Road Salt Management Workshop

Presentation by:

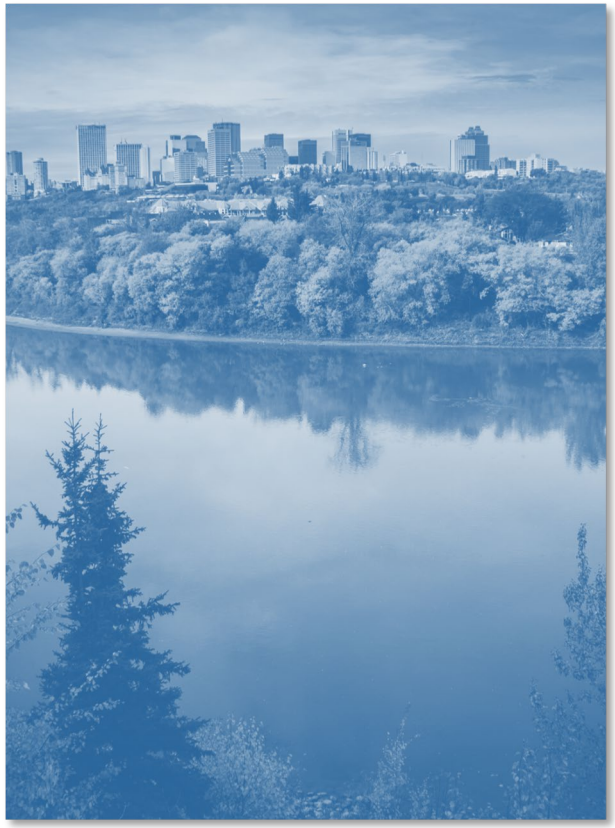
Kelsie Norton

Watershed Planning Coordinator

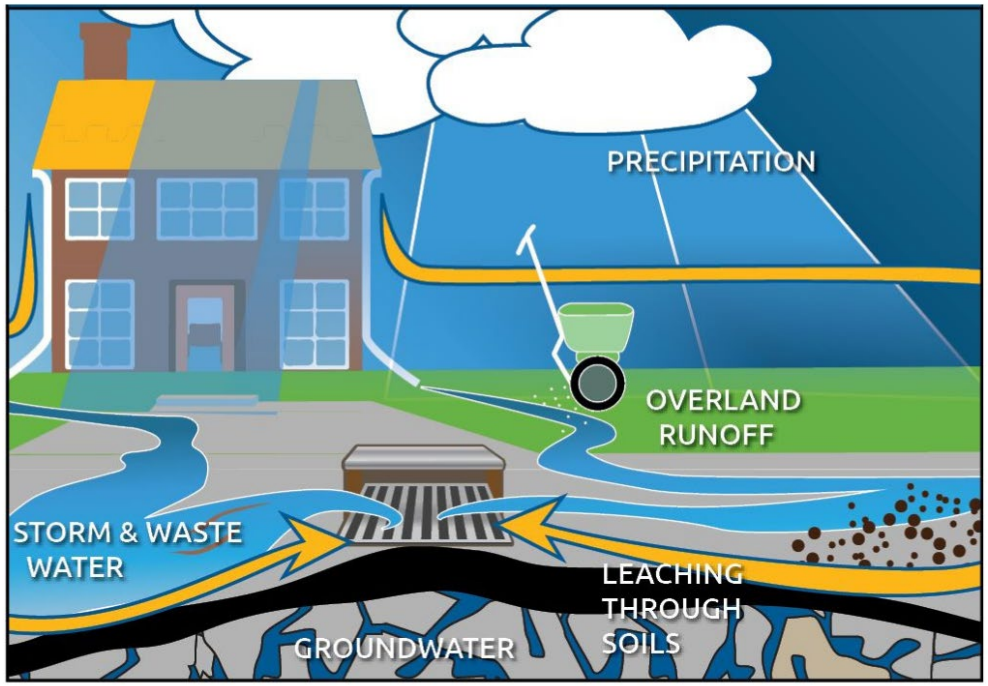
NSWA

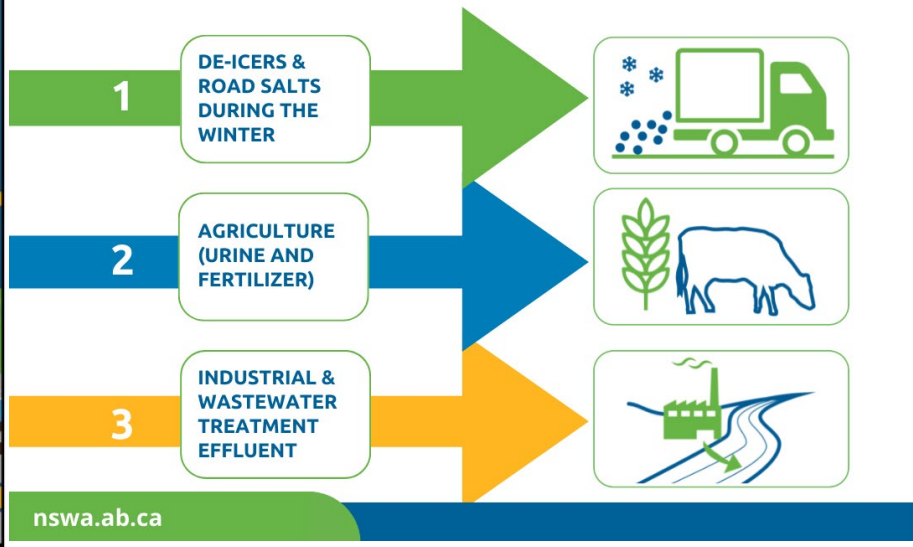
NORTH SASKATCHEWAN WATERSHED ALLIANCE

January 18th, 2023



How does salt enter waterbodies?



