt applied in 2014/15	872 tonnes
Less quantity of salt per winter at recommended rate (average of 4.9 kg/100m^2 * and 49 applications)	- 341 tonnes
Excess over recommended rate	531 tonnes
Cost of over applying (salt = $100/tonne)	**$53,100/year**

Property owners also save on reduced corrosion and salt damage to infrastructure

*based on University of Waterloo research

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Addressing the Problem

SAVE Program: Promoting Salt Management Best Practices

Specify Best Practices in Contracts, such as:

- organic alternatives or pre-treated salt to increase melt value and lower working temperature
- salt that meets OPS specification for size and moisture content
- closed loop ground speed controllers
- calibrated equipment, verified as per SAVE procedures
- Tracking equipment that records and documents timing and location of salt application
- Trained drivers and supervisors (via *Smart about Salt*)
- Scientifically defensible salt application rates as determined through U of Waterloo research
- Survey parking lots prior to winter to chart out snow storage areas and removal practices

smart about salt™

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Benefits to Participating Businesses

- Save money on salt
- Reduce maintenance due to corrosion and salt damage to infrastructure
- Help prevent damage to aquatic ecosystems and the environment
- Help change litigation mindset responsible for driving up salt use
- Support sustainable parking lot and salt management initiatives
- Receive media recognition for employing salt management best practices

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Managing Risk

Managing Risk and Proving Due Diligence

Apply the right amount of salt	Use field verified rates determined through research by U of Waterloo
Know how much salt is being applied	Calibrate equipment and verify through third party
Track and keep records of how much, when and where salt was applied	Employ equipment and software that records salt alpplication rates, time and location (DMT software)

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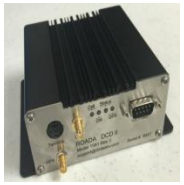
Road Operations and Data Analysis System



Stationary Images

GIS Data

Weather Data

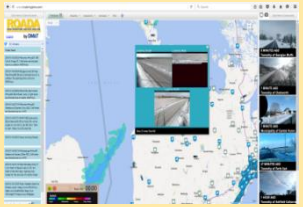
- Radar
- Weather Alerts
- Local Weather details

AVL/GPS Provider

- Sensor and tracking data
- Images
- Road Condition reports

API

Trackmyplow.com



Weather Data

Twitter (OPP, MTO)

RWIS

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Program Roll Out

- Review current winter maintenance procurement contracts
- Modify as needed to include best practices that will help reduce salt use
- Engage SAVE Program staff to verify that contractors meet the terms of the contract
- Prepare communication materials to market business leadership on this issue
- Roll out the program
- Inspect and document process and lessons learned through the first year
- Adapt and revise program as needed

Questions?

Robert Roszell (Program Director):
416-795-9466

Tim Van Seters (TRCA):
289-268-3902

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