



CODE OF PRACTICE FOR THE ENVIRONMENTAL MANAGEMENT OF ROAD SALTS

Overview of Data Reported for 2014-2018
in the Context of National Targets



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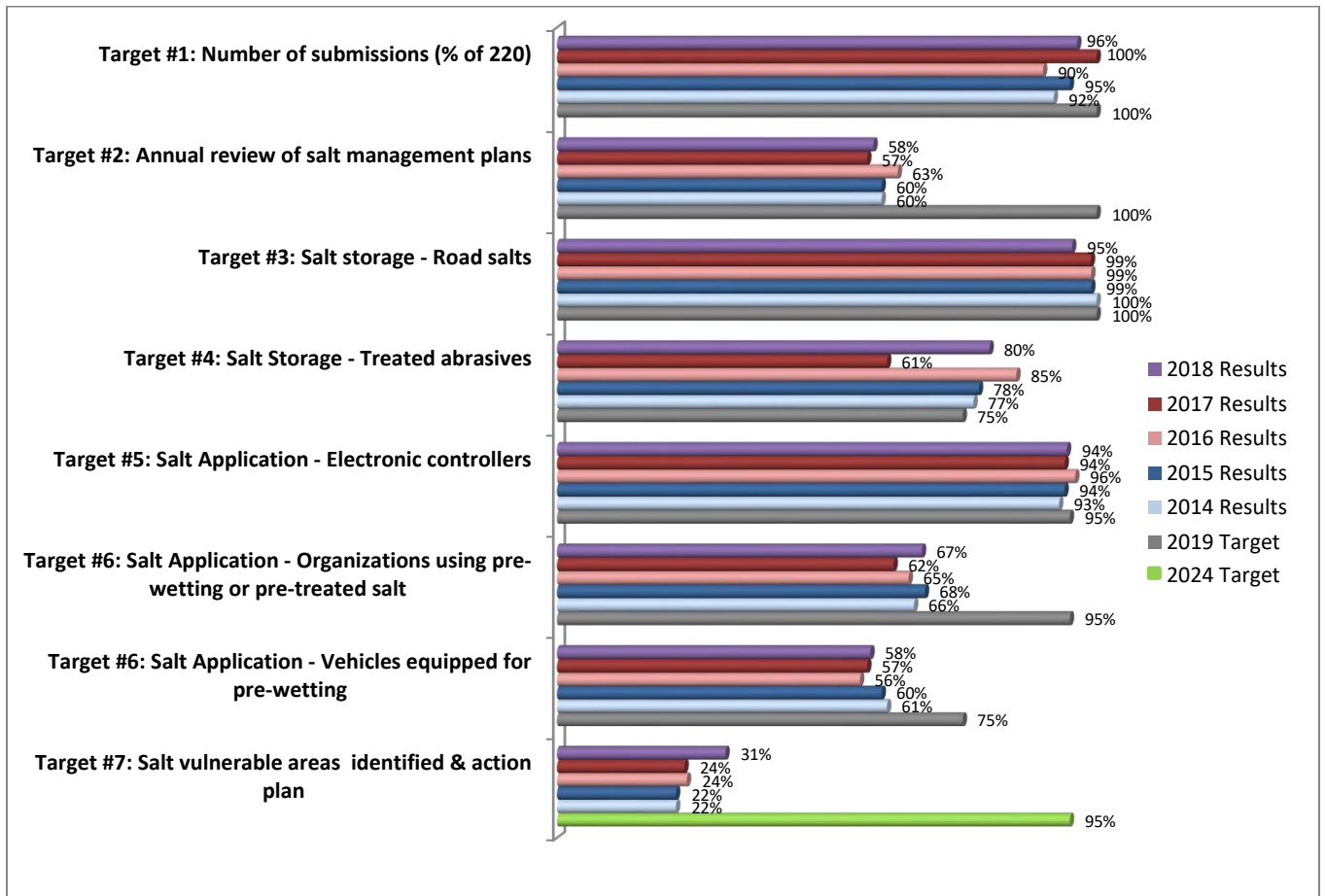


Overview of Reported Data

In December 2014, Environment and Climate Change Canada set seven [Performance Indicators and National Targets](#) in order to monitor the effectiveness of the Code of Practice for the Environmental Management of Road Salts (the Code).

The following results (Figure A) have been reported by federal, provincial, municipal and private road organizations that adopted the Code and are compared with the National Targets (#1-6) set for 2019 (Target #7 is set for 2024). Data submitted in annual reports are compiled and analyzed for a winter period, which is generally from November of one year to April of the next year. Throughout the report, a reporting year is represented by the final year of that winter (e.g. 2018 represents the winter starting in 2017 and ending in 2018). Note that some year-to-year variation in results exists due to variance in the number of reports submitted annually.