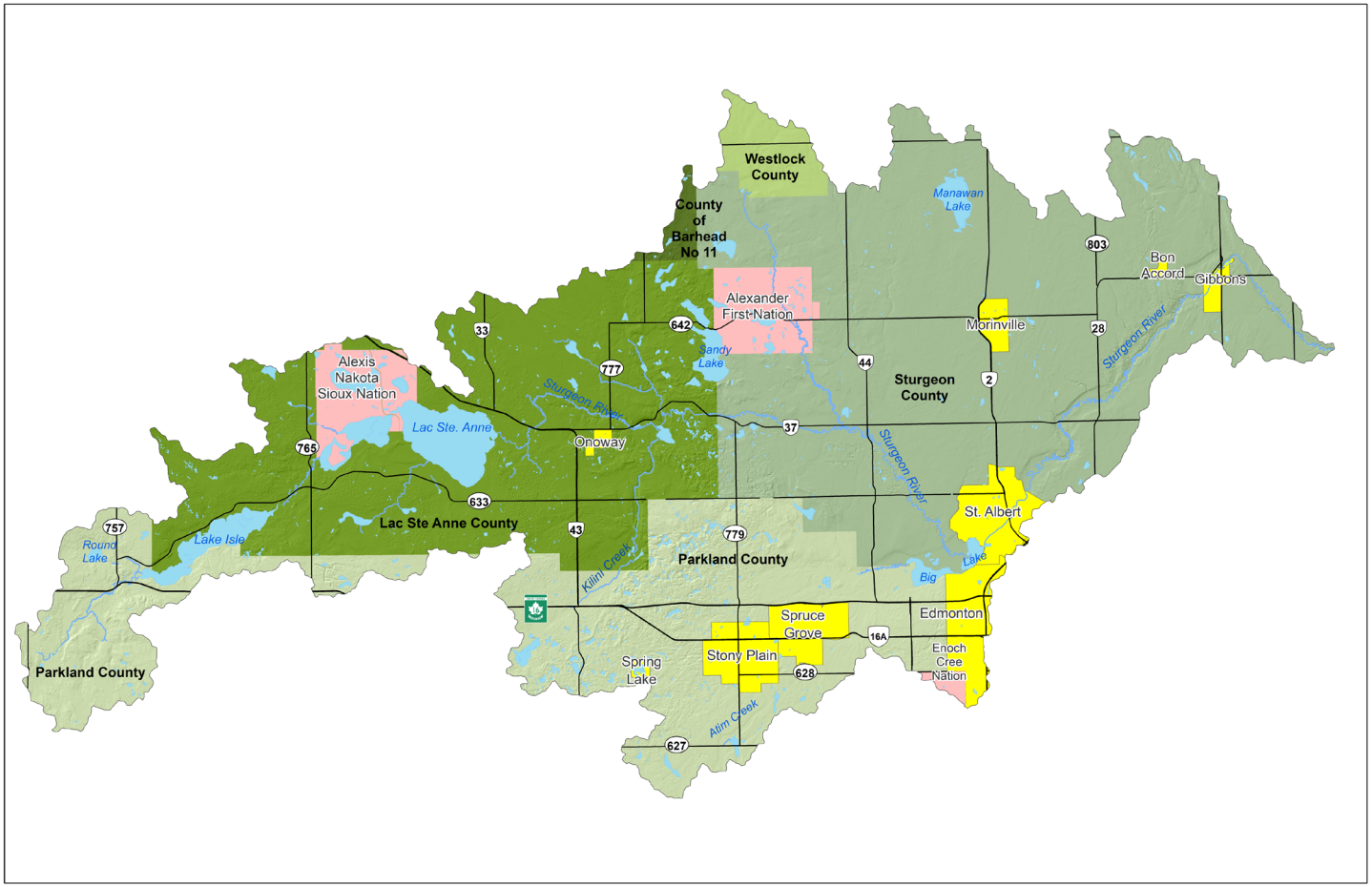


Environmental Concerns

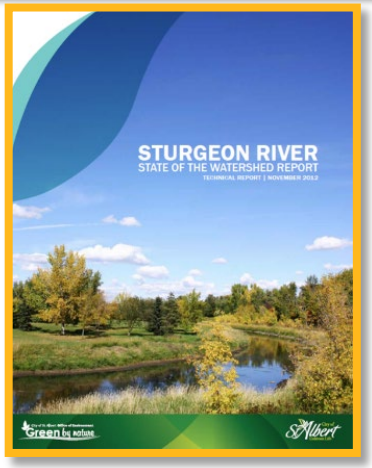
- Chloride dissolves in water, is highly mobile and is not easily removed
- Causes short + long-term negative impacts to water, soil, and vegetation
- Different frequencies and magnitudes of application will alter freshwater communities
- Research indicates chlorides decrease the biodiversity of aquatic animals and plants
- Favor the growth of phytoplankton, especially cyanobacteria

