



Winter Salt Management Program

Regional Municipality of Waterloo
EDUCATIONAL ACHIEVEMENT AWARD SUBMISSION

To

The Knowledge Management Working Group
TRANSPORTATION ASSOCIATION OF CANADA

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Region of Waterloo

Introduction

This document describes the Region of Waterloo's **smart about salt**TM winter salt management program and is submitted to the Knowledge Management Working Group, Transportation Association of Canada for consideration for the Educational Achievement Award 2010.

The **smart about salt** winter salt management program supports efforts by the transportation industry to expand winter salt management awareness beyond the public sector to private salt users and residents. The program meets the evaluation criteria for the educational achievement award. These criteria will be addressed throughout this document.

Architects of the **smart about salt** program:

The **smart about salt** winter salt management program was designed by Leanne Lobe, Supervisor Source Water Protection Programs at the Regional Municipality of Waterloo (the Region) and Mr. Bob Hodgins, formerly of Ecoplans Environmental Consultants of Kitchener and was launched in January, 2008.

Background and Context

The Regional Municipality of Waterloo (the Region) covers an area of 1360 km² in south central Ontario. The Region includes the cities of Cambridge, Kitchener and Waterloo and the Townships of Woolwich, Wilmot, Wellesley and North Dumfries. The regional level of government is responsible for water supply for approximately 475,000 people.

Since 1993, the Region has been implementing a Water Resources Protection Strategy (WRPS) to minimize the risk of historic, existing and future land uses on municipal water supplies. To mitigate the risks to water supplies, the Region has implemented a number of programs and policies to protect municipal drinking water supplies including the **smart about salt**TM winter salt management program that addresses the issue of increasing sodium and chloride concentrations.

In Waterloo Region, our drinking water sources are being affected by the salt used to de-ice our roads, parking lots and sidewalks. Concentrations of sodium and chloride, which together form rock salt, are steadily increasing in our groundwater – the source of 80 per cent of Waterloo Region's drinking water. In fact, in over 10 per cent of municipal supply wells, the concentration of chloride is higher than the target objectives and is continuing to increase. Levels also increase annually in our surface water intake during and after the winter snowmelt. Higher concentrations of sodium and chloride will affect the taste of our water.

The wells that are most heavily impacted levels have been steadily increasing over the last 30 years as the network of impervious surfaces have increased. Our urban wells are most affected because they are located within a dense network of roads and parking lots which have been salted for decades.

To address the rising sodium and chloride concentrations occurring in sources of municipal drinking water, local road authorities have been working to improve their salting operations. They have trained operators, incorporated new technologies, tracked salt usage and monitored

weather forecasts. Recent research suggests, however, that reducing the levels of sodium and chloride concentrations also requires involvement of the private sector. After review of a study carried out by the University of Minnesota (2007) and analysis of sodium chloride concentrations in one of the Region’s urban wells suggested that as much as 40 per cent of salt loading can be attributed to salt application on private roads, parking lots and sidewalks. The Region, together with Bob Hodgins of Ecoplans Environmental Consulting, developed the **smart about salt** winter salt management program.

In January, 2008, the Region launched the **smart about salt** program with the issue of a media release and mailing of kit folders to large scale private salt users including institutions and major manufacturers. Orientation sessions were held in 2008 and 2009 to introduce contractors and large facilities to the program and to the principles of winter salt management best practices.

Description of the smart about salt™ winter maintenance program

The **smart about salt** winter salt management program is a 4-stage program that recognizes contractors and facilities that implement winter salt management best practices. Successful contractors and facilities earn a **smart about salt** designation and receive a number of incentives including access to real time weather data and local weather forecasts and use of the program logo. The program’s goals are:

- To change the salt management practices of private contractors and facility owners;
- To raise awareness of best salt management practices; and
- To make the insurance industry aware of the impact proactive winter maintenance practices can have on an insured’s liability

The following table illustrates the progression through the four program stages.

Program Progression	Action	Benefits to contractor/facility
Registration	Submit completed registration form with \$25 fee to Water Services	
Implementation	Complete self-assessment Implement tracking Incorporate contract guidelines Train staff *Note: Facilities must hire a smart about salt professional contractor to be eligible for designation	Technical support Newsletters Program updates
Designation	Submit appropriate designation application form, annual summary report and \$100 fee to Water Services	<ul style="list-style-type: none"> • Insurance premium considerations • Access to weather and RWIS data and forecasts
Yearly Renewal	Submit annual summary report and renewal fee by June 30	<ul style="list-style-type: none"> • Licensed use of logo • Promotion on Region website (optional) • Participation in stewardship

Registration

In order to gain access to educational materials and technical support, a business must first register into the program. An orientation manual full of resource materials is provided to every business at the time of registration to help them implement best practices and prepare for designation. These materials include program forms and resource sheets that describe winter salt management best practices, such as equipment calibration, material storage and use of alternative materials including liquids. After orientating themselves with the program's goals and requirements, contractors and facilities' managers implement best practices at their own pace.

