CTC Source Protection Committee Meeting #2/22

Chair: Douglas Wright

Tuesday March 22, 2022
1:00 – 4:00 p.m.
Zoom Virtual Meeting[1]

AGENDA

Page #

1. **Call to Order and Roll Call**

2. **Review of Agenda**

3. **Disclosure of Conflict of Interest**

4. **Minutes of Previous Meetings**

5. **Chair's Remarks**

6. **Updates**
   - 6.1 Update from the Ministry of Environment, Conservation and Parks Liaison Officer - Beth Forrest
   - 6.2 Update from Conservation Ontario Source Water Protection Lead – Debbie Balika
   - 6.3 Update from Conservation Authority Liaison – Quentin Hanchard, CAO of Credit Valley Conservation

7. **Presentations**
   - 7.1 Update on Source Protection Implementation in Halton Region. Dan Banks, Acting Manager of Water & Wastewater Planning, Halton Region.
   - 7.2 Risk Management Plan Negotiation: Toolbox Talks ... Incentives. Therese Estephan, Advisor, Source Water Protection, Peel Region.
   - 7.3 Implementation of CTC Source Protection Plan in 2021 – Annual Progress Report. Jan Ivey, CTC Program Manager, Credit Valley Conservation.

8. **Committee Business**
   - 8.1 Reports to Committee
     - a. Implementation of CTC Source Protection Plan (2021) – Annual Progress Report **3**
     - b. CTC Program Update **16**
       - Guidance on implementing the 2021 Director's Technical Rules
       - Climate change risk assessments
       - Best Practices for source water protection for private drinking water systems
       - Provincial road salt workshop

[1] CTC Source Protection Committee meetings are video recorded for the purpose of minute taking.

Page #

- Petroleum pipeline consultations
- Amendments to the CTC source protection plan
- Upcoming meeting schedule

8.2 Other Business

9. **Correspondence**

9.1 Email advising of release of provincial guidance materials to support incorporating 2021 Director's Technical Rules into assessment reports and source protection plans. February 15, 2022. To DWSP Program Managers from Kirsten Corrigal, Director, Conservation and Source Protection Branch, Ministry of the Environment, Conservation and Parks. **31**

9.2 Email advising of release of best practices for source water protection for communities and landowners not covered by the Clean Water Act. February 18, 2022. To DWSP Program Managers from Kirsten Corrigal, Director, Conservation and Source Protection Branch, Ministry of the Environment, Conservation and Parks. **33**

9.3 Letter advising of Ministry approval of amendments to the Toronto and Region Assessment Report and CTC Source Protection Plan because of changes to the Aurora drinking water system. February 23, 2022. To Jennifer Innis, Chair, Toronto and Region Source Protection Authority, and Doug Wright, Chair, CTC Source Protection Committee. From David Piccini, Minister of the Ministry of the Environment, Conservation and Parks. **34**

10. **Next Meeting**
July 27, 2022 (via zoom)

11. **Adjourn**

[1] CTC Source Protection Committee meetings are video recorded for the purpose of minute taking.

TO: Chair and Members of the Source Protection Committee Meeting #2/22

DATE: March 22, 2022

FROM: Janet Ivey, Chief Specialist, Watershed Plans and Source Water Protection, Credit Valley Conservation

RE: Implementation of CTC Source Protection Plan (2021) – Annual Progress Report

KEY ISSUE

To review and seek the Source Protection Committee's opinion on progress towards achieving the CTC Source Protection Plan's objectives.

RECOMMENDATION

THAT the CTC Source Protection Committee receive the staff report Implementation of CTC Source Protection Plan (2021) – Annual Progress Report for information;

AND THAT in the opinion of the CTC Source Protection Committee, implementation of the Source Protection Plan has progressed well but is short of target in achieving the plan's objectives.

AND THAT CTC staff be directed to submit the CTC Source Protection Committee's comments on implementation progress to the Credit Valley, Toronto and Region, and Central Lake Ontario Source Protection Authorities for inclusion in the annual progress report.

BACKGROUND

The Credit Valley – Toronto and Region – Central Lake Ontario (CTC) Source Protection Plan (the Plan) came into effect December 31, 2015, providing a framework of policies to protect the quality and quantity of the source waters for municipal drinking water systems located in the CTC Source Protection Region. The objectives of the Plan are:

1. to protect existing and future drinking water sources in the CTC Source Protection Region
2. to ensure that existing activities cease to be, or do not become, significant drinking water threats, and that new activities never become significant drinking water threats

Source Protection Authorities (SPAs) are required to submit annual reports on implementation progress to the Ministry of the Environment, Conservation and Parks (MECP) under section 46 of the *Clean Water Act 2006* (CWA). The 2021 report on implementation progress will be the fifth such report since the Plan came

into effect.

Annual progress reports are prepared using data provided by municipalities, provincial ministries, and other implementing bodies as required by the monitoring policies in the Plan and in accordance with section 81 of the CWA and section 65 of Ontario Regulation 287/07. Municipal and provincial reports are required to be submitted to the SPA annually by February 1st and reflect implementation efforts from the previous calendar year, January 1 to December 31, 2021.

Staff aggregate and evaluate implementation data to populate two reporting templates provided by the MECP: 1) a summary-level annual progress report and 2) a more detailed supplemental form. Annual reports must be shared with the Source Protection Committee (the Committee) at least 30 days before being submitted to the Director, Conservation and Source Protection Branch, of the MECP.

The Committee is required to review the annual progress report and provide written comments to the SPAs about the extent to which, in the opinion of the Committee, the objectives set out in the plan are being achieved by the measures described in the report.

DISCUSSION

The supplemental form includes two questions that require Committee input. Staff have reviewed the results of the supplemental form, prepared a draft annual progress report (included as Attachment A), and recommend the following responses:

1. In the opinion of the Source Protection Committee, to what extent have the objectives of the source protection plan been achieved in this reporting period? (Question ID 350)

The MECP has clarified that notwithstanding the reference to "in this reporting period", the intent of this question is to reflect progress made in plan implementation since it came into effect (2015), and not just in the previous year. Three response options are provided by the MECP:

- Progressing well/on-target – The majority of the source protection plan policies have been implemented and/or are progressing.
- Satisfactory – Some of the source protection plan policies have been implemented and/or are progressing.
- Limited progress – A few source protection plan policies have been implemented and/or are progressing.

Staff recommend a response of **progressing well, short of target**, consistent with the modified language used in the 2019 and 2020 annual reports. The rationale for this assessment is described further below.

2. Please provide comments to explain how the Source Protection Committee arrived at its opinion. Include a summary of any discussions that might have been had amongst the Source Protection Committee members, especially where no consensus was reached. (Question ID 351)

Staff recommend the response included in Section II of Attachment A and described more fulsomely below.

Substantive implementation has occurred, since most legally binding policies (96%) that address significant drinking water threats (SDWTs) are implemented and about 95% of existing SDWTs have been addressed through policy implementation or removed through threats verification. Therefore, staff suggest that implementation of the Plan is progressing well.

An estimated 329 existing significant threats (5% of the current enumeration) remain to be addressed, down from 362 at the end of 2020. Outstanding threats are predominantly associated with application and storage of road salt, snow storage, application and storage of agricultural source materials and pesticides, and handling and storage of dense non-aqueous phase liquids. The distribution of existing SDWTs still requiring management is as follows:

- Town of Mono - 6 threats
- Town of Orangeville – 80 threats
- Town of Erin – 29 threats
- Region of Peel – 14 threats (including those enumerated in 2019 for a new drinking water well in Alton)
- Region of York – 3 threats
- Region of Halton – 197 threats

The remaining municipalities within the CTC region have no outstanding significant drinking water threats.