Sturgeon River Watershed Alliance

Sturgeon River Watershed

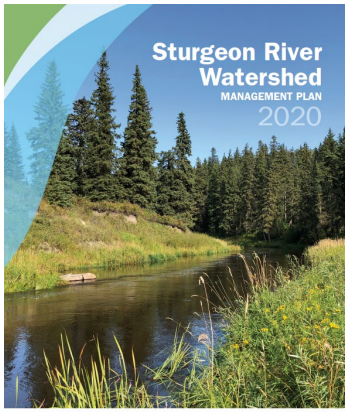


Sturgeon River Watershed State of + Management Plan



Overall Grade: Fair

ACTION: Reduce the amounts of pollutants entering the watershed such as fertilizers, pesticides and road salts through monitoring and education.

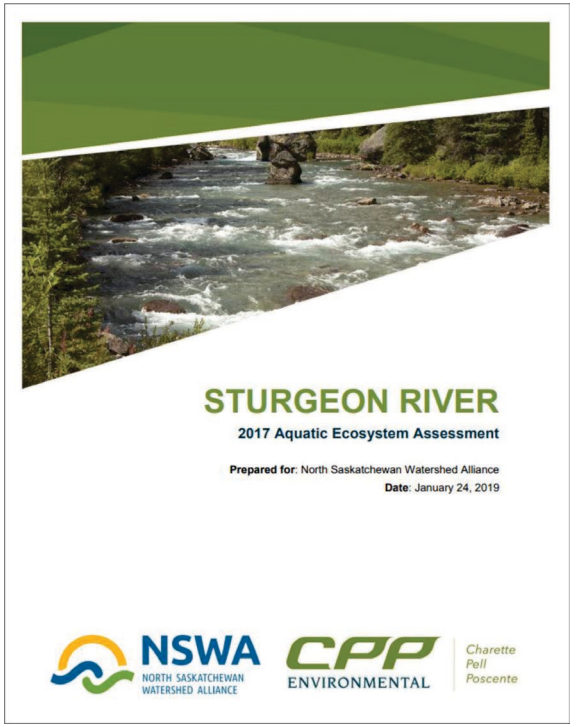


GOAL 3.1: Water quality in the Sturgeon watershed is improved.