Implementation

All businesses must carry out a self-assessment of their current practices to identify areas for improvement. A simple form is used to review eleven areas of winter maintenance, including tracking materials usage, material application rates, plowing, and training. Training is a key requirement for designation; at least one employee of a business applying for designation must attend a **smart about salt** training session and pass a written exam.

After carrying out the self-assessment, businesses develop a form to be completed each time winter maintenance actions are taken at a site. A sample tracking form is provided and contractors and facilities are welcome to use this or develop their own system. Weather conditions, including pavement temperature, and precipitation, along with the material used are recorded. The form was developed in consultation with Landscape Ontario and Lombard Canada, a major insurance provider for the industry. Completed forms act as a record of action taken and can be referenced if any question of liability arises. Maintaining complete and accurate records will help facilities and contractors alike deliver a high level of service and ensure they are protected should an accident occur.

Information from the self-assessment is used to develop a salt management plan. The plan sets targets and identifies the person responsible for achieving specific goals. Some goals, such as implementing a tracking form, and improving salt storage, may be short term; while purchasing new equipment to implement liquid application may be long term.

The Region strongly encourages facilities and contractors to enter into multi year "lump sum" contracts. Lump sum contracts do not allow for salt to be billed separately at the end of the season; this encourages mechanical plowing over chemical plowing. Multi year contracts offer the contractor the financial security to implement more costly long term changes such as the purchase of new equipment while they offer facilities a consistent high level of service.

Once the program components have been implemented, a business applies for a designation. Contractors are awarded a "Professional" designation while facilities are awarded the "Certified" designation. The information from the self-assessment and salt management plan are condensed into one document the "Annual Summary Report" and submitted with the application for designation and a fee. Each year, businesses renew their designation by updating the Annual Summary Report and paying a renewal fee. To gather data and to confirm best management practices are being implemented, an audit program, currently in development, will be implemented.

Beginning in the fall of 2009, the Region began a campaign to educate the public. Presentations, radio spots and advertisements in community newspapers targeted residents of condominium complexes, and employees and patrons of local businesses. The goal of the public education campaign is to raise the level of understanding of salt science; to support the efforts of businesses to improve their practices, and to debunk the myth that “more salt equals more safety.”

Innovative execution of the program

The **smart about salt** winter salt management program is the first program in Canada to focus on the areas of salt management that have not been addressed by Environment Canada’s Code of Practice for the Environmental Management of Road Salts. Up until now, there have been few resources for the private sector; application rates and training have been developed for public road application only. **Smart about salt** recognizes this gap and provides resources and incentives to realize a reduction in the over application of winter salt by the private sector. The program is unique in that it includes:

- Training specific to private parking lots, roads and sidewalks;
- Support during implementation; and
- Continuous improvement

The program has also been widely recognized and has garnered interest from across North America. Developers of the program have given presentations on the program to the Ontario Good Roads Association (OGRA), Environment Canada’s multi-stakeholder advisory group, Transportation Association of Canada meetings, and Landscape Nova Scotia.

Training Specific to Private Parking Lots, Roads and Sidewalks

The Region and Ecoplans offer full day training sessions to facility managers and snow removal contractors. Once businesses begin to implement the program components, such as the self-assessment, they are encouraged to send staff to one of several full day training sessions because successful completion of the training and written exam are required for designation. Topics covered in the training program include: the environmental impacts of winter salt; record keeping and risk management; material use; spreaders and calibration; weather information and the environmental impact of winter salt.

Continuous Improvement

Participants of the program are encouraged to provide feedback to the Region on program design and delivery through a number of avenues. Comments can be directed by email or phone to a Water Services staff member. As part of the program’s commitment to continuous improvement, a focus group was held and a survey sent to 150 participants. The most highly reported reasons for participating in the program were:

- To be more environmentally conscious (96%)
- To reduce the abuse/overuse of salt (78%)
- To reduce salt costs (58%)
- To achieve a competitive advantage (56%)

Participants in each orientation session and training session were asked for their feedback on training materials and program design. Most of the training modules were rated moderately good to very good and valuable advice was obtained on areas for improvement. Evaluations

consistently rate the training course very high and most participants say they would recommend the course to others. More than 75% of respondents rate the orientation manual and the training manual high.