Figure A: Summary results for performance and comparison to national targets



Highlights*: 2018 Reported Data in the Context of National Targets

Results reported for winter **2017-2018**:

- 212 road organizations, including 8 provinces, 1 territory, 187 municipalities, 5 private road organizations, 8 national parks and 3 other federal organizations, reported under the Code (target is 220).
- 58% annually reviewed their road salt management plan (target is 100%).
- 95% of their road salts are under a permanent roof and on impermeable pads (target is 100%).
- 80% of their treated abrasives are covered (target is 75%).
- 94% of their vehicles are equipped with groundspeed electronic controllers (target is 95%).
- 67% are using pre-wetting or pre-treated salts (target is 95%).
- 58% of their vehicles are equipped for pre-wetting (target is 75%).
- 31% of road organizations have identified their salt-vulnerable areas and have prepared an action plan (target is 95%, set for 2024).

* See Annex 1 for highlights of past reporting seasons

Annual Reporting Under the Code

The [Code of Practice for the Environmental Management of Road Salts](#) (the Code) was developed in 2004 to assist municipal and provincial road organizations to better manage their use of road salts in a way that reduces the harm to the environment while maintaining roadway safety. The Code recommends that road organizations that use over 500 t/year of salt or who have salt-vulnerable areas in their territory review their existing winter maintenance operations to improve practices and reduce adverse impacts of salt releases in the environment. This includes the development and implementation of salt management plans identifying actions they will take to improve practices in salt storage, use of salts on roads, snow disposal and protection of salt-vulnerable areas. In addition, the Code requires road organizations to provide an annual report¹ on the progress achieved.

Of note, in Quebec, a Strategy for the Environmental Management of Road Salts was launched in 2010. Every administration that manages and maintains roads in Quebec is invited to participate in the Strategy on a voluntary basis. As a result, the federal Code is not implemented in Quebec. However, the general objectives of the Code and of the Strategy are similar. As of winter 2014, 13 municipalities have joined the Quebec Department of Transport in this initiative. Various statistics on winter maintenance practices used in Quebec are available on the Strategy website (www.selsdevoirie.gouv.qc.ca; French only). According to Quebec's latest report on the reporting organizations (2017), 98% of road salt storage sites have a permanent roof, 98% have an impermeable surface and 81% of vehicles are equipped with electronic spreader controls.

Performance Indicators and National Targets

The [Five-year Review of Progress](#)² (2005–2009) to measure the effectiveness of the Code was published in April 2012 and is available online. Based on the review, Environment and Climate Change Canada recommended maintaining the Code and encouraged road organizations to continue improving their salt management. However, at the time of the first review, the lack of targets created challenges in determining whether the objective of the Code had been achieved. It was recommended that the list of performance indicators for future evaluations be examined to ensure that they reflect key components of the Code and current techniques in winter maintenance.

In 2014, Environment and Climate Change Canada published [Performance Indicators and National Targets for the Code of Practice for the Environmental Management of Road Salts](#) for

¹ The information is submitted directly to Environment and Climate Change Canada through its [Single Window Information Manager System](#) (ECCC's SWIM) by June 30 of each year.

² See report: [Five Year Review of Progress: Code of Practice for the Environmental Management of Road Salts](#) (Environment Canada, 2012).

the implementation of best practices so that progress can be tracked and the success of the Code can be evaluated. The main objective for setting national targets is to increase environmental protection. All road organizations are expected to reach a minimum level of progress in the implementation of best practices to prevent and reduce negative impacts from road salts. National targets help to monitor progress in specific areas of the Code and will form the basis for the next evaluation of the Code.

There are seven performance indicators (with six targets set for 2019 and one for 2024) that fall under four main activities of the Code (adoption of the Code, salt storage, salt application and salt-vulnerable areas) as summarized and illustrated above (Figure A). The following results are based on the analysis of data reported annually by road organizations under the Code since 2009 where available, and therefore include data reported before and after the publication of the national targets in 2014.

- Performance indicator 1: “Submission of annual reports”** represents the number of road organizations reporting regularly (Figure B). The purpose of this indicator is to increase the level of implementation of the Code and best practices in road salt management. Data reported prior to 2009 are referenced in this indicator to illustrate progress over time. Overall, the number of submissions has increased since 2011 and exceeded the target in 2017. Table 1 also presents the breakdown of organizations by type that have reported since winter 2014. Annex 2 presents the list of road organizations that reported in 2018.

Figure B: Number of reports submitted by road organizations to Environment and Climate Change Canada