ACTION: Reduce sediment and salt loading by promoting transportation and road Best Management Practices (BMP) such as Alberta Transportation and Transportation Association of Canada Guidelines, federally required Salt Management Plans, and snow facilities melt water best practices.

Technical Reports

- Salinity and chloride concentrations were very high in Carrot Creek, where they exceeded Alberta Surface Water Quality Guidelines for the Protection of Aquatic Life.
- In addition, chloride concentrations during ice cover were 4 to 5 times higher downstream of Big Lake as compared to all upstream sites.



Technical Reports

The chloride concentrations set by Alberta's **Surface Water Quality Guidelines for the Protection of Freshwater Aquatic Life (PAL).**

Chloride Ions (mg/L)
120 (long-term/chronic) 640 (short-term/acute)

Parameter	Date	Location	Measurement (mg/L)
Chloride	Aug 30/2021	Lake Isle outlet to Sturgeon River (M3)	103
Chloride	Aug 18/2022	Lac Ste. Anne outlet to Sturgeon River (M4)	126
Chloride	Aug 30/2021	Little Egg Creek outlet to Sturgeon River (T6)	119

Municipal Scan

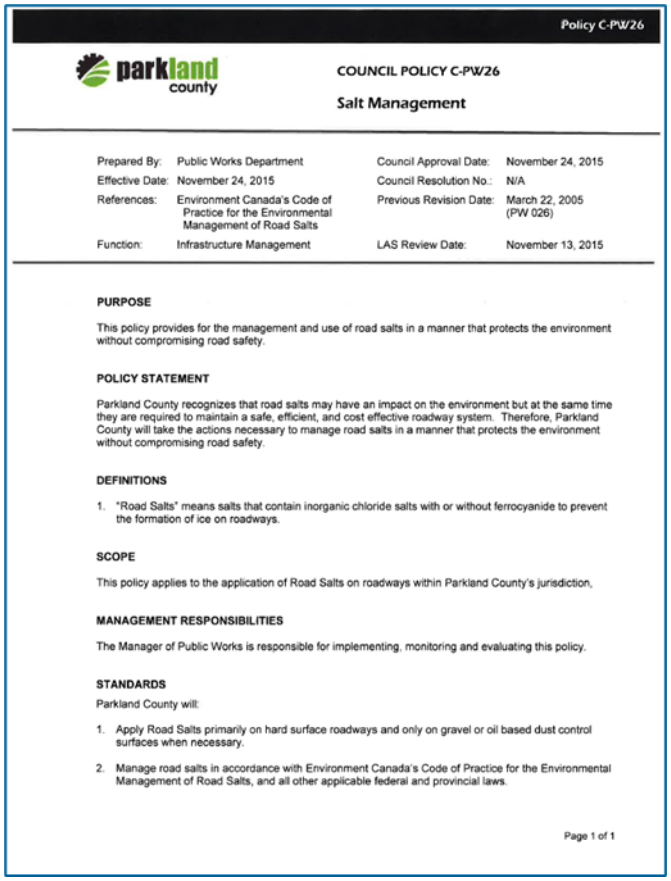
- What had been done?
- What was being done?
- Policy gaps
- Existing plans
- Initial Recommendations

Table 1. Road Density within the Sturgeon River Watershed, by jurisdiction.			
Summary Unit	Area in WS (km^2)	Length of Road (km)	Road Density (km/km^2)
Sturgeon River Watershed	3,311.99	6,169.64	1.86

Municipal Survey

- **70%** have Salt Management Policies
- **80%** have Salt Management Plans
- **50%** know how much salt is used
- **60%** have a covered storage facility for its salt?
- **40%** have a snow storage facility
- **0%** know if they report salt and sand usage to Environment Canada annually

SRWA Resources



Policy C-PW26

parkland county

COUNCIL POLICY C-PW26

Salt Management

Prepared By:	Public Works Department	Council Approval Date:	November 24, 2015
Effective Date:	November 24, 2015	Council Resolution No.:	N/A
References:	Environment Canada's Code of Practice for the Environmental Management of Road Salts	Previous Revision Date:	March 22, 2005 (PW 026)
Function:	Infrastructure Management	LAS Review Date:	November 13, 2015

PURPOSE

This policy provides for the management and use of road salts in a manner that protects the environment without compromising road safety.