Widespread Recognition

The program has been well received in Waterloo Region and has received attention from across the province. Profiles of the program have appeared in *Landscape Trades*, *Canadian Property Management* and *Milestones* magazines.

The Region of Waterloo has undertaken efforts to make the program available across Ontario. A new Smart About Salt Corporation has been established by the Region, Landscape Ontario, and the Building Owners' and Managers Association of Ottawa (BOMA). This Corporation will take over administration of the program and offer training to facilities and contractors across the Province.

The snow removal industry association, Landscape Ontario, has endorsed the program because it “represents stewardship, competency and professionalism.” The program also “aligns with the values and aspirations of our Association,” says Tony DiGiovanni, Executive Director. “We enthusiastically support and endorse this very important program.”

Not only does the **smart about salt** program raise the level of professionalism of the snow removal industry, it also helps facilities achieve their environmental goals. “Within the Property Management industry we see a reduction of salt usage as a way to further our Environmental objectives through best practices which stimulates us to consider other inventive solutions to problems,” says Dean Karakasis, Executive Director of BOMA Ottawa. BOMA hopes to incorporate the principles of the **smart about salt** program into its BOMA Best program.

Lombard Canada supports the smart about salt program and offers discounts on Commercial General Liability Rates for Snow Removal to clients involved in the program. Lombard Canada adopted the principles of the **smart about salt** program when it published its “Smart about Snow” pamphlet for its clients in October, 2008.

Payoff or benefits achieved

Numerous benefits have been or will be achieved through the implementation of the **smart about salt** program. Contractors, facilities, and residents alike will all reap rewards from this program. Moreover, over time, the frequency of over application of winter salt in the Region will decrease as a result of improved practices.

Once designated, a Professional contractor or Certified site receives several benefits including access to weather information; use of the program logo; insurance premium considerations; and promotion on the Region's website. The Region maintains a program website that promotes all of the facilities and contractors who have earned a designation. Facilities that wish to reduce their impact on the environment reference this list when snow removal contracts are up for renewal. The Region and other local municipalities have incorporated participation in the program into the tender process. Points are awarded to contractors who have registered and/or

earned a designation; thereby supporting the implementation of best management practices around public buildings and providing a competitive advantage to those involved in the program.

Overall applicability to improved practices, better skills sets and to the Canadian transportation community as a whole

Since the program was launched in January, 2008, **smart about salt** orientation sessions have introduced the concept of winter maintenance best practices to 92 individuals representing contractors, equipment manufacturers, institutions and major manufacturers.

To date, fourteen snow removal contractors have earned the **smart about salt** Professional designation. In January, 2010, Canada's largest environmental consulting firm and a major insurance provider in Waterloo Region became the first facilities to earn the **smart about salt** Certified designation. Once designated, both facilities and contractors can promote their designation through use of the program logo. This raises the profile of the business and acts as vehicle for promotion of the program itself.

Winter maintenance and salt management practices are being improved amongst businesses that deliver these services. Participants in the program have improved their knowledge and understanding of:

- Liability and risk management practices;
- Salt science;
- Snow and ice control tactics, including the importance of dew point;
- Equipment calibration and how to change the application rate to suit weather conditions; and
- Weather information's role in delivery of winter maintenance services

Significant changes in winter maintenance practices have already been realized. Designated contractors in partnership with their customers have

- Introduced new technologies including the use of liquids and pre-treated salt;
- Improved material storage practices;
- Improved training for employees;
- Improved site drainage to reduce the potential for icing and the need for salt; and
- Instituted better record-keeping practices

Equipment manufacturers have also responded positively to the **smart about salt** program and are supporting the efforts of service providers and facilities to improve their practices. One supplier of materials and equipment hosted a training session to introduce its clients to the **smart about salt** program and equipment that will assist in improved salt management.

Conclusion

The **smart about salt** winter salt management program is unique in North America. This recognition program focuses on developing skills and improving practices of both snow removal contractors and facility managers. Improved skills and knowledge have resulted in improved and consistent service, greater communication between the snow removal contractor and the customer, and a greater awareness of the impact of salt loading on drinking water sources.

The **smart about salt** winter salt management program contributes to the development of the transportation community because it:

- Delivers quality education and training in best management practices;
- Offers tangible benefits to contractors, facility owners/managers, the industry and the public;
- Raises the level of knowledge and skill of contractors, suppliers, insurers and facility owners; and
- Provides the foundation for better practices in the future

To gain a competitive advantage and to respond to demands of their customers and the public for a balance between safe conditions and environmental stewardship, businesses that provide or use snow removal services continue to register into the program. The **smart about salt**TM winter salt management program is becoming widely recognized as a leading standard for the winter maintenance industry.