Most of the outstanding significant threats will be addressed through risk management plans (RMPs) negotiated with property owners and businesses by municipal Risk Management Officials. There are 150 RMPs currently in place across CTC. An estimated 205 RMPs remain to be negotiated for existing significant threats. Figure 1 illustrates the number of RMPs currently in place, finalized or in-progress in 2021, and still required at the end of 2021. As no significant threats requiring RMPs were originally identified for the City of Toronto, the city does not appear in the figure.

Following a request by the Committee in 2020, the MECP approved a 3-year extension to the December 31, 2020, deadline to complete RMPs for existing significant threats identified at the time of the initial Source Protection Plan approval in 2015. Of the 205 RMPs still to be completed, 198 require completion by Dec. 31, 2023. For those threats requiring RMPs identified through amendment to the source protection plan after 2015, RMOs will have five years from the date of amendment to establish RMPs.

Implementation challenges identified by municipal RMOs include:

- the time-consuming nature of the threat verification and RMP negotiation process,
- high demand in 2021 for source water protection screening for the land use planning and building permit process,
- additional complexities in negotiating agricultural RMPs (seasonal availability, multiple threats, regulatory burden), and
- COVID-19 pandemic impacts on staff recruitment, site visits, and relationship building.

Since fewer than half of the estimated number of required RMPs are in place and recognizing ongoing pandemic challenges, staff recommend an assessment of **"progressing well, but short of target"** for 2021.

The plain-language annual progress report (Attachment A) includes a summary of Plan implementation, highlighting municipal progress in aligning Official Plans with the source protection plan, septic system inspections, and risk management plans; provincial implementation progress; and water quality monitoring results. At the time of finalization of this report, review of water quality trend data was still underway.

FIGURE 1: NUMBER OF RISK MANAGEMENT PLANS IN PLACE, NEWLY CREATED IN 2021, IN-PROGRESS IN 2021, AND STILL REQUIRED TO ADDRESS SIGNIFICANT DRINKING WATER THREATS AS OF DECEMBER 31, 2021.

DETAILS OF WORK TO BE DONE

The annual progress report and the Committee's comments will be presented to the Credit Valley, Central Lake Ontario, and Toronto and Region Source Protection Authorities (SPAs) for endorsement at meetings in April 2022. Following SPA approval, staff will submit the annual progress report and supplementary form to MECP by May 1, 2022. Following submission to the province annual progress reports are posted to the CTC website (ctcswp.ca).

CTC's proposed 2022-2024 work plan includes migrating municipal annual reporting from customized document templates to the provincial on-line Electronic Annual Reporting (EAR) platform. This is expected to streamline collating and assessing municipal reporting data.

Report prepared by:

Janet Ivey, Chief Specialist, Watershed Plans and Source Water Protection, Credit Valley Conservation
T: 905-670-1615, ext. 379
Email: Janet.ivey@cvc.ca

Date: March 15, 2021

ATTACHMENT A: Draft 2021 Source Protection Annual Progress Report

CTC Source Protection Region 2021 Annual Progress Report (Draft)

I. Introduction

Source protection plans are created under the *Clean Water Act, 2006*. This annual report summarizes the progress made by December 31, 2021 in implementing the source protection plan for municipal drinking water systems in the Credit Valley, Toronto and Region, and Central Lake Ontario (CTC) Source Protection Region.

Protecting the sources of our drinking water is the first step in a multi-barrier approach to safeguard the quality and quantity of our water supplies. The source protection plan is the culmination of extensive science-based assessment, research, consultation, and collaboration with local stakeholders and the Province. When policies in the plan are implemented it ensures that activities carried out near municipal wells and lake-based intakes will not pose significant risk to drinking water supplies.

We acknowledge and recognize the efforts made by municipalities, stakeholders and the CTC Source Protection Committee in the development and implementation of the Source Protection Plan.

II. A message from your local Source Protection Committee

P : Progressing Well/But Short Of Target – The majority of the source protection plan policies have been implemented and/or are progressing; but some fall short of target.

This is the fifth Annual Report on implementation of the CTC Source Protection Plan (Plan) since it took effect on December 31, 2015. All stakeholders responsible for Plan policy implementation reported on their progress in 2021.

Most of the legally binding policies (96%) that address significant drinking water threats are implemented in the CTC Region. All municipalities have established processes to ensure that land use planning decisions conform to the Plan.

At the time the Plan was made effective in 2015, over 10,000 significant drinking water threats were identified in the CTC Region. Since then, field verification has reduced that number to 6,195 significant threats. An estimated 329 existing significant threats (5% of the current total) remain to be addressed, down from 362 at the end of 2020.

As a result, the CTC Source Protection Committee (Committee) determined that implementation of the Plan is progressing well overall. However, the Committee expressed concern about the continuing rise in sodium and chloride levels in municipal wells, and acknowledged that fewer than half of the required risk management plans (RMPs) are in place.

The Committee concluded that implementation of the Plan is progressing well, but short of target.

III. Our Watershed

To learn more, please read our assessment report(s) and source protection plan(s)

The CTC Source Protection Region contains over 25 large and small watersheds and spans over 3,800 km^2 of land, from the Oak Ridges Moraine in the north to Lake Ontario in the south. The region contains portions of the Niagara Escarpment, Oak Ridges Moraine, Greenbelt, Lake Ontario, and the most densely populated area of Canada. The CTC Source Protection Region includes 25 local municipalities and eight single tier, regional or county municipalities, 64 municipal supply wells, and 16 municipal surface water intakes in Lake Ontario. The region is complex and diverse in terms of geology, physiography, population, and development pressures. There are many, often conflicting, water uses including, drinking water supply, recreation, irrigation, agriculture, commercial and industrial uses, and ecosystem needs.

The Credit Valley Source Protection Area is formed by one main watercourse, the Credit River, and a number of smaller Lake Ontario tributaries. Nearly 1500 km of streams and creeks empty into the Credit River including Black Creek, Silver Creek, West Credit River, Shaw's Creek, East Credit River, Fletchers Creek, Caledon Creek, and several others. There are thirteen municipal water systems operating in the source protection area, two are surface water based – accessing Lake Ontario as the source; the remainder are groundwater-based. There are no municipal drinking water sources taking from the Credit River. About 1 million people make the Credit watershed their home.

The Toronto and Region Source Protection Area comprises numerous watersheds, plus their collective Lake Ontario waterfront shorelines, to incorporate portions of six upper-tier and 15 lower-tier municipalities. The nine major watersheds are Carruthers, Duffins, Etobicoke, Highland, Mimico, and Petticoat Creeks, and also the Don, Humber and Rouge Rivers. More than 5 million people live within the source protection area with the population expected to grow significantly in the years to come. There are ten municipal water systems operating in the source protection area, five are surface water based – accessing Lake Ontario as the source; the remainder are groundwater-based.

The Central Lake Ontario Source Protection Area is fully contained within the Regional Municipality of Durham. There are numerous watersheds within its boundaries, with the five major watersheds originating at the Oak Ridges Moraine. These major watersheds are Lynde, Oshawa, Farewell, Bowmanville, and Soper Creeks. There are no municipal wells within the source protection area; all municipal drinking water comes from Lake Ontario. There are three municipal drinking water systems: Whitby, Oshawa, and Bowmanville.

IV. At a Glance: Progress on Source Protection Plan Implementation

1. Source Protection Plan Policies

P: Progressing Well/On Target

There are 129 policies in the CTC Source Protection Plan. The policies address: 21 types of threats prescribed in regulation and 2 types of local drinking water threats, other actions considered necessary to protect drinking water sources, and monitoring of implementation. Some policies are implemented by a single stakeholder, others by multiple stakeholders.