POLICY STATEMENT

Parkland County recognizes that road salts may have an impact on the environment but at the same time they are required to maintain a safe, efficient, and cost effective roadway system. Therefore, Parkland County will take the actions necessary to manage road salts in a manner that protects the environment without compromising road safety.

DEFINITIONS

1. "Road Salts" means salts that contain inorganic chloride salts with or without ferrocyanide to prevent the formation of ice on roadways.

SCOPE

This policy applies to the application of Road Salts on roadways within Parkland County's jurisdiction.

MANAGEMENT RESPONSIBILITIES

The Manager of Public Works is responsible for implementing, monitoring and evaluating this policy.

STANDARDS

Parkland County will:

1. Apply Road Salts primarily on hard surface roadways and only on gravel or oil based dust control surfaces when necessary.
2. Manage road salts in accordance with Environment Canada's Code of Practice for the Environmental Management of Road Salts, and all other applicable federal and provincial laws.

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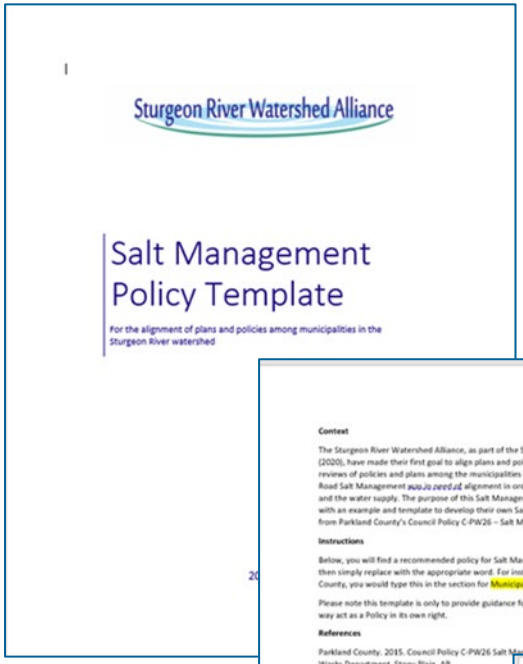
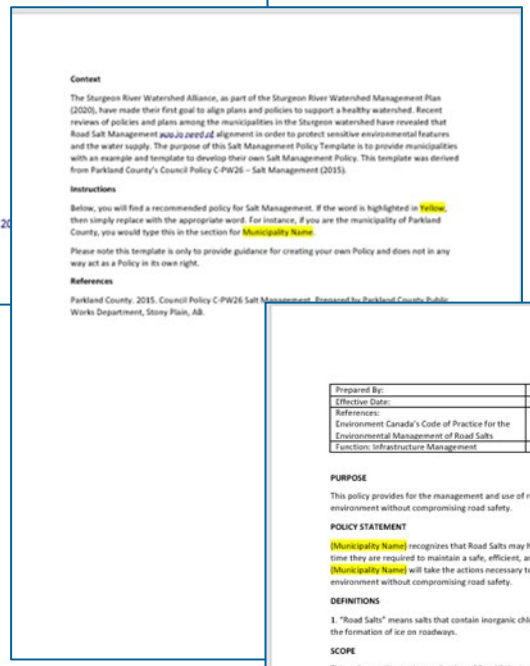


Sturgeon River Watershed Alliance

Salt Management Policy Template

For the alignment of plans and policies among municipalities in the Sturgeon River watershed



Context

The Sturgeon River Watershed Alliance, as part of the Sturgeon River Watershed Management Plan (2020), have made their first goal to align plans and policies to support a healthy watershed. Recent reviews of policies and plans among the municipalities in the Sturgeon watershed have revealed that Road Salt Management [illegible] alignment in order to protect sensitive environmental features and the water supply. The purpose of this Salt Management Policy Template is to provide municipalities with an example and template to develop their own Salt Management Policy. This template was derived from Parkland County's Council Policy C-PW26 – Salt Management (2015).