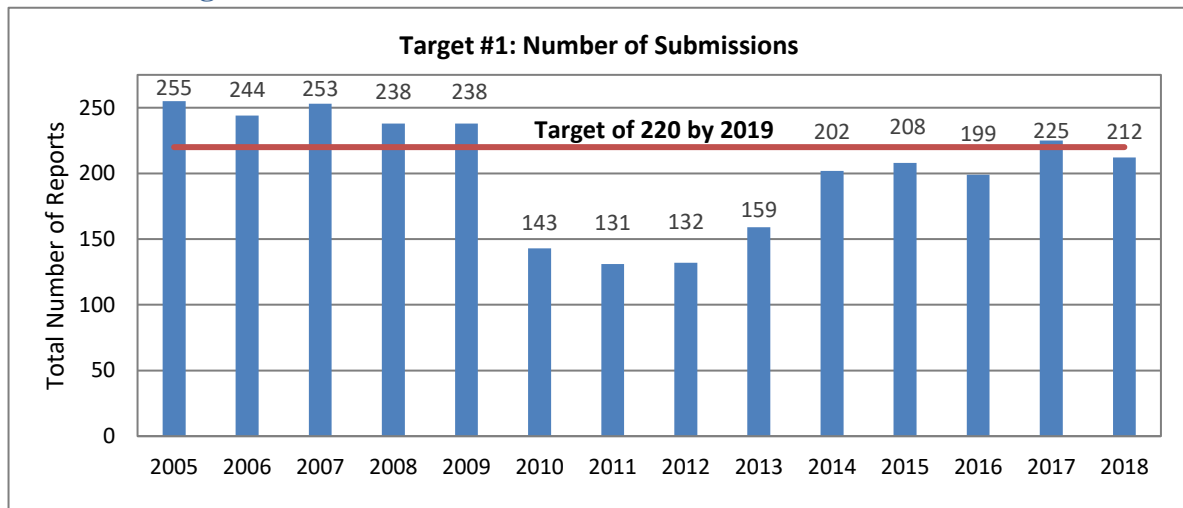
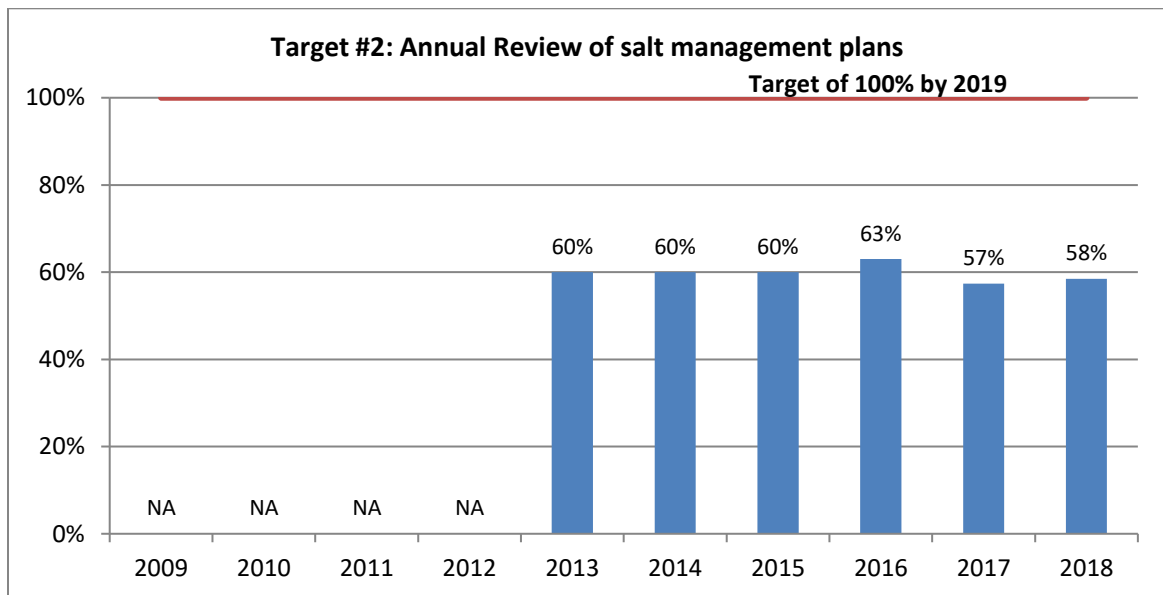


Table 1: Breakdown of the type of road organizations that have reported under the Code for winter seasons 2014, 2015, 2016, 2017 and 2018

Type of road organization	2014	2015	2016	2017	2018
Provinces and territories	8	8	9	9	9
Municipalities	180	184	175	200	187
National parks and other federal organizations	10	11	10	10	11
Private organizations	4	5	5	6	5
Total number of reporting organizations	202	208	199	225	212

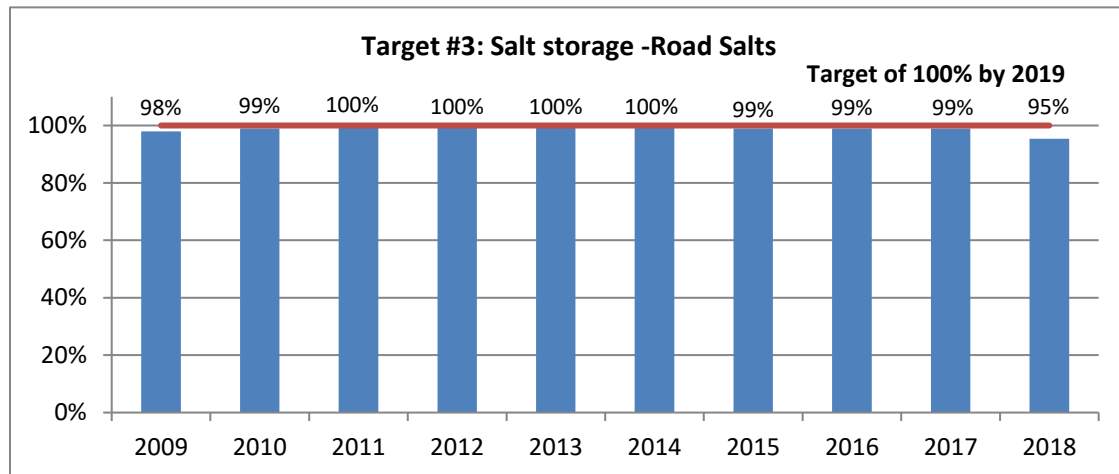
- Performance indicator 2: “Annual review of salt management plan”** represents the percentage of road organizations that annually review their salt management plan (Figure C). The objective of this indicator is to ensure that planning is current and allows for continuous improvement. Road organizations should revisit their salt management plan at the end of each winter in order to identify shortcomings, issues and areas where improvements are needed prior to the start of the next winter season. Information on the annual review of salt management plans is not available for 2009-2012. Results for these years are therefore not included.