As of the end of 2021, most legally binding policies (96%) that address significant drinking water threats are implemented. Furthermore, approximately 95% of existing significant drinking water threats have been addressed (i.e., eliminated or managed).

2. Municipal Progress: Addressing Risks on the Ground

P - Progressing Well/On Target

Municipalities in our source protection region are required to review and update their Official Plans to ensure they conform with local source protection plans the next time they undertake an Official Plan review under the *Planning Act*. Municipalities in the CTC Source Protection Region are also amending their Official Plans as required to conform with the Growth Plan for the Greater Golden Horseshoe, 2020. The Growth Plan requires that all upper tier municipalities complete their review by summer 2022 and lower tier municipalities by summer 2023.

As of December 2021, 81% of municipalities within the CTC have completed or are in the process of completing their conformity exercise with the CTC Source Protection Plan.

3. Septic Inspections

P: Progressing Well/On Target

Within the CTC, there are 300 septic system inspections to be completed as part of the 5-year inspection cycle to satisfy the requirements of the Ontario Building Code. In 2021, 64 septic inspections were completed, or 21% of the total required inspections. Some municipal septic inspection programs were delayed in 2021. Four systems that were due for inspection in 2021 are expected to be completed in spring 2022.

95% of systems inspected in 2021 did not require any maintenance work, while 5% required minor maintenance work. None required major maintenance.

4. Risk Management Plans

L - Limited progress (COVID-19 pandemic limited progress in 2021)

The CTC Source Protection Plan contains policies that require the development of Risk Management Plans (RMPs) to manage some drinking water threats.

In 2021, risk management officials and inspectors continued to follow pandemic safety protocols to verify and inspect threat activities, and negotiate RMPs. However, as was the case in 2020, progress on RMPs was affected by pandemic related restrictions and challenges.

Overall, 150 RMPs are in place within the CTC. Eleven of these RMPs were established in 2021, with an additional 29 RMPs in the process of being completed as of the end of the year. An estimated 205 RMPs remain to be negotiated to address existing significant threats, with 198 of these required to be in place by the end of 2023.

There were 113 inspections carried out in 2021 by a Risk Management Inspector for prohibited or regulated activities; the most inspections completed in any year to date. There was 100% compliance with RMPs and prohibited activities that were inspected.

Screening processes are in place at municipalities to ensure applications for future development are reviewed appropriately for potential threat activities and source protection policy application.

The pandemic is expected to continue to affect risk management activities at least through the first half of 2022.

5. Provincial Progress: Addressing Risks on the Ground

P: Progressing Well/On Target

Ontario ministries review applications for new or amended provincial approvals (i.e., prescribed instruments, such as environmental compliance approvals under the *Environmental Protection Act*) where they have been identified as a tool in our plan to address activities that pose a significant risk to sources of drinking water. The Province has established Standard Operating Policies to ensure that approvals take into account the science generated through the Drinking Water Source Protection Program and policies in the plan. Where necessary, conditions are added to approvals to ensure that the activity does not pose a significant threat to sources of drinking water. The Ministries have reported 100% completion of previously issued provincial approvals in our source protection region.

Provincial ministries also consider source protection vulnerability when prioritizing sites for planned or proactive inspections. Ministry staff continue to receive training on the source protection program, their annual reporting requirements, and recent amendments to the Director's Technical Rules.

6. Source Protection Awareness and Change in Behaviour

Municipalities, conservation authorities and other implementing bodies within the CTC Source Protection Region work with landowners and business owners to help safeguard our sources of drinking water. All municipalities across the CTC have established education and outreach programs, which contribute to enhancing awareness of source water protection. Examples of 2021 efforts to build awareness include:

•Wellington County collaborated with a neighbouring municipality on a virtual Children's Water Festival in May, that drew participation from 178 schools.
•Peel Region and Credit Valley Conservation are using their Rural Water Quality Program to support implementation of agricultural Risk Management Plans.
•The City of Pickering produced two videos in 2021 about water resources protection as part of its Litter and Plastics Challenge: Every Piece Counts campaign.
•Peel Region supported landowners in the decommissioning of 35 unused private wells through their Private Well Abandonment Program in 2021, eliminating potential transport pathways for contaminants to reach aquifers.
•Peel Region initiated a Pilot Program for use of winter maintenance best management practices at the Region's municipal wells.
•York Region supplied spill kits to businesses in source protection vulnerable areas
•The Lake Ontario Collaborative Group partners (Peel, Toronto, Durham) continued to develop the Lake Ontario Hydrodynamic and Water Quality Forecasting System, including the addition of new monitoring stations and modelling solutions, as well as updating spills notification protocols.

7. Source Protection Plan Policies: Summary of Delays

The development of a Joint Municipal Water Supply Management Model (policy DEM-6) for several area municipalities within Dufferin County is nearing completion as 3 of 4 municipal councils passed resolutions to execute the agreement.

Provincewide, all Source Protection Plans were required to include policies to address significant drinking water threats. The CTC Source Protection Committee chose to also include policies to address moderate and low drinking water threats. These moderate and low drinking water threat policies relate to the application of road salt, the handling and storage of certain chemicals and provision of education and outreach materials. Since the implementation of these moderate and low threat policies (SAL-10, SAL-12, SAL-13, DNAP -3, OS -3, GEN-8) is non-legally binding, their implementation status varies across the source protection region.

8. Source Water Quality: Monitoring and Actions

Fourteen drinking water issues have been identified at four drinking water systems in our Source Protection Region. For these drinking water systems, the Source Protection Plan requires that the municipality establish more frequent raw water quality monitoring to help further characterize water quality concentrations and trends. All municipalities have monitoring and treatment systems in place to ensure that municipal drinking water meets the requirements under the *Safe Drinking Water Act, 2002*.

Monitoring will help determine if implementation of Plan polices is improving the raw water quality for these systems. It is recognized that it will take more time for the benefits of the implementation of associated policies to be realized.

A summary of the water quality trends or concentrations in municipal wells with identified issues is provided below (Note: this information is being reviewed and will be provided at the March 22, 2022 SPC meeting):

Orangeville Drinking Water System (5 municipal wells)

Acton Drinking Water System (2 municipal wells)

Georgetown Drinking Water System (3 municipal wells)

A pathogen issue was originally identified at a well in the Inglewood Drinking Water System. This well was decommissioned in 2021 and is no longer used as a source of drinking water.

9. Science-based Assessment Reports: Work Plans

The Source Protection Committee is guiding a multi-year comprehensive review and update of the CTC Source Protection Plan and Assessment Reports under s.36 of the *Clean Water Act, 2006*.

10. More from the Watershed

To learn more about our source protection region, visit our website at https://ctcswp.ca/

TO: Chair and Members of the Source Protection Committee Meeting #2/22

DATE: March 22, 2022

FROM: Janet Ivey, Chief Specialist, Watershed Plans and Source Water Protection, Credit Valley Conservation

RE: CTC Program Update

KEY ISSUE

A CTC Source Protection Region program update.

RECOMMENDATION

THAT the CTC Source Protection Committee receive the staff report CTC Program Update for information.

