Sturgeon River Watershed Alliance

Salt Management Plan Template

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

2021

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 was in need of alignment in order to protect sensitive environmental features and the water supply. The purpose of this Salt Management Plan Template is to provide municipalities with an example and template to start building their own Salt Management Plans. This template was developed from guidelines provided by the Transportation Association of Canada's Syntheses of Best Management Practices Road Salt Management (2013) guide and layout and examples are provided throughout, based on the City of Leduc Salt Management Plan (2017).

Instructions

Below, you will find recommended layout, wording, tables, and appendices to use when making your own Salt Management Plan. 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. If the wording is highlighted in Blue, then these are instructions or examples from which to base your own information and is meant to be used as a guide. Consider adding relevant figures and tables to highlight important features.

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

References

City of Leduc. 2017. City of Leduc Salt Management Plan. Leduc, AB

Sturgeon River Watershed Alliance. 2020. Sturgeon River Watershed Management Plan. Prepared in part by the North Saskatchewan Watershed Alliance, Edmonton, AB

Transportation Association of Canada. 2013. Syntheses of Best management Practices Road Salt Management. 1.0 – Salt Management Plans.

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

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1.0 General Information

Table 1. General Information

Organization	
Address	
Technical Contact	
Telephone Number	
Fax Number	
Email Address	
Population	
Road Length Serviced (total length of road which salt is applied in organization's jurisdiction)	
Winter Severity/Total number of Events Requiring Salt Application During Winter	
Salt Management Plan Date of Approval	
Date Plan will be Fully Implemented	

1.1 Overview

A comprehensive five-year scientific assessment on road salts by Environment Canada determined that, in sufficient concentrations, road salts pose a risk to freshwater ecosystems, soil, vegetation and wildlife. Under the Canadian Environmental Protection Act, 1999, the Government of Canada published a Code of Practice for the Environmental Management of Road Salts on April 3, 2004. The Code is designed to help municipalities and other road authorities better manage their use of road salts in a way that reduces their impacts on the environment while maintaining road safety.

The Transportation Association of Canada (TAC) published a Salt Management Guide (1999) and a series of Syntheses of Best Practices (2013) to assist organizations as they find ways to more effectively manage their salt use and provide the public with the safe and efficient transportation systems they expect, while minimizing effects on the environment. The TAC Syntheses of Best Practices supplement the recommendations made within the Code.

Road Authorities that use more than 500 tonnes of road salt in a winter season (five year rolling average) and/or have salt vulnerable areas in their territory, such as natural water bodies or salt vulnerable vegetation, are subject to the Code with the particular requirement to prepare, implement, and file a Salt Management Plan. The Salt Management Plan shall cover all activities which may result in the release of salts to the environment, such as salt storage, application of salts on roads, and the disposal of snow containing road salts; the salt management plan should also include proof of implementation of best management practices to protect the environment from the negative impacts of road salts. Currently the Municipality Name utilizes over 500 tonnes of road salts per year (five year rolling average) and has salt vulnerable areas in its boundaries.

In consideration of the requirement to file a Salt Management Plan, this document has been prepared to permit the Municipality Name to comply with the Code. It must be recognized that this plan is subject to change, updating, and continuous improvement to reflect organizational changes, technological changes and new operational procedures and best management practices as they become available.

1.2 Objective

The objective of the Municipality Name Salt Management Plan is to set a procedural framework to ensure safe, efficient, and cost-effective roadway systems, in recognition of the adverse effects that excessive use of road salt can have on the environment. The Salt Management Plan contains best management practices that will optimize strategies relative to snow and ice control and strive to minimize the amount of road salts entering the environment.

As specified in the Code of Practice for the Environmental Management of Road Salts, the Salt Management Plan is to be endorsed by the "highest level of government"; therefore, the Council of the Municipality Name will be requested to endorse this plan.

1.3 Organization of the Plan

This plan is organized to provide a review of existing Municipality Name winter maintenance policies, operating practices, and strategies including:

- Salt Management Policy
- Operational Practices and Strategies
    - Material Type, Source and Quality
    - Spreading
    - Salt Vulnerable Areas
    - Sand and Salt Storage Sites
    - Snow Disposal Sites
    - Training
    - Research and Testing
    - Spill Response Procedures
    - Record Keeping
    - Monitoring
- Salt Management Goals
- Annual Review
- Conclusion

Current best management practices used by the Municipality Type are compared to those recommended by the TAC Salt Management Guide and Syntheses of Best Practices to identify opportunities for improvement. Salt Management goals will be identified to address potential gaps and further protect the environment from the negative impacts of road salt, while maintaining road safety.