Figure C: Percentage of road organizations that review their salt management plan



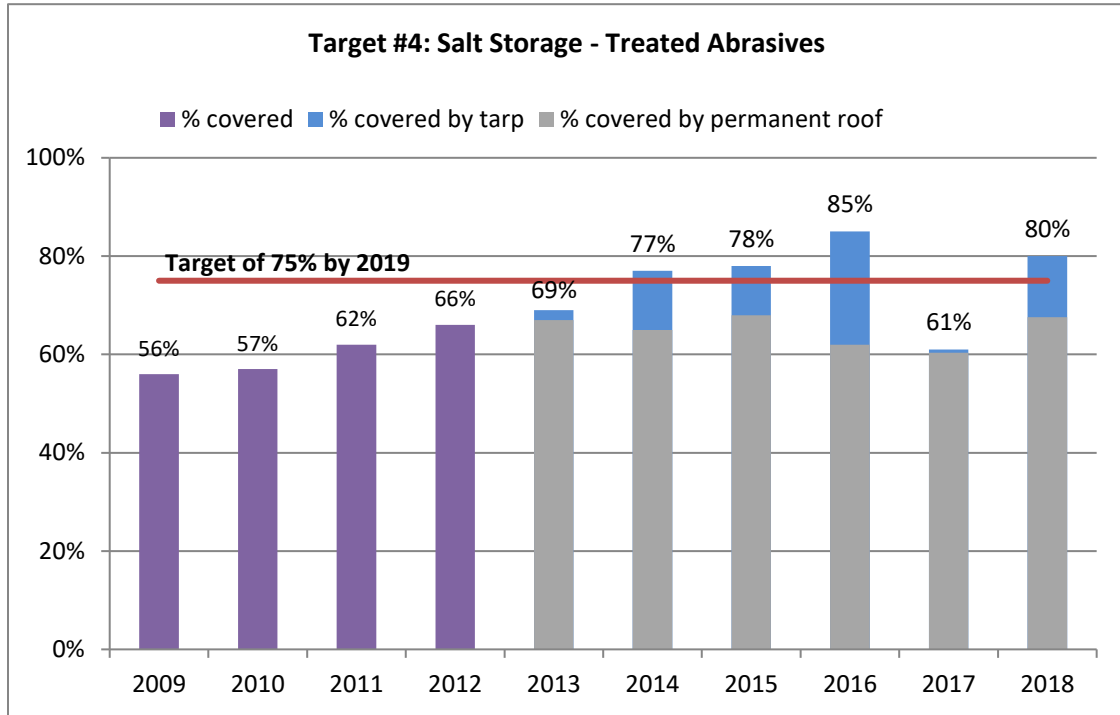
- **Performance indicator 3: “Storage of road salts”** represents the percentage in tonnes of road salts stored under a permanent roof and on impermeable pads (Figure D). The objective of this indicator is to ensure that road organizations have committed to managing their material storage facilities and that best practices are applied at point sources to prevent the release of salt to the environment.

Figure D: Percentage of road salts stored under a permanent roof and on impermeable pads



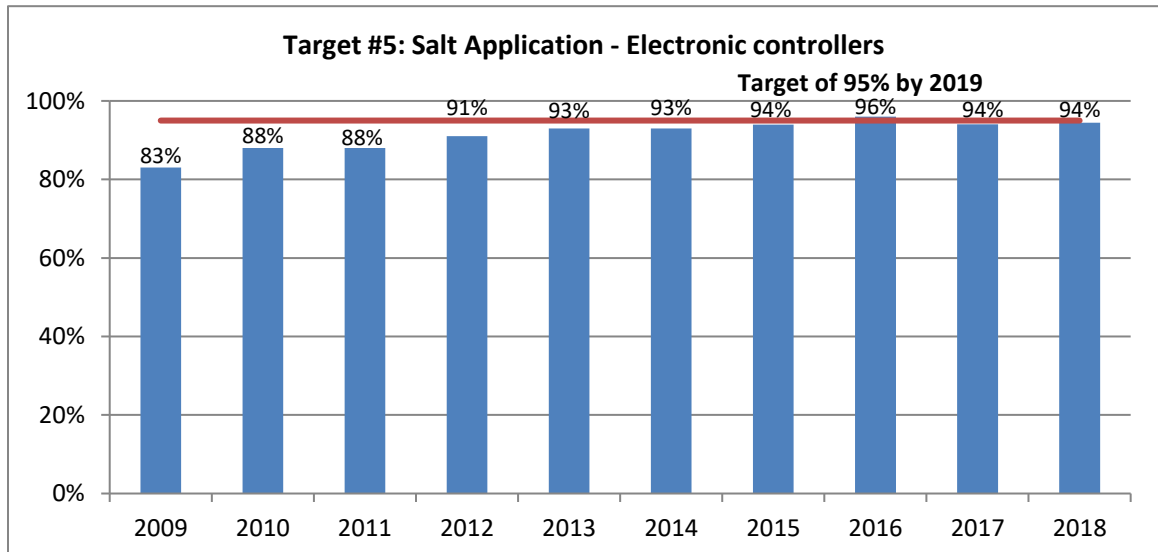
- **Performance indicator 4: “Storage of treated abrasives”** represents the percentage in tonnes of treated abrasives (blended sand and salt) that are stored under cover, either under a tarp or under a permanent roof (Figure E). The objective of this indicator is to ensure that road organizations properly cover their treated abrasives in storage facilities and that best practices are applied at point sources to prevent the release of salt to the environment. Detail on the type of cover (tarp or permanent roof) is not available for 2009-2012. Note that previous overviews of data reported did not capture the use of tarps from 2013 to the present.