REPORT

Guidance on Implementing the 2021 Director's Technical Rules

The provincial Director's Technical Rules (the Rules) are used by municipalities and source protection authorities to assess source water vulnerability and risks under the *Clean Water Act, 2006* (CWA). The Ministry of the Environment, Conservation and Parks (MECP) updated the Rules and Table of Drinking Water Threats in December 2021. On February 15, 2022, MECP released two technical bulletins to guide implementation of the amended Rules and updates to source protection plans:

- Bulletin: Implementation of the 2021 Amendments to the Technical Rules under the *Clean Water Act, 2006*
- Bulletin: Considering Climate Change Impact on Water Quality under the *Clean Water Act, 2006* (discussed further below)

The Implementation bulletin summarizes the 2021 changes to the Rules, provides technical context, and gives direction on how source protection plans and assessment reports can be revised to incorporate the new Rules.

Key considerations for implementing the Rules include:

- The Rules can be incorporated through locally initiated amendments (under s. 34 of the CWA), an update resulting from comprehensive review (under s. 36 of the CWA), or an amendment under s. 51 of O. Reg 287/07 for changes in terminology. Within the CTC region, it is likely that implementation will be phased across multiple amendments.
- When updating an assessment report for a new or changing municipal drinking water system, technical work incorporated into the report is subject to the new Rules. When updating work for one water system, municipalities may choose to (voluntarily) update all or multiple systems to ensure a

consistent set of Rules is applied within their jurisdiction. This should include updates to threat enumerations. For instance, changes to the threats table for road salt and snow storage could result in identification of more significant threats in the CTC region.

- Source protection plan policies should be reviewed to determine if revisions are needed to align with the new Rules. Where policy approaches are altered, updates to the Explanatory Document may be necessary.
- Risk Management Officials (RMOs) can now revoke or amend Risk Management Plans (RMPs) that are no longer required under the Rules; however, the bulletin states that RMOs may not amend or establish RMPs for activities that become new significant threats because of the 2021 Rules until after the source protection plan has been updated to align with the Rules. CTC staff will review the required changes to align the plan with the new Rules and identify priority updates for the next round of amendments.
- Assessment reports and source protection plans should indicate which version of the Rules applies to which sections/amendments.
- The MECP will apply the new Rules when reviewing applications for new or revised environmental compliance approvals or documents submitted under the *Environmental Assessment Act*, regardless of whether the relevant source protection plan has been updated to reflect the new Rules.

Next steps include discussions with the Municipal Implementation Working Group and Amendments Working Group to identify priority updates to the assessment reports and source protection plan.

Climate Change Risk Assessments

The Director's Technical Rules allow for climate change water quality risk assessments for wellhead protection areas and intake protection zones (rule 15.3). Water budget studies also may consider climate change (rule 19.13). Currently, the assessment reports for the CTC Source Protection Region include general comments on climate change impacts based on provincial and regional studies. Climate change risk assessments related to the sustainability of water supplies (quantity) were included in Tier 3 water budget studies. Water quality climate change risk assessments, however, have not been undertaken for drinking water systems with the CTC region.

Conservation Ontario, in consultation with MECP and others, has developed a Climate Change Vulnerability Assessment Tool (CCVAT) for drinking water source quality. The CCVAT tool has been applied in research case studies for Burlington (Lake Ontario intake), Seaforth (groundwater wells), and Timmins (river intake). The tool has not yet been used for CTC drinking water systems, although some municipalities have expressed interest.

On February 15, 2022, MECP released a technical bulletin: *Considering Climate Change Impact on Water Quality under the Clean Water Act, 2006*. The bulletin clarifies that doing climate change risk assessments is a local decision and it is the responsibility of the system owner to ensure the method used is robust.

If a municipality undertakes a risk assessment, the results can be incorporated into the assessment report and source protection plan. Assessment reports are to include a description of the data sets and methods, and a summary of findings that explains whether the drinking water system is resilient to climate impacts. The bulletin notes that climate change impact assessments do not change the delineation or scoring of vulnerable areas, nor do they affect the risk level of drinking water threats. However, an impact assessment may inform local discussions and decision making on climate change response and including the results in the source protection plan may prompt a review of policy approaches (e.g., education and outreach, local climate or resource management planning).

The bulletin discusses aspects of climate change impact assessments, including:

- scale of study area,
- qualitative and quantitative assessments,
- top-down (reliant on global climate models) vs bottom-up (reliant on local understanding) assessments,
- sources of climate and other data,
- assessing the resiliency of drinking water systems, and
- uncertainty assessments.

Staff will continue to engage municipalities to determine their interest in undertaking climate change risk assessments for drinking water systems. Further, staff will review recent climate change studies undertaken in support of conservation authority watershed planning and municipal climate change strategies. Staff will report back to the Source Protection Committee at a future meeting.

Best Practices for Source Water Protection

On February 18, 2022, the MECP released an online resource to support voluntary source protection for communities and landowners not covered by the *Clean Water Act*. MECP noted these may include privately-owned wells or cottage lake intakes and communal well systems for hamlets, campgrounds, and institutions. At the time of development of the assessment reports, it was estimated that there were tens of thousands of private wells and about 300 non-municipal residential drinking water systems in the CTC region.

The Best Practices for Source Water Protection offer information on:

- How to identify areas where drinking water sources could be at risk, using a range of simple to sophisticated methods. For instance, the Best Practices point to mapping of Highly Vulnerable Areas on the provincial Source Protection Information Atlas to identify where groundwater sources may need protection.
- How to inventory, map, and prioritize risks. The following activities were identified as potential risks: handling and storage of liquid fuel, fuel oil, chemicals, and road salt; waste disposal, storage and processing; stormwater management; septic systems; and agricultural operations.
- Tools to manage risks that are available to municipalities, communities, and private drinking water system owners. These include municipal tools under the *Planning Act* (official plan policies, zoning bylaws, site plan controls) and

Building Code (septic systems), as well as incentive programs, best management practices, and education and outreach. The best practices note that watershed-scale planning can help system owners to understand and protect their water sources.
- Review actions and develop or update management strategies.
- The process for a municipality or First Nations community to include a non-municipal or reserve drinking water system in an existing source protection plan.

MECP is soliciting feedback on the Best Practices through an on-line survey that closes April 18, 2022.

MECP is encouraging source protection committees to promote and enable uptake of the Best Practices resource. Conservation authority outreach activities, with a focus on the Credit Valley watershed, have been proposed in the 2022-2024 work plan and funding application currently under consideration by the MECP. Source Protection Committee members may wish to engage with their sectors to review or promote the resource.

Provincial Road Salt Workshop

MECP is holding a series of workshops on road salt use and management in Ontario. CTC program staff are attending a workshop on March 15, 2022. The Ministry (MECP) has provided a backgrounder on Improving Road Salt Use in Ontario Through Best Management Practices in advance of the workshop (see Attachment A). While this Ministry initiative extends beyond the drinking water source protection program, it is of interest to CTC as chloride and sodium have been identified as issues for some municipal drinking water systems in the region.

Petroleum Pipeline Consultations

Pipelines transporting petroleum products (containing benzene) crossing tributaries of Lake Ontario are identified as "local threats" in the CTC Source Protection Plan. Following development of the plan, establishment and operation of liquid hydrocarbon pipelines was added to O. Reg. 287/07 as a prescribed drinking water threat.

CTC program staff have participated in two recent consultations on petroleum pipelines:

- Onshore Pipeline Regulations Review: On March 7, 2022, the Canada Energy Regulator (CER, formerly National Energy Board) held an engagement session as part of its first comprehensive review of onshore pipeline regulations since they were created in 1999. Pipelines that cross provincial or international borders fall under the federal regulation of the CER. Mapping of federally regulated pipelines can be accessed via the CER's online map tool. Further engagement on proposed changes to the regulation is anticipated in 2022-2024.
- Emergency response: On March 3, 2022, two private companies with pipelines within the CTC region, Trans-Northern and Sun-Canadian, held consultation sessions to share information on emergency preparedness and

response.