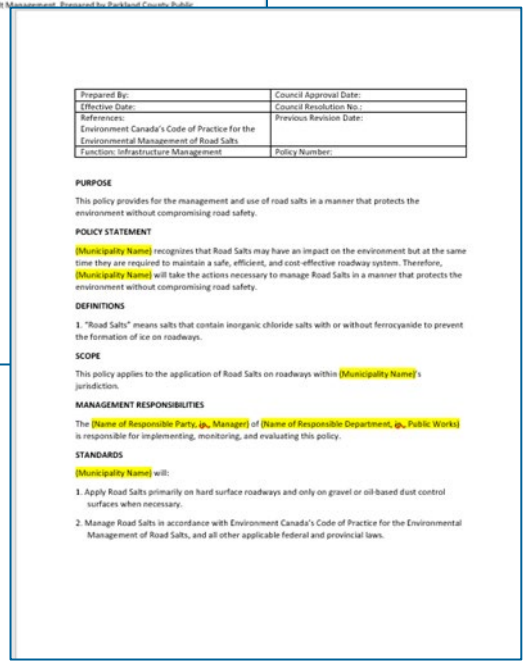
Instructions

Below, you will find a recommended policy for Salt Management. If the word is highlighted in Yellow, then simply replace with the appropriate word. For instance, if you are the municipality of Parkland County, you would type this in the section for Municipality Name.

Please note this template is only to provide guidance for creating your own Policy and does not in any way act as a Policy in its own right.

References

Parkland County. 2015. Council Policy C-PW26 Salt Management. Prepared by Parkland County Public Works Department, Stony Plain, AB.



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Effective Date:	Council Resolution No.:
References: Environment Canada's Code of Practice for the Environmental Management of Road Salts	Previous Revision Date:
Function: Infrastructure Management	Policy Number:

PURPOSE

This policy provides for the management and use of road salts in a manner that protects the environment without compromising road safety.

POLICY STATEMENT

(Municipality Name) recognizes that Road Salts may have an impact on the environment but at the same time they are required to maintain a safe, efficient, and cost-effective roadway system. Therefore, (Municipality Name) will take the actions necessary to manage Road Salts in a manner that protects the environment without compromising road safety.

DEFINITIONS

1. "Road Salts" means salts that contain inorganic chloride salts with or without ferrocyanide to prevent the formation of ice on roadways.

SCOPE

This policy applies to the application of Road Salts on roadways within (Municipality Name)'s jurisdiction.

MANAGEMENT RESPONSIBILITIES

The (Name of Responsible Party, *ie.*, Manager) of (Name of Responsible Department, *ie.*, Public Works) is responsible for implementing, monitoring, and evaluating this policy.

STANDARDS

(Municipality Name) will:

1. Apply Road Salts primarily on hard surface roadways and only on gravel or oil-based dust control surfaces when necessary.
2. Manage Road Salts in accordance with Environment Canada's Code of Practice for the Environmental Management of Road Salts, and all other applicable federal and provincial laws.

SRWA Salt Management Plan Template

Look inside

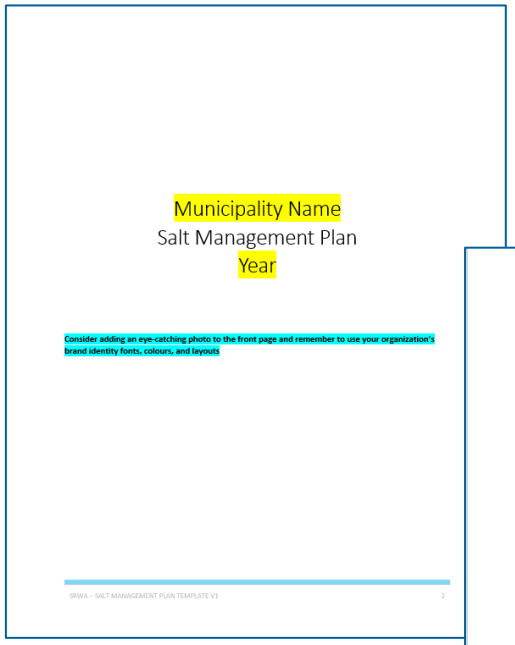

Sturgeon River Watershed Alliance

Salt Management Plan Template

For the alignment of plans and policies among municipalities in the Sturgeon River watershed

2021

SRWA – SALT MANAGEMENT PLAN TEMPLATE V1

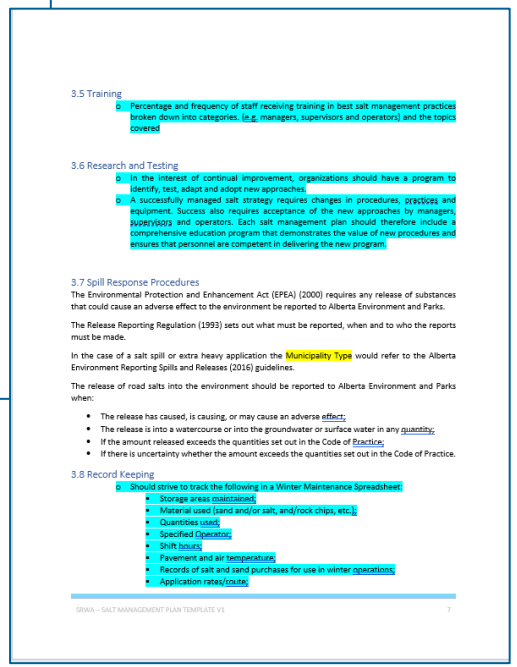

Municipality Name

Salt Management Plan

Year

Consider adding an eye-catching photo to the front page and remember to use your organization's brand identity fonts, colours, and layouts

SRWA – SALT MANAGEMENT PLAN TEMPLATE V1 2


3.5 Training

- Percentage and frequency of staff receiving training in best salt management practices broken down into categories. (e.g. managers, supervisors and operators) and the topics covered

3.6 Research and Testing

- In the interest of continual improvement, organizations should have a program to identify, test, adapt and adopt new approaches.
- A successfully managed salt strategy requires changes in procedures, practices and equipment. Success also requires acceptance of the new approaches by managers, supervisors and operators. Each salt management plan should therefore include a comprehensive education program that demonstrates the value of new procedures and ensures that personnel are competent in delivering the new program.

3.7 Spill Response Procedures

The Environmental Protection and Enhancement Act (EPEA) (2000) requires any release of substances that could cause an adverse effect to the environment be reported to Alberta Environment and Parks.

The Release Reporting Regulation (1993) sets out what must be reported, when and to who the reports must be made.

In the case of a salt spill or extra heavy application the Municipality Type would refer to the Alberta Environment Reporting Spills and Releases (2016) guidelines.

The release of road salts into the environment should be reported to Alberta Environment and Parks when:

- The release has caused, is causing, or may cause an adverse effect;
- The release is into a watercourse or into the groundwater or surface water in any quantity;
- If the amount released exceeds the quantities set out in the Code of Practice;
- If there is uncertainty whether the amount exceeds the quantities set out in the Code of Practice.

3.8 Record Keeping

- Should strive to track the following in a Winter Maintenance Spreadsheet:
  - Storage areas maintained;
  - Material used (sand and/or salt, and/rock chips, etc.);
  - Quantities used;
  - Specified Operator;
  - Shift hours;
  - Pavement and air temperature;
  - Records of salt and sand purchases for use in winter operations;
  - Application rates/route;

SRWA – SALT MANAGEMENT PLAN TEMPLATE V1 7

Best Management Practices (BMPs) for Salt, Sand & Snow

STORAGE & DISPOSAL

PREVENT SALT RELEASE FROM SITES

- COVERAGE OF SALT/SAND PILES
- WASH WATER COLLECTION/TREATMENT
- DRAINAGE MANAGEMENT
- CONSIDER ENVIRONMENT & LOCATION

SALT APPLICATION

REDUCE YOUR IMPACT: RIGHT TIMING, AMOUNT, PLACE

- UPDATE MUNICIPAL SALT MGMT. PLANS
- STAY CURRENT ABOUT METHODS, EQUIPMENT, TRAINING, ALTERNATIVE DE-ICERS
- CONSIDER ENVIRONMENTALLY SENSITIVE AREAS

Next Steps & Action Items

1. CREATE WATER-WISE SALT MGMT PLAN

2. BE INFORMED ABOUT SALT QUANTITIES

3. READ NSWA'S SALT MGMT. TEMPLATES

4. STORE SAND AND SALT PROPERLY

5. HOME: SHOVEL EARLY, USE ECO- & PET FRIENDLY DE-ICERS

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Stay Connected

Kelsie.Norton@nswa.ab.ca

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Thank you!