Figure E: Percentage of treated abrasives stored under cover



- **Performance indicator 5: “Groundspeed electronic controllers”** represents the percentage of vehicles equipped with groundspeed electronic controllers (Figure F). The objective of this indicator is to ensure that salt is applied at a proper rate regardless of the speed of the truck being used to spread the salt and that salt stops discharging when the truck is stopped. Over time use of this technology is expected to become a core practice for all organizations to optimize the use of salt. The percentage of vehicles equipped with groundspeed electronic controllers has increased since 2009 and reached the target in 2016.

Figure F: Percentage of vehicles equipped with groundspeed electronic controllers



- Performance indicator 6: “Optimization of salt application”** indicates if organizations are adopting practices that enhance their salt application techniques to optimize their use of salt either by using pre-wetting or pre-treated salts (Figure G) or by increasing their pre-wetting capacity (Figure H). The objective of this indicator is to ensure that organizations are using advanced technologies such as pre-wetting to reduce the use of salts and pre-treated materials proven to be a cost-effective alternative to road salts with similar results. While data for use of pre-wetting are available for all years since 2009, data for use of pre-treated salts are not available for 2009-2012. Results for these years are therefore not included.

Figure G: Percentage of road organizations using pre-wetting or pre-treated salts

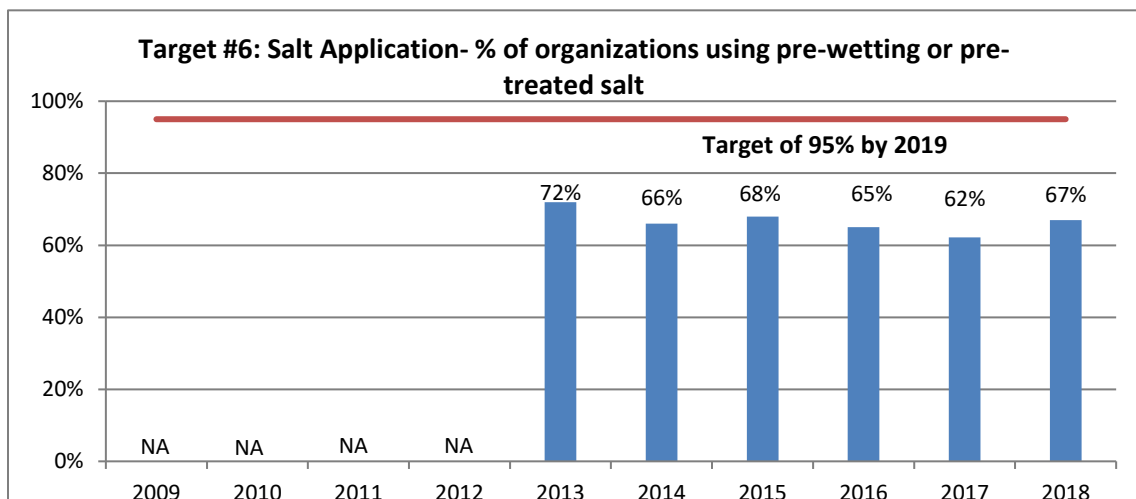
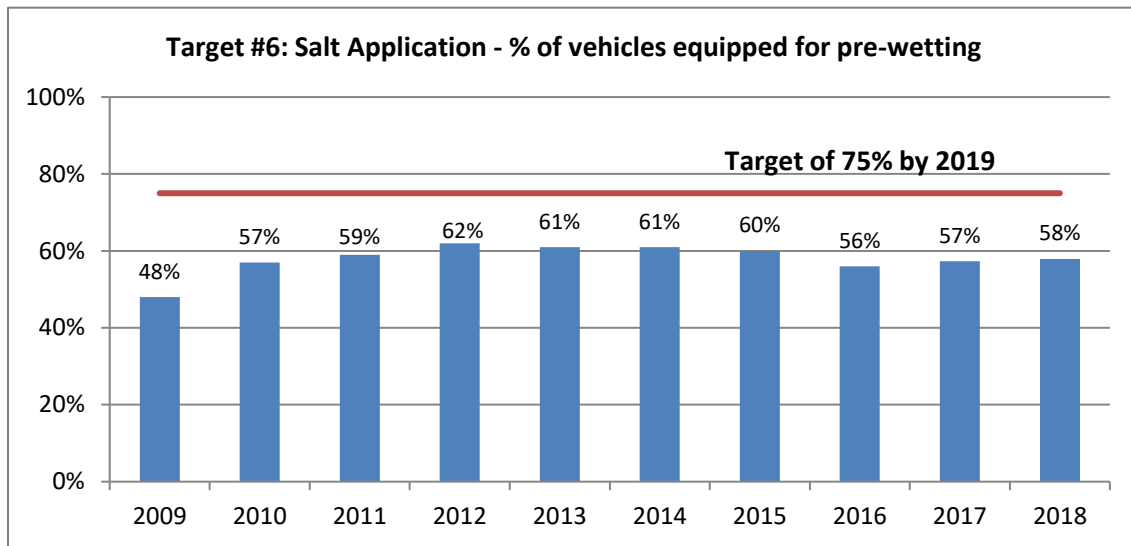
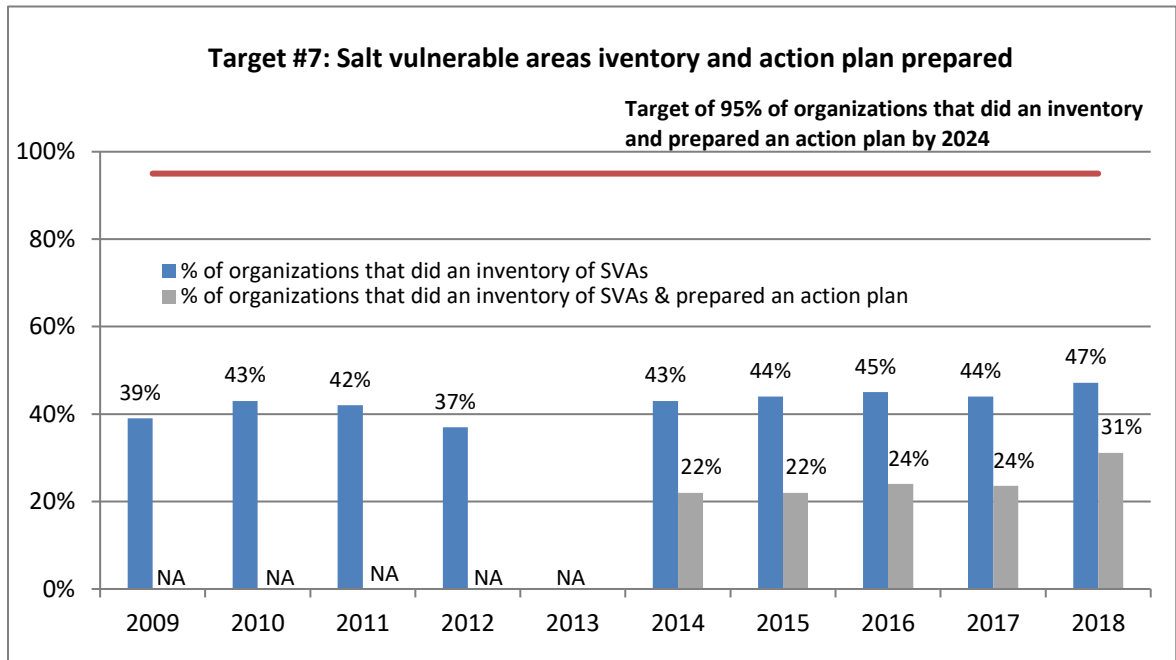


Figure H: Percentage of vehicles equipped for pre-wetting