Policy LO-PIPE-1 in the source protection plan directs MECP to work with facility owners and provincial and federal regulators to develop, review, and recommend improvements to spill prevention and management, risk reduction and contingency planning. Pipeline policies will be reviewed as part of the comprehensive review of the source protection plan under s 36 of the CWA.

Amendments to the CTC Source Protection Plan

On February 23, 2022, the MECP approved an amendment to the CTC Source Protection Plan (and Toronto and Region Assessment Report) as a result of changes to York Region's municipal drinking water system for Aurora (ERO no 019-4835). The amendments were effective March 2, 2022. The updated source protection plan and assessment report can be accessed at ctcswp.ca.

Source protection authority staff are currently working on amendments to the CTC Source Protection Plan and the three assessment reports under s. 51 of O. Reg 287/07. The amendments are expected to be completed in the spring and will include:

- Removal of Inglewood Well #2 which was decommissioned by the Region of Peel in 2021.
- Updated terminology and mapping as a result of 2017 amendments to the Director's Technical Rules (e.g., removal of vulnerability scoring for Significant Groundwater Recharge Areas).
- Minor editorial updates and corrections.

Upcoming Meeting Schedule

Municipal Implementation Working Group: May 5, 2022
Amendments Working Group: June 15, 2022
CTC Source Protection Committee:

- July 27, 2022 1-4 p.m. (if not required, this meeting will be rescheduled to December 2022)
- October 5, 2022 1-4 p.m.
- February 15, 2023 1-4 p.m.

Meetings will continue to be held virtually for the foreseeable future until Credit Valley Conservation, as the lead Source Protection Authority, updates guidance on in-person meetings.

Report prepared by:

Janet Ivey, Chief Specialist, Watershed Plans and Source Water Protection, Credit Valley Conservation

T: 905-670-1615, ext. 379
Email: Janet.ivey@cvc.ca

Date: March 14, 2022

Attachments: 1

ATTACHMENT A: Improving Road Salt Use in Ontario Through Best Management Practices

Improving Road Salt Use in Ontario Through Best Management Practices

INTRODUCTION

This document is intended to seek feedback to inform the development of road salt best management practices (BMPs) to help reduce the impacts of excessive salting on our natural environment and water resources.

More specifically, the goal is to facilitate a discussion on factors driving overapplication of road salt, obstacles or challenges to adopting leading practices, and recommendations for optimizing road salt use through best practices.

Our aim is to support the winter maintenance sector in adopting sustainable practices as they relate to road salt application to help ensure our natural environment, waterways and drinking water are protected without jeopardizing public safety on paved surfaces during winter hazards.

CONTEXT

Trends and Impacts of Road Salt on Environment and Human Health

In Ontario, road salt is used extensively to control snow and ice hazards and make winter mobility safer and more efficient. In fact, Ontario uses over 2.2 million tonnes of road salt annually, spread on roads, parking lots, driveways and walkways (2018 Environmental Commissioner's Report).

Road salt can run off into waterways during heavy rainfalls and when snow and ice melt. Environmental research and monitoring show that road salt use for winter maintenance is increasing, leading to a rise in chloride and/or sodium (most common components of road salt) levels in Ontario streams, inland lakes, and the Great Lakes. Increasing concentrations are observed in urban areas in southern Ontario at times above Canadian Water Quality Objectives (Figure 1), and contamination levels at provincial water quality monitoring stations show increasing trends (Figure 2). For example, contamination in Lake Simcoe may reach toxic levels in less than 60 years if increasing trends continue (Figure 3). In addition, shifting weather patterns associated with climate change, such as changing freshet patterns and increased frequency of freeze-thaw cycles, combined with population growth pressures, often result in the need for more road salt use (Todd & Kaltenecker, 2012).

High concentrations of road salt in the environment can contaminate drinking water sources (Figures 4 & 5), harm plants, animals, and aquatic ecosystems, and damage public infrastructure, private property and crops. Chloride from road salt can be retained in watersheds from months to years (Bastviken et al., 2006; Bester et al., 2006).

Road salt can also pose a risk to human health through its negative impacts on drinking water. Salt is very challenging to remove from raw drinking water through treatment, and high salt levels can degrade drinking water sources. While sodium in drinking water is not a health concern for most people, it may become a significant source of sodium and pose an issue for someone with severe hypertension, congestive heart failure or on a sodium-restricted diet. It is essential to protect our sources of drinking water and areas most vulnerable to contamination from excessive road salt.

Policy Context

While road authorities have guidelines and provincial regulations that are followed to try to optimize the application of road salt and implement BMPs on municipal and provincial roads, there is not an authoritative set of practice standards, guidelines or protocols for winter maintenance operations on properties such as parking lots and private roads and sidewalks. Research suggests road salt use and application rates are much higher on commercial properties than on public roads, sidewalks tend to have a higher than recommended application rate (Figure 6), and there is room to optimize these practices.

For example, in the Lake Simcoe watershed, road salt application on commercial properties such as parking lots accounts for approximately 20% of 100,000 tonnes applied annually (Figure 7). While roads are also a large contributor of road salt, progressive winter maintenance practices are becoming more commonplace for winter road maintenance. Parking lots are often subject to very high application rates and can account for anywhere from 20% to 50% of the chloride in streams in urban areas (Lake Simcoe Region Conservation Authority, Winter Salt: Polluting our Freshwater Resources, 2016).

Obstacles to Addressing Over-Application of Road Salt

While multiple agencies and government guidelines encourage the sensible use of salt, a set of government BMPs is not available. There are a number of existing lists of practices that are believed to be reasonably understood by the winter maintenance contractors. However, research suggests the uptake of improved approaches and methods has been slow, despite their demonstrated effectiveness relative to existing or traditional practices. This could be impacted by several factors discussed below.

Studies suggest that many contractors do not have the equipment to measure the road salt they apply at different locations, and there is uncertainty about selecting products and application rates. Another reason for the low adoption rate appears to be the lack of formal studies and guidelines that explain the correct use and potential savings for parking lots and sidewalks. More work needs to be done to show that excessive and ineffective use of salt and sand-salt mixtures under several conditions may create other costs and liabilities. Furthermore, high initial cost of using liquids and treated salts is a significant hurdle in adopting new methods and technologies.

Contractors are also under significant public pressure, including from their clients, for more salting. There is an overwhelming misconception that, when it comes to road salt, more is better. Many people believe that bare pavement must be seen in all weather conditions and that this signals public safety on paved surfaces during winter months. This societal expectation of clear surfaces, along with potential liability exposure and rising insurance costs, have encouraged contractors to apply excessive amounts of road salt each year.

APPROACHES IN OTHER JURISDICTIONS

Canada: All provincial road organizations (except Quebec) have adopted the 2004 Federal Code of Practice; most use innovative technology and application practices to reduce salt use on the surfaces they maintain and manage salt storage. Despite this move toward improved winter maintenance practice, there has been no significant change in salt use due to growth and associated infrastructure. Many Canadian jurisdictions have voluntary training and certification programs and encourage anti-icing methods, including road salt and new technologies.

U.S. Great Lakes states: Minnesota and New York (similar climatic conditions to Ontario) have policies to reduce road salt application rates through guidelines. In 2013, New Hampshire passed liability exemption legislation for salt applicators who participate in voluntary smart salting training and certification programs. In 2016, Illinois passed legislation to ensure liability for snow removal is shared by service providers and service receivers (similar legislation has been proposed in Michigan, New York, Pennsylvania, and Minnesota).