2.0 Salt Management Policy

3.0 Material Type, Source, and Quality

- Type, amount, sources and quality of snow and ice control materials used (all types including solids, liquids and abrasive mixes)
- The quality of snow and ice control materials can influence their effectiveness. Organizations should have quality specification addressing moisture content, gradation and acceptable impurity levels. It is also important to understand the supply chain for all materials including delivery reliability. Where supply problems may occur, contingency plans should be in place.

3.1 Spreading

- Current application rate for each type of material and pavement condition
- Percentage of fleet with pre-wetting
- Percentage of fleet with liquid only applications
- Percentage of fleet with ground-speed electronic spreader controls
- Use of alternative freeze point depressants
- Number of road weather information systems (RWIS) installations
- Number of other surface temperature measuring devices (hand-held or vehicle mounted)
- Use of dedicated pavement and/or atmospheric forecasting

3.2 Salt Vulnerable Areas

- Locations of salt vulnerable areas
  - Examples of Possible Salt Vulnerable Areas
    - Groundwater recharge areas
    - Areas with exposed or shallow water tables with medium to high permeability soils
    - Sources of drinking water
    - Salt-sensitive vegetative communities
    - Salt-sensitive wetlands
    - Small ponds & lakes
    - Rivers with low flows
    - Salt-sensitive agricultural areas
    - Salt-sensitive habitats for species at risk
- Description of winter maintenance practices in the vicinity of salt vulnerable areas (e.g. alternate treatment)

3.3 Sand and Salt Storage Sites

- Number and capacity of storage sites
- Percentage of salt and sand/salt stored under cover on impermeable pads
- Percentage of facilities with indoor loading
- Percentage of sites with management of salt impacted drainage and vehicle wash water
- Levels of environmental indicators (e.g. chloride levels)
- Percentage of salt in winter sand
- Existence of a good housekeeping policy, and adherence to the policy

3.4 Snow Disposal Sites

- Number and capacity of snow disposal sites (permanent and/or temporary)
- Levels of environmental indicators (e.g. chloride levels)
- Percentage of disposal sites with water management systems
- Conformance with existing environmental standards for snow disposal sites
- Existence of a good housekeeping policy and adherence to the policy

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;

- Weather and storm events

3.9 Monitoring

- Progress on implementation of the salt management plan can only be confirmed by tracking specific indicators and comparing these to the baseline that was benchmarked at the outset of the program. Each salt management plan should assign responsibility for monitoring and reporting on implementation of the plan. These results should be reported annually to the senior executive responsible for the salt management plan.
- The monitoring and record keeping system should document and assess the indicators identified in the situational analysis. Where there are new issues or activities being implemented as part of the salt management plan, new monitoring initiatives may be required. Any changes from the baseline established in the situational analysis need to be analyzed to assess the degree of progress being made. The analysis should also take into account the type of winter experienced to ensure that realistic conclusions are being drawn. For example, an increase in salt use may be due to an unusually severe winter rather than the failure of a plan. Similarly, a reduction in salt use may be due to a milder than normal winter rather than the successful implementation of a plan. Therefore, the analysis must be sufficiently in-depth to account for these variances. Where there are known releases to the environment being monitored (e.g. stormwater outfalls, water intakes, water treatment plants, monitoring wells, material storage sites or snow disposal sites), then these data should be included in the annual progress report.

4.0 Salt Management Goals

The Municipality's current winter maintenance policies and practices form the baseline or benchmark upon which improvements can be made to manage the use of road salts more effectively and in turn its impact on the environment. The Municipality Name has prepared a multi year work plan, to improve management of road salt and its winter maintenance policies, practices, and procedures, through comparing current best management practices against the TAC Salt Management Guide and Syntheses of Best Practices; salt management goals are identified to address potential gaps and further protect the environment from the negative impacts of road salt, while maintaining road safety.

Key operational practices and strategies related to the effective management of road salt during winter maintenance activities are presented as goals, with a discussion of the objective, environmental conditions, current situation, plan goal, responsibilities, performance measures and the approximate cost and timeline for implementation. These goals are not meant to be a comprehensive consideration of every possible best management practice, but rather a listing of improvements that are seen to be beneficial and feasible considering current conditions.

The Director of Public Services is responsible for overseeing all of the goals outlined in this plan; staff specific to implementation have been identified for each goal.

USE THIS EXAMPLE TABLE FOR EACH GOAL

Table 2. Salt Management Plan Goals

Objective	This section states the salt management objective that is to be achieved
Environmental Consideration	It is important to understand the rationale behind the need to make changes. This section briefly identifies the environmental considerations that make it important to address the subject area.
Current Situation	This section identifies the status of the subject area upon initial implementation of the plan.
Goal	The plan must have clearly stated goals and timetables.
Responsibility	The Director of Public Services is responsible for overseeing all the goals outlined in this plan; staff specific to implementation have been identified for each goal.
Performance Measure	It is important to monitor and measure the progress implementing each element of the Salt Management Plan. This section will establish the criteria for measuring performance.
Expected Costs	Range from Low, Medium, and High
Timeline	Range from Already In Place, Immediate, Short Term, Medium Term, and Long Term

5.0 Annual Review

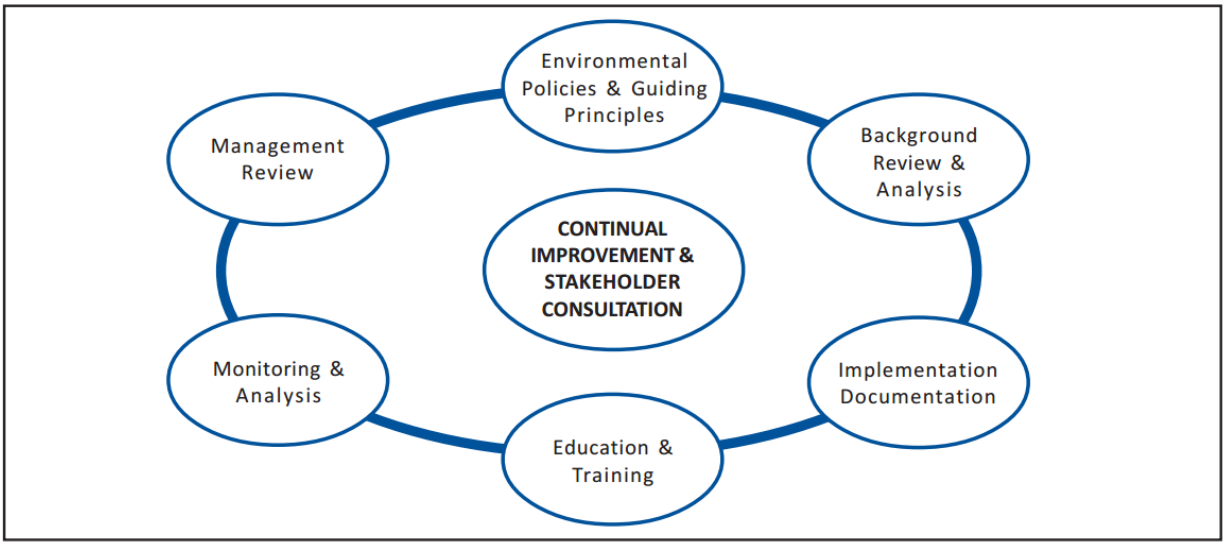
The Salt Management Plan is a continual improvement document and recognizes that change will be incremental and ongoing. The Plan is intended as a starting point for the Municipality Type to proceed with the implementation and continuance of best management practices for winter maintenance operations. The long-term goal of this plan is to protect the environment from excessive concentrations of road salts while at the same time, ensure that winter roads are kept safe.

Within the Code of Practice for the Environmental Management of Road Salts, Annex C: Monitoring and Measuring Progress, is included in order to establish a common approach to monitoring and measuring the progress of an organization in the use of road salt, implementation of best management practices and the concentration of road salt in the environment.

Environment Canada has developed a template Annual Report Form of the basic information to be collected and reported. The Municipality Name will utilize this template form for the purpose of providing consistency of information reporting to the federal agency. The report is required to be submitted annually by June 30th through the Government of Canada's Electronic Portal System.

This review should be integrated into the Municipality's budgetary process to permit timely acquisitions of new equipment and to identify other funding needs as required.

Figure 1. Salt Management Process



6.0 Conclusion

Effective road salt management requires dedication to adopting, implementing, and refining best management practices. Public safety must be maintained as best management practices are implemented. Personnel at all levels of the organization will need to be trained and educated so that maximum benefits are realized.

7.0 Appendices

- Winter Severity/Total Number of Events
- The Location of Salt Vulnerable Areas and Road Salt/Sand Application
- Current Maintenance Practices as Measured Against Best Management Practices