- **Performance indicator 7: “Salt-vulnerable areas”** indicates if organizations have identified salt-vulnerable areas and if an action plan has been prepared with the purpose of protecting those areas that are particularly sensitive to road salts. While information on identification of salt-vulnerable areas is available for all years except 2013 (due to data collection inconsistencies), information on preparation of an action plan is not available for 2009-2013. Figure I presents the percentage of road organizations that have identified salt vulnerable areas, as well as the percentage of road organizations that have met the performance indicator (both identifying vulnerable areas and preparing action plans). To help achieve this target, Environment and Climate Change Canada is developing additional guidance to establish common standards for identification of salt-vulnerable areas. As such, it should be noted that the target for this indicator is set for 2024.

Figure I: Percentage of road organizations that have identified salt vulnerable areas and prepared an action plan



Progress Towards the National Targets

Setting national targets offers transparency in the expected performance level from road organizations and provides a basis for conducting a second review of the effectiveness of the Code. National targets assist road organizations in prioritizing their ongoing efforts in the management of road salts. Environment and Climate Change Canada will continue to promote the implementation of the Code with stakeholders, consisting of provincial and municipal road authorities, federal and provincial governments, related associations, industry, environmental non-governmental organizations, and academics, in order to help reach the national targets.

The summary of the results of the Code since 2014, provided in Figure A, shows the progression in achieving national targets over time.

Contact Us

For questions about the Code or for more information about salt management, please [contact us](#).

Annex 1: Highlights of reported data for 2014 to 2017 reporting seasons

Highlights: 2017 Reported Data in the Context of National Targets

Results reported for winter **2016-2017**:

- 225 road organizations, including 8 provinces, 1 territory, 200 municipalities, 6 private road organizations, 7 national parks and 3 other federal organizations, reported under the Code (target is 220).
- 57% annually reviewed their road salt management plan (target is 100%).
- 99% of their road salts are under a permanent roof and on impermeable pads (target is 100%).
- 61% of their treated abrasives are covered (target is 75%).
- 94% of their vehicles are equipped with groundspeed electronic controllers (target is 95%).
- 62% are using pre-wetting or pre-treated salts (target is 95%).
- 57% of their vehicles are equipped for pre-wetting (target is 75%).
- 24% of road organizations have identified their salt-vulnerable areas and have prepared an action plan (target is 95%, set for 2024).

Highlights: 2016 Reported Data in the Context of National Targets

Results reported for winter **2015-2016**:

- 199 road organizations, including 8 provinces, 1 territory, 175 municipalities, 5 private road organizations, 6 national parks and 4 other federal organizations, reported under the Code (target is 220).
- 63% annually reviewed their road salt management plan (target is 100%).
- 99% of their road salts are under a permanent roof and on impermeable pads (target is 100%).
- 85% of their treated abrasives are covered (target is 75%).
- 96% of their vehicles are equipped with groundspeed electronic controllers (target is 95%).
- 65% are using pre-wetting or pre-treated salts (target is 95%).
- 56% of their vehicles are equipped for pre-wetting (target is 75%).
- 24% of road organizations have identified their salt-vulnerable areas and have prepared an action plan (target is 95%, set for 2024).

Highlights: 2015 Reported Data in the Context of National Targets

Results reported for winter **2014-2015**:

- 208 road organizations, including 8 provinces, 184 municipalities, 5 private road organizations, 7 national parks and 4 other federal organizations, reported under the Code (target is 220).
- 60% annually reviewed their road salt management plan (target is 100%).
- 99% of their road salts are under a permanent roof and on impermeable pads (target is 100%).
- 78% of their treated abrasives are covered (target is 75%).
- 94% of their vehicles are equipped with groundspeed electronic controllers (target is 95%).
- 68% are using pre-wetting or pre-treated salts (target is 95%).
- 60% of their vehicles are equipped for pre-wetting (target is 75%).
- 22% of road organizations have identified their salt-vulnerable areas and have prepared an action plan (target is 95%, set for 2024).

Highlights: 2014 Reported Data in the Context of National Targets

Results reported for winter **2013-2014**:

- 202 road organizations, including 8 provinces, 180 municipalities, 4 private road organizations, 7 national parks and 3 other federal organizations, reported under the Code (target is 220).
- 60% annually reviewed their road salt management plan (target is 100%).
- 100% of their road salts are under a permanent roof and on impermeable pads (target is 100%).
- 77% of their treated abrasives are covered (target is 75%).
- 93% of their vehicles are equipped with groundspeed electronic controllers (target is 95%).
- 66% are using pre-wetting or pre-treated salts (target is 95%).
- 61% of their vehicles are equipped for pre-wetting (target is 75%).
- 22% of road organizations have identified their salt-vulnerable areas and have prepared an action plan (target is 95%, set for 2024).

Annex 2: Road organizations that have reported under the Code of Practice for 2017-2018

Federal Organizations	
Cape Breton Highlands National Park, Nova Scotia (Parks Canada)	
Fundy National Park, New Brunswick (Parks Canada)	
Kouchibouguac National Park, New Brunswick (Parks Canada)	
5th Canadian division Support Base – Gagetown, New Brunswick (Canadian Army)	
Parks Canada Agency	
Prince Albert National Park, Saskatchewan (Parks Canada)	
Public Works and Government Services Canada	
Riding Mountain National Park, Manitoba (Parks Canada)	
Terra Nova National Park, Newfoundland and Labrador (Parks Canada)	
The Seaway International Bridge Corporation Ltd., Ontario	
Waterton Lakes National Park, Alberta (Parks Canada)	
Provincial and Territorial Organizations	
Alberta Transportation	
British Columbia Ministry of Transportation & Infrastructure	
Manitoba Infrastructure & Transportation	
New Brunswick Department of Transportation and Infrastructure	
Nova Scotia Dept. of Transportation and Infrastructure Renewal	
Ontario Ministry of Transportation	
Prince Edward Island Department of Transportation, Infrastructure and Energy	
Saskatchewan Ministry of Highways and Infrastructure	
Yukon Territorial Government	
Municipal Organizations	
Province	Organization Name
Alberta	Brazeau County
	City of Airdrie
	City of Calgary
	City of Edmonton
	City of Grande Prairie
	City of Lacombe
	City of Leduc
	City of Lethbridge
	City of Medicine Hat
	City of Red Deer
	City of St. Albert
	Clearwater County
	County of St. Paul No. 19
	Cypress County
	Lac La Biche County
Lacombe County	

	Leduc County
	Mountain View County
	Municipal District of Foothills No.31
	Municipal District of Wainwright
	Northern Sunrise County
	Rocky View County
	Strathcona County
	Town of Okotoks
	Westlock County
British Columbia	City of Castlegar
	City of Chilliwack
	City of Colwood
	City of Kamloops
	City of Maple Ridge
	City of Nanaimo
	City of Port Alberni
	City of Port Coquitlam
	City of Port Moody
	City of Prince George
	City of Surrey
	City of Vancouver
	City of Williams Lake
	District of North Saanich
	District of North Vancouver
	District of Saanich
District of West Vancouver	
Township of Spallumcheen	
Village of Lumby	
Manitoba	City of Winnipeg
New Brunswick	Caraquet
	City of Campbellton
	City of Fredericton
	City of Moncton
	City of Saint John
	Town of Dalhousie
	Town of Grand Bay-Westfield
	Town of Hampton
	Town of Riverview
	Town of Sackville
	Town of Saint Andrews
Town of Sussex	
Newfoundland and Labrador	City of Mount Pearl
	Conception Bay South

	Town of Carbonear
	Town of Clarenville
	Town of Deer Lake
	Town of Gander
	Town of Paradise
	Town of Portugal Cove - St. Philip's
	Town of St. George's
Nova Scotia	Cape Breton Regional
	Halifax Regional Municipality
	Town of Amherst
	Town of Berwick
	Town of Digby
	Town of Wolfville
Ontario	City of Greater Sudbury
	City of Hamilton
	City of Markham
	City of Mississauga
	City of Oshawa
	City of Ottawa
	City of Owen Sound
	City of Peterborough
	City of Pickering
	City of Sarnia
	City of Sault Ste. Marie
	City of Temiskaming Shores
	City of Thunder Bay
	City of Toronto
	City of Vaughan
	City of Windsor
	City of Woodstock
	Clarington
	Corporation of the City of Barrie
	Corporation of the City of Belleville
	Corporation of the City of Brantford
	Corporation of the City of Brockville
	Corporation of the City of Cambridge
	Corporation of the City of Cornwall
	Corporation of the City of Guelph
	Corporation of the City of Kenora
Corporation of the City of Kitchener	
Corporation of the City of London	
Corporation of the City of North Bay	
Corporation of the City of St. Catharines	

Corporation of the City of St. Thomas
Corporation of the City of Timmins
Corporation of the County of Bruce
Corporation of the County of Essex
Corporation of the County of Lambton
Corporation of the County of Lanark
Corporation of the County of Northumberland
Corporation of the County of Wellington
Corporation of the Municipality of Central Elgin
Corporation of the Municipality of Halton Hills
Corporation of the Municipality of Kincardine
Corporation of the Municipality of Trent Hills
Corporation of the Town of Bracebridge
Corporation of the Town of Caledon
Corporation of the Town of Collingwood
Corporation of the Town of Espanola
Corporation of the Town of Fort Erie
Corporation of the Town of Goderich
Corporation of the Town of Gravenhurst
Corporation of the Town of Innisfil
Corporation of the Town of Newmarket
Corporation of the Town of Pelham
Corporation of the Town of Penetanguishene
Corporation of the Town of Plympton-Wyoming
Corporation of the Town of Smiths Falls
Corporation of the Town of Tecumseh
Corporation of the Town of The Blue Mountains
Corporation of the Town of Tillsonburg
Corporation of the Township of Centre Wellington
Corporation of the Township of Norwich
Corporation of the Township of Perth South
Corporation of the Township of South Stormont
Corporation of the Township of Southwold
Corporation of the Township of St Clair
Corporation of the Township of Stone Mills
Corporation of the Township of Wilmot
Corporation of the United Counties of Leeds and Grenville
Corporation of the United Counties of Prescott and Russell
County of Brant
County of Elgin
County of Haliburton
County of Simcoe
Haldimand County

	Municipality of Chatham-Kent
	Municipality of Middlesex Centre
	Municipality of Mississippi Mills
	Municipality of South Dundas
	Municipality of the Town of Perth
	Municipality of Whitchurch-Stouffville
	Oxford County
	Region of Waterloo
	Regional Municipality of Durham
	Regional Municipality of Halton
	Regional Municipality of Niagara
	Regional Municipality of Peel
	Regional Municipality of York
	South Frontenac Township
	Town of Ajax
	Town of Arnprior
	Town of East Gwillimbury
	Town of Greater Napanee
	Town of Milton
	Town of Niagara-on-the-Lake
	Town of Oakville
	Town of Petawawa
	Town of Renfrew
	Town of Richmond Hill
	Town of Whitby
	Township of Admaston/Bromley
	Township of Bonnechere Valley
	Township of Brock
	Township of Dawn-Euphemia
	Township of Mapleton
	Township of Oro-Medonte
	Township of Puslinch
	Township of Selwyn
	Township of Sioux Narrows-Nestor Falls
	Township of South Glengarry
	Township of Springwater
	Township of Stirling-Rawdon
	Township of Tiny
	Township of Uxbridge
	Township of West Lincoln
Saskatchewan	City of Regina
	City of Saskatoon

Private Organizations
407 ETR Concession Company Ltd.
Brun-Way Highways Operations Inc.
Chinook Highway Operations Inc.
Gateway Operations
MRDC Operations Corporation

Additional information can be obtained at:

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