Other international: Studies show chloride concentrations in groundwater and surface water have been increasing over time. Many European jurisdictions now regulate the use of road salt. The use of dry salt for de-icing is prohibited in Finland and Germany. Pre-wetted salt is the primary application method used in Finland, Germany, Iceland, the Netherlands, the UK, and Switzerland. Pre-wetting salt has been shown to reduce salt waste and runoff by up to 30% percent. In New Zealand, salt as a de-icer was discontinued, and calcium magnesium acetate (CMA, often used to de-ice planes and runways) is now widely used on roads. A 5-year trial showed CMA had no negative impacts on water quality, vegetation, or soil chemistry. No examples of liability protection were identified.

PROPOSED APPROACH FOR ONTARIO – BEST MANAGEMENT PRACTICES

The province, working with stakeholder partners, is proposing to develop BMPs to guide winter maintenance activities on properties such as parking lots and private roads, and sidewalks, which will help protect the environment and human health. Establishing a robust set of BMPs could provide occupiers and the winter maintenance contractors they hire with information to support an integrated winter maintenance practice that is informed and considers site-specific conditions. The suite of BMPs would help winter

maintenance professionals make decisions that optimize road salt practices and protect the environment.

The BMPs could consider personnel training, application methods and rates, equipment calibration, enhanced plowing techniques, road weather information (including the use of forecasting) and the use of different types of products depending on conditions, among other aspects of a road salt management practice, as well as others that may emerge in discussions. The development of the BMPs would be a collaborative and consultative process, reflective of the best available salt science and information and existing guidelines, based on leading practices. Over time, the best practices would need to adapt to remain up-to-date and rooted in the best available science, such as regular, consultative reviews.

Discussion Questions:

1. What are some important considerations in developing a robust set of road salt BMPs (e.g., scope, level of detail, applicability to site-specific conditions, room for professional discretion, review cycle to maintain BMPs, etc.)?

2. What additional research or data/information are needed to inform the development of BMPs?

3. Do you think there should be BMPs for different types of land uses? If yes, what land-use types require unique BMPs, and what BMPs do you suggest?

4. Based on your experience, do you think a single, authoritative set of BMPs implemented by trained personnel would help to reduce liability exposure?

5. What is the best way to encourage the adoption of BMPs by the winter maintenance industry?

APPENDIX

Environmental research and monitoring show that road salt use for winter maintenance is increasing, leading to a rise in chloride and/or sodium (most common components of road salt) levels in Ontario streams, inland lakes, and the Great Lakes. Over time, chloride concentrations have been measured above the Canadian chronic effects guideline of 120 mg/L (the chronic guideline refers to long-term exposure) to protect aquatic health.

Figure 1 (below): Chloride science and monitoring – stream concentrations of chloride 2000-2018 in southern Ontario (Source: MECP-EMRB)

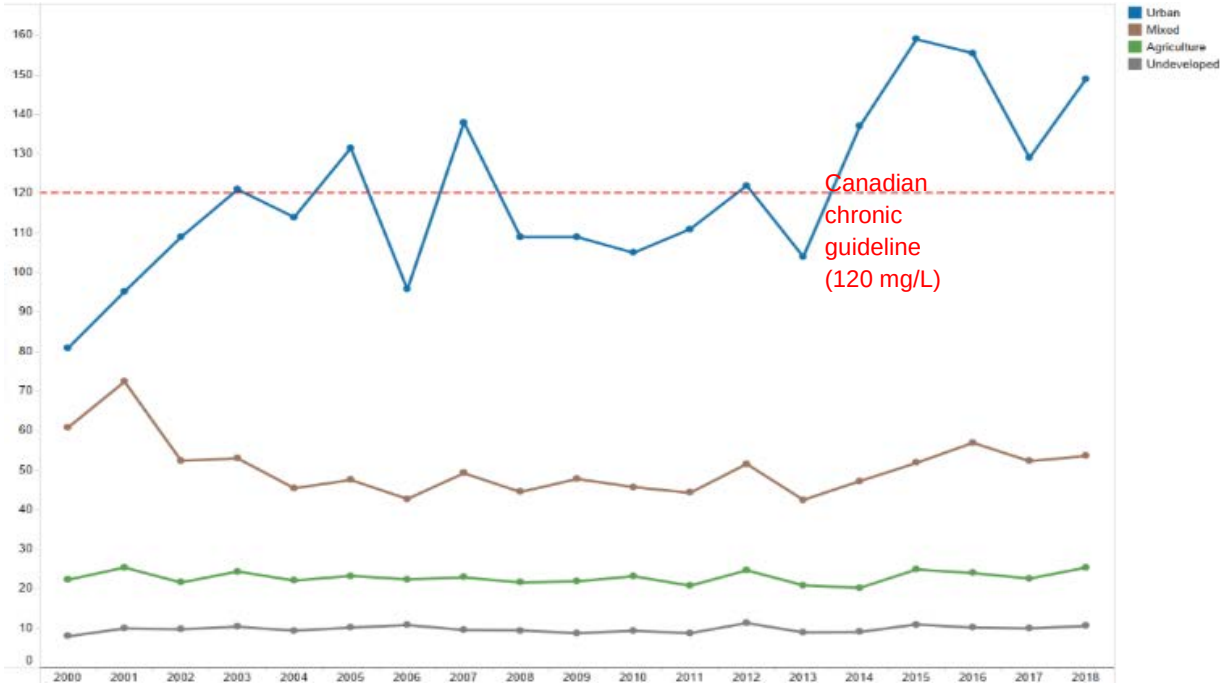
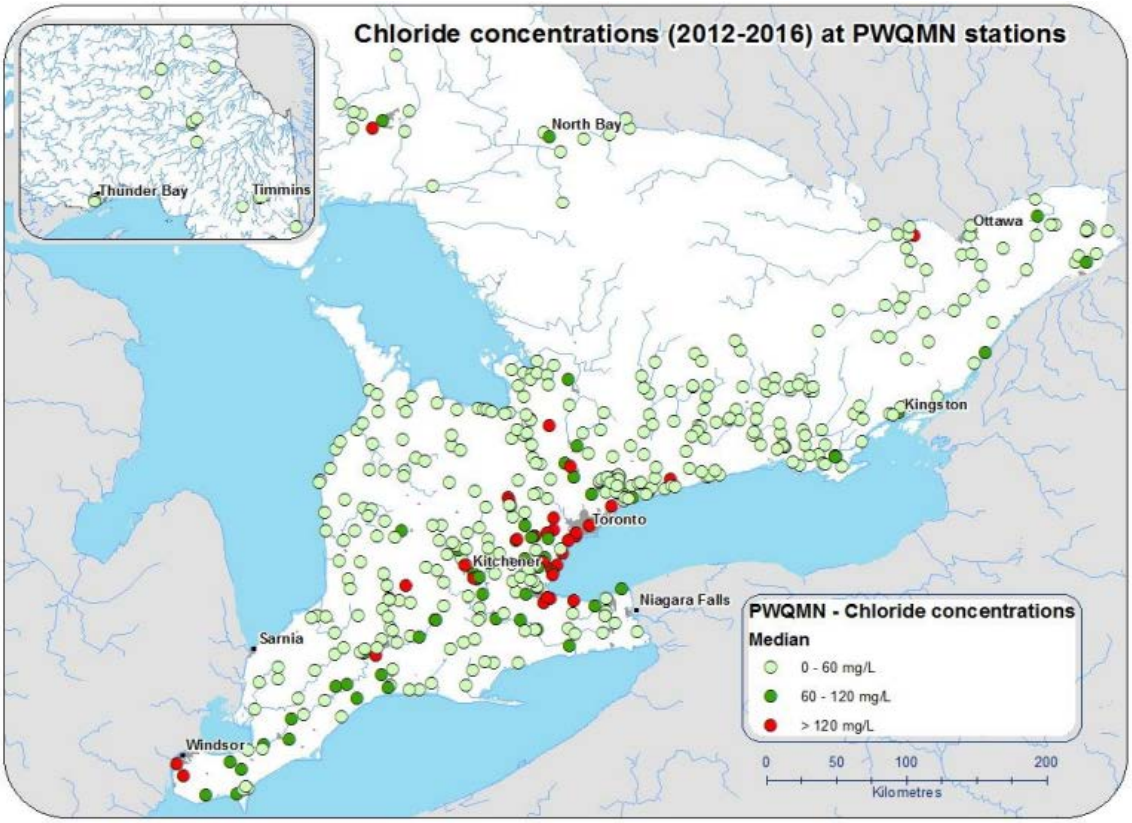
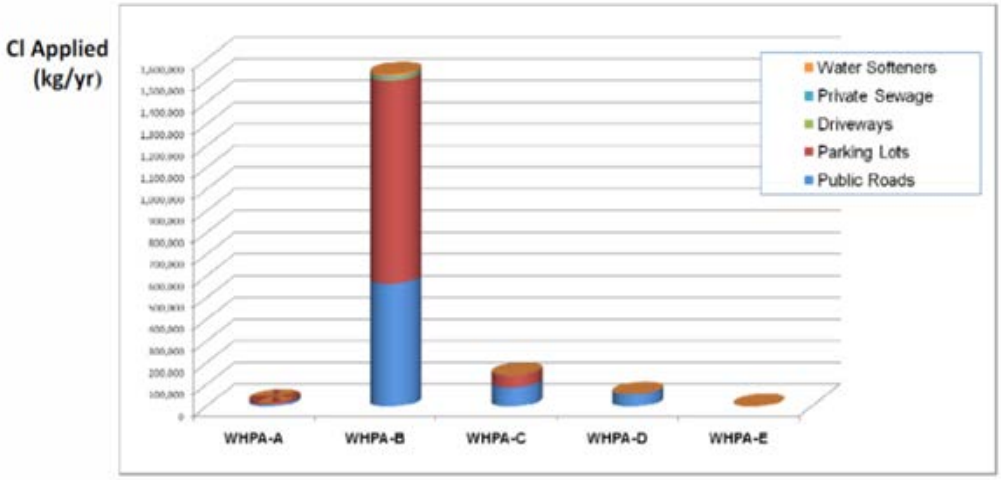


Figure 2 (below): Chloride concentrations at provincial water quality monitoring (PWQMN) stations



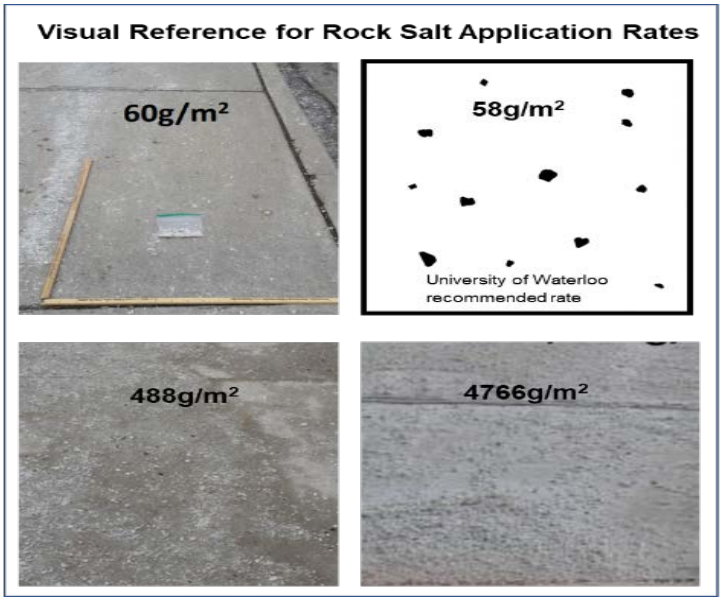
Note on Figure 2: Contamination levels at PWQMN stations show increasing trends. More specifically, chloride concentrations in Ontario lakes and streams near urban areas or winter-maintained roads are significantly higher compared to remote areas.

Figure 3 (below): Example of evidence of road salt impacts on sources of drinking water, groundwater – Credit Valley Source Protection Area



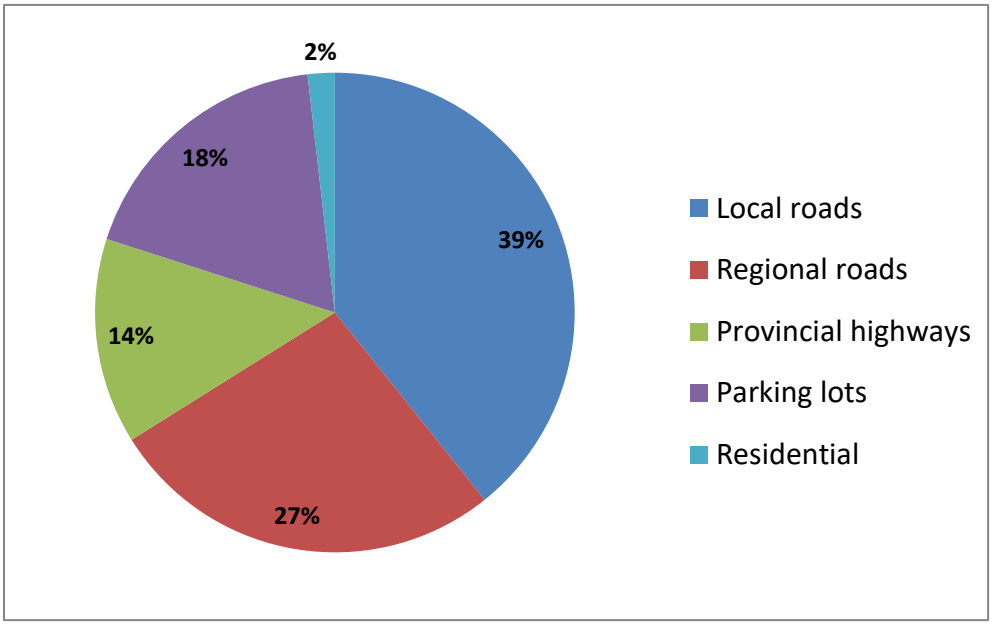
Note on Figure 3: Road salt can pose a risk to human health through our drinking water. Salt is very challenging to remove from raw drinking water through treatment, and high salt levels can degrade drinking water sources. While sodium in drinking water is not a health concern for most people, it may become a significant source of sodium and pose an issue for someone with severe hypertension, congestive heart failure or on a sodium-restricted diet. It is essential to protect our sources of drinking water and areas most vulnerable to contamination from excessive road salt.

Figure 4 (below): Visual representation of recommended application rate (top row) vs. the amount commonly applied on walkways (bottom row) (Source: University of Waterloo, 2015 / LSRCA, 2021).



Note on Figure 4: This figure shows the recommended road salt application rate (top row, 58 g/m^3) versus the amount commonly over-applied (bottom row). Excessive application is common on sidewalks and parking lots, such as in the pictures on the bottom row. Winter maintenance contractors have reported over-applying road salt as contracts can include extra charges for additional products. Clients and the public wrongly believe that seeing road salt means a safer surface.

Figure 5 (below): Proportional allocation of 100,000 tonnes of road salt to Lake Simcoe watershed (Source: LRSCA, 2012).



Note on Figure 5: The contribution of chlorides from the application of road salt to commercial and institutional parking lots was estimated to be 20%. This contribution, at first glance, seems relatively low in comparison to municipal, regional and provincial roads, but researchers identified three key factors associated with chloride inputs from commercial and institutional properties that pointed to their significance above and beyond the total relative contribution:

1. Commercial and institutional properties tend to be clustered, and therefore the chloride contributions are more concentrated where these properties are located.

2. Progressive winter maintenance practices are becoming more commonplace for road authorities, but parking lots are often subject to very high application rates of winter salt and can account for anywhere from 20% to 50% of the chloride in streams in urban areas (LSRCA, Winter Salt: Polluting our Freshwater Resources, 2016)

3. As urbanization across the watershed continues, more commercial and institutional development will occur, which will result in increases in chloride use if best management practices are not adopted (Freeman Associates, Market-Based Strategy: Achieving Uptake of Salt BMPs on Commercial and Institutional Properties, 2016)

Ivey, Janet

From: protection, source (MECP) <source.protection@ontario.ca>
Sent: Tuesday, February 15, 2022 12:39 PM
To: mmacdonald@abca.on.ca; Donna Clarkson; Kelsey Guerette; Ivey, Janet; kstammler@erca.org; Gowda, Chitra; Keller, Martin; gailw@lakeheadca.com; crystal.percival@mattagamiregion.ca; Laura Cummings; Thomas Proks; David Ellingwood; Amy Dickens; Lisa Van De Ligt; Carl Seider; Marlene McKinnon; Bill Thompson; Madison Keegans; WelkerJ; Keith Taylor
Cc: mpearson@bmross.net; willj@kos.net; Wright, Douglas S.; Thomas Fuerth; Bob Edmondson; Wendy Wright-Cascaden; mayor.lucy@tbaytel.net; mayor@timmins.ca; Ken Graham; spcchair@npca.ca; wpb@belterworks.com; Maxwell Christie; raymondbeauregard@hotmail.com; the.ed@rogers.com; Terry Rainone; ldollin@innisfil.ca; gnbmci50@gmail.com; dean_edwardson@outlook.com; jthunt@eagle.ca; Balika, Deborah; Corrigal, Kirsten (MECP); Forrest, Beth; Wooding, Mary (MECP); Eby, Catherine (MECP); Lavender, Wendy (MECP); Moulton, Jennifer L. (MECP); CSPB Coordinator (MECP); Jacoub, George (MECP); Sarwary, Ghzal (MECP)
Subject: [External] Guidance to support the incorporation of the 2021 Director's Technical Rules in Source Protection Plans
Attachments: Bulletin2_ClimateChange-SourceProtection Considersations_Feb2022.pdf; Bulletin1_ 2021TRs-Implementation Guidance_Feb2022.pdf

Follow Up Flag: Follow up
Flag Status: Completed

SENT ON BEHALF OF KIRSTEN CORRIGAL, DIRECTOR, CONSERVATION AND SOURCE PROTECTION BRANCH

Good day, all:

I am pleased to share the guidance materials attached to help support incorporating the 2021 Director's Technical Rules (Rules) into future assessment reports and source protection plans.

The guidance material includes two (2) technical bulletins that help explain:

- the technical specifics behind the amended Rules,
- the approach specified in the Rules to consider climate change risks to drinking water quality, and
- how future updates of source protection plans can incorporate the amended Rules under s.34 and s.36 of the *Clean Water Act, 2006*.

I encourage you to read the Rules in conjunction with the guidance materials to help you prioritize the necessary technical work to address urgent local matters and work plan for the next 2 fiscal years and beyond. The amended Rules may be found here: https://www.ontario.ca/page/2021-technical-rules-under-clean-water-act.

If you have any questions on the guidance or the Rules, please contact your Liaison Officer and the technical lead of the Rules, George Jacoub, at George.Jacoub@Ontario.ca.

Sincerely,

Kirsten Corrigal, Director
Conservation and Source Protection Branch

Ivey, Janet

From: protection, source (MECP) <source.protection@ontario.ca>
Sent: Friday, February 18, 2022 10:26 AM
Subject: [External] Best practices for source water protection on ontario.ca

Follow Up Flag: Follow up
Flag Status: Completed

SENT ON BEHALF OF KIRSTEN CORRIGAL, DIRECTOR, CONSERVATION AND SOURCE PROTECTION BRANCH

Good day,

I am excited to share that the Ministry of the Environment, Conservation and Parks has released best practices for source water protection to help ensure communities and landowners in areas not covered by provincially-approved source protection plans have the tools they need to protect their drinking water sources.

Types of drinking water systems not generally included in source protection plans include privately-owned wells or cottage lake intakes and communal well systems for places like hamlets or campgrounds.

The new user-friendly best practices provide easy to understand information and tips to help protect these drinking water sources from contamination, such as how to ensure a septic system is functioning properly and how to store on-site fuel tanks and pesticides safely. The best practices also provide municipalities with information on how to use existing regulatory and non-regulatory tools under the Planning Act, Municipal Act and septic inspection programs under the Ontario Building Code to protect sources of drinking water.

Let us know what you think about the best practices by taking part in our survey on ontario.ca and sharing it with your members, citizens, staff and committees as applicable. Your feedback will help us continually improve best practices and ensure they are a useful tool for protecting drinking water sources.

Sincerely,

Kirsten Corrigal, Director
Conservation and Source Protection Branch

Ministry of the Environment, Conservation and Parks

Office of the Minister

777 Bay Street, 5th Floor
Toronto ON M7A 2J3
Tel.: 416-314-6790

Ministère de l'Environnement, de la Protection de la nature et des Parcs

Bureau du ministre

777, rue Bay, 5e étage
Toronto (Ontario) M7A 2J3
Tél. : 416.314.6790

Ontario

357-2021-3409

February 23, 2022

Ms. Jennifer Innis
Chair, Toronto and Region Source Protection Authority
5 Shoreham Drive
Toronto ON M3N 1S4

Mr. Douglas Wright
Chair, CTC Source Protection Committee
C/O Toronto and Region Source Protection Authority
5 Shoreham Drive
Toronto ON M3N 1S4

Dear Ms. Innis and Mr. Wright:

It is a pleasure to inform you that the ministry has completed the review of the amended assessment report for the Toronto and Region Source Protection Area and source protection plan for the CTC Source Protection Region, developed in accordance with the *Clean Water Act, 2006*. To ensure that the quality and quantity of Ontario's municipal drinking water sources continue to be protected, I approve the amendments pursuant to section 34 of the *Clean Water Act, 2006.* These amendments will take effect on the day a notice of this decision is posted to Ontario's Environmental Registry.

The approval of these amendments does not make any changes to the order under section 36 of the *Clean Water Act, 2006* that governs the future review of the plan.

I appreciate the dedication of the local municipalities, source protection authorities and committees, and all our partners and stakeholders for their work and contributions to these amendments. Our strong protection framework will continue to help ensure Ontario's drinking water is held to high safety standards and that sources of drinking water in the province are protected for future generations.

Sincerely,

David Piccini
Minister of the Environment, Conservation and Parks

c: Janet Ivey, Chief Specialist, Watershed Plans and Source Water Protection, CTC Source Protection Region
Quentin Hanchard, Chief Administrative Officer, Credit Valley Conservation Authority

John MacKenzie, Chief Executive Officer, Toronto and Region Source Protection Authority
Kirsten Corrigal, Director, Conservation and Source Protection Branch, MECP
Jennifer Moulton, Manager, Conservation and Source Protection Branch, MECP
Angelune DesLauriers, Program Analyst, MECP
Beth Forrest, Liaison Officer, MECP