



# **The Township of Whitewater Region**

## **Salt Management Plan**

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## **Purpose of this Document**

This Salt Management Plan sets out a policy and procedural framework for ensuring that The Township of Whitewater Region continuously improves on the effective delivery of winter maintenance services and the management of road salt used in winter maintenance operations, as outlined in Environment Canada's Code of Practice for the Environmental Management of Road Salts.

The Salt Management Plan is meant to be a dynamic document to allow the municipality to evaluate and phase-in any changes, new approaches and technologies in winter maintenance activities in a fiscally sound manner. At the same time, any modifications to municipal winter maintenance activities must ensure that roadway safety is not compromised.

As specified in the Code of Practice for the Environmental Management of Road Salts, the Salt Management Plan is endorsed by The Township of Whitewater Region Council

## **Salt Management - Objective**

The Township of Whitewater Region is committed to improving winter maintenance operations while continuing to ensure public safety. The Township of Whitewater Region will optimize the use of winter maintenance materials containing chlorides on all municipal roads while striving to minimize negative impacts to the environment. The Township of Whitewater Region public works staff will strive to provide safe winter road conditions for vehicular and pedestrian traffic as set out in the level of service policies and within the resources established by The Township of Whitewater Region Council.

## **Policy Statement**

The Township of Whitewater Region will provide efficient and effective winter maintenance to ensure the safety of users of the municipal road network in keeping with applicable provincial legislation and accepted standards while striving to minimize adverse impacts to the environment. These commitments will be met by:

- Adhering to the procedures contained within the Salt Management Plan;
- Reviewing and upgrading the Salt Management Plan on an annual basis to incorporate new technologies and new developments;
- Committing to ongoing winter maintenance staff training and education
- Regularly monitoring on an annual basis, the present conditions of the winter maintenance program, as well as the effectiveness of the Salt Management Plan and making responsible adjustments as deemed necessary

## **Current Winter Maintenance Program**

### **1.1.0 The System Maintained**

The major activities related to winter maintenance are performed by The Township of Whitewater Region are:

- snow plowing
- salt / sand spreading
- salt and sand storage
- snow removal
- snow storage
- sidewalk plowing and de-icing

The Township of Whitewater Region is responsible for winter maintenance on approximately 330.6 km of roads.

Paved roads	20 km urban	2 lane km (centre line)
Surface Treated	180 km rural	2 lane km (centre line)
Unpaved roads	130.6 km rural	2 lane km (centre line)
Sidewalks	5 km	
Paths and Trails	28 km	

The Township of Whitewater Region roads have been classified as Class 4 ON per Reg. 239/02 which is based on the posted/regulated speed and annual average daily traffic (AADT) in order that Level of Service and/or Minimum Maintenance Standards can be set for each classification of road.

### **1.1.1 Level of Service Policy**

Winter maintenance season is weather dependant and historically commences November 1<sup>st</sup> and is completed April 1<sup>st</sup>. The staff and equipment are prepared and on standby to meet these time frames

The Level of Service policy for The Township of Whitewater Region currently meets or exceeds the Minimum Maintenance Standards (MMS) specified in the Ontario Regulation 239/02, *Municipal Act, 2001*, for snow accumulation and icy roads.

The Township of Whitewater Region makes every effort to provide safe and travelable roads to the motoring public in a timely, cost effective and professional manner.

The Code of Practice for the Environmental Management of Road Salts, under the Canadian Environmental Protection Act, 1999 recommends that the Salt Management Plan follows the Transportation Association of Canada, Syntheses of Best Practices for Road Salt Management.

### **1.1.2 Winter Patrol**

The Township of Whitewater Region Public Works Supervisor coordinates the overall response for winter maintenance and is responsible for call out of the operators to a winter storm event. Each operator is for an assigned route, the operator is responsible for observing and recording winter road conditions on his/her beat.

### **1.1.3 Staffing and Hours of Work**

The Township of Whitewater Region has a full time employee assigned to each vehicle used for winter operations. Each vehicle is assigned a route for sanding/salting and/or plowing.

The Township of Whitewater Region adheres to the hours of work as set out in the Highway Traffic Act, Reg.4/93. When the driver has completed his 13 hours driving time

in his/her 15 hour on-duty time, he/she then is sent home for the 8 hour off-duty period before driving the next shift.

<b>Staffing for Winter Maintenance</b>				
<b>Employee</b>	<b>Job Title</b>	<b>Unit Assigned</b>	<b>Comments</b>	<b>Route</b>
Darwin Peever	Operator	#4		Cobden
Fraser Barr	Operator	#9		Route 1
Patsy Moore	Operator	#18		Cobden
Lorne Rathwell	Operator	#2		Route 2
Ward Somerville	Operator	#20		Route 3
Perry Yach	Operator	#1		Route 4
Randy Buckwalt	Operator	#10		Route 5
Bob Wright	Operator	#16		Sidewalk 1
Roger Blaedow	Operator	#TLS1		Cobden
Robin Burskey	Operator	#TR21		Sidewalk 2
Derek Bennet	Floater			
Roy Bulmer	Spare			

### 1.1.4 Winter Materials Used Annually

The following chart gives the material and the amount used in The Township of Whitewater Region. Within this township there are no liquid applications used

<b>Material</b>	<b>2006/2007</b>	<b>**5 Year Average</b>
<b>Solids</b>		
Rock Salt (NaCl)	887 tonnes	700 tonnes
Sand (sand/salt mix)*	9520 tonnes	9500 tonnes

\* Percentage of salt in sand/salt mix by weight is 2%

### 1.1.5 Application Rates

The Township of Whitewater Region follows the MTO Maintenance Manual MBP-703 which suggests 130 to 170 kg of salt for paved/hardtop roads and 570 kg of sand per km of gravel roads. The Township of Whitewater Region spot sands when required to hills, corners and intersections.

<b>Solids</b>	<b>Spreading Rates per 2 lane km</b>	
	<b>Salt</b>	<b>Sand</b>
Class 4	130kg/per km	570kg/per km

### 1.1.6 Equipment - Winter Maintenance Fleet

An inventory of municipal equipment used for winter maintenance is found in **Appendix 1**

### 1.1.7 Yard Facilities

The Township of Whitewater Region has 3 patrol yards from which it operates its winter maintenance and storage of sand and salt. A list of the facilities with storage and drainage used for winter maintenance is found in **Appendix 2**.

## **1.1.8 Snow Removal and Disposal**

Currently the Township of Whitewater Region removes and hauls snow to 3 sites when the accumulation of piled snow impedes traffic within the business districts or residential areas of The Township of Whitewater Region.

Site 1 is the former Westmeath waste disposal site it is contained and uses natural evaporation and seepage

Site 2 is the fair grounds in Beachburg runoff is into the storm sewer

Site 3 is the Cobden site adjacent to sewer plant

These sites are only used on occasion in our urban areas.

In the spring, litter and debris are collected for disposal from all snow dumping sites.

## **1.1.9 Weather Monitoring**

The Township of Whitewater Region supplements road patrol information to determine an effective winter storm response and allocation of resources with, observations from municipal staff, communication with staff of adjacent municipalities. Staff monitors websites, such as, Environment Canada's for weather forecasting and radar.

## **1.2.0 Communications**

All winter maintenance vehicles are equipped with two way radio communications and municipal staff is responsible for reporting changing winter weather and/or road conditions. The Township of Whitewater Region facility serves as the main hub for in/outgoing calls from staff, emergency services and the general public. At this location the communication centre is staffed from 8:00 to 3:30 Monday to Friday. A paging service and emergency phone # is available for use 24 hours a day.

During regular business hours, one staff member with the Roads Department office is available to manage all incoming request for service, road information and emergency information. This is then communicated to the appropriate Supervisor or staff member.

External communication with the general public ranges from media to information posted on The Township of Whitewater Region web site regarding winter maintenance services and salt management practices in response to individual inquiries.

There are many ways for a municipality and its staff to receive notice that a winter storm event has commenced. In order to meet the requirements for Minimum Maintenance Standards, response is required (upon receipt by a member of staff, council or the public). After becoming aware of the fact, the person receiving notice shall inform the public works supervisor.

## **1.2.1 Training**

The Township of Whitewater Region currently provides some staff training for winter maintenance personnel. Staff attends the local Road Supervisors Association meetings to discuss such issues as new equipment, material trends in winter maintenance, regulatory changes and common issues relating to winter storm management.

The Township of Whitewater Region Operators attend the OGRA 1 day Winter Maintenance Training Program for equipment operators

Prior to the winter season, staff meet to discuss the strategy for winter maintenance, to go over the spreading/plowing responsibilities and review the safety issues. In the spring following the winter season, staff typically meet to discuss the successes and failures of

the past winter maintenance campaign and to provide input and suggestions for improvement.

## 1.2.2 Record Keeping

The Township of Whitewater Region retains records for the purchase of salt and sand for use in winter maintenance. Township of Whitewater Region retains records for application rates, plow or spreader routes or of storm events. The Township of Whitewater Region uses a customized version of the OGRA “Winter Patrol Record” for record of winter patrolling.

## Looking to the Future

The current winter maintenance policies and practices form the baseline or benchmark upon which improvements can be made to manage the use of road salt more effectively and in turn its impact on the environment.

### 2.1.0 Continuous Improvement Practices and Strategies

The Township of Whitewater Region has prepared a multi year work plan to improve the management of road salt and its winter maintenance policies, practices, and procedures. The Township of Whitewater Regions salt management plan is a living document it will be reviewed and updated annually

#### 2.1.1 Level of Services Policy

The Township of Whitewater Region will continue to develop and improve the Level of Service policies, or revisit the current level of service policy, to ensure we meet or exceeds Ontario Regulation 239/02, and customer expectations. The Level of Service policy may also address timing of application to ensure that salt is applied when optimal benefit will be achieved.

#### 2.1.2 Equipment Upgrading

It is intended that the winter maintenance fleet be capable of delivering appropriate levels of de-icing materials within a full range of climatic conditions.

**2007**  
**PUBLIC WORKS PROPOSED**  
**SCHEDULE FOR EQUIPMENT REPLACEMENT**  
**YEARLY UP DATE**

Unit #	Present Age in years	Make or Type	Suggested Year to be replaced	Age at Replacement
Tr# 1	14	1993 Ford tandem *	2008	15
Tr# 2	8	1999 Volvo tandem*	2014	15

Tr #4	17	1990 Chev 3 ton- single axle no sander or wing *	replace with Tr# 1 2008	18
Tr# 6	11	1996 1 ton gas with plow & dump box (low profile)	<b>2005 replaced by #18 diesel/ sander</b>	transfer to waste manag.
Tr# 9	13	1994 Navistar tandem	<b>New box/06 2009</b>	15
Tr# 10	12	1995 Ford tandem	<b>New box/04 2010</b>	15
<b>Tr#12</b>	<b>18</b>	<b>1989 Ford1 ton diesel d/box</b>	<b>**// 2007</b>	<b>18</b>
Tr# 15	5	2002 Ford ½ ton 4X4 ex cab	2012	10
Tr# 16	5	2002 Navistar tandem****	2017	15
Tr# 17	3	2004 Chevy ½ ton 4x2	2014	10
TR#18	2	2006 chev 1/ton, plow,sander	diesel/dump 2016	10
Tr#20	1	2006 7600 Navistar Tandem	2021	15
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<b>LDR# 2</b>	<b>24</b>	<b>1983 Volvo 2 yd loader</b>	<b>2007</b>	<b>24</b>
LDR# 4	14	1993 J.D. 1.1 yd loader ***	2008	15
LDR# 5	26	1981 Mich. 1.3 yd loader**	motor seized 2003	rebuilt /05
LDH# 3	4	2003 JCB 1.3 yd loader/hoe	2018	15
GR# 1	24	1983 Champion 720 grader	2009	26
GR#2	31	1976 champion 605T grader	brush hog installed	???????????
GR# 3	20	1987 champion 740 grader	2011	24
TRC# 3	14	1993 Kubota loader tractor	2013	19
TRC# 6	19	1988 IHC loader tractor ***	2008	20
TRC# 7	20	1987 Kubota Sidewalk plow	2008	21
TLS# 1	14	1993 MT5 trackless side/walk plow & sander	2010	17

### 2.1.3 Equipment Calibration

Properly calibrated equipment is one of the keys to the effective placement of de-icer material on municipal roads.

- Stipulate applications rates for all materials used for winter maintenance.
- Prior to the winter season and each year thereafter, all spreaders will be calibrated and, during the winter season the equipment will be checked and

recalibrated once mid season and each time there has been work on the vehicle hydraulics system.

## **2.1.4 Equipment Washing**

It is intended to reduce the amount of chlorides, oil, grease and grit that is discharged back into the environment.

- During the winter season all vehicles are washed indoors.

## **2.1.5 Material Delivery and Handling**

In the fall season, salt and sand is delivered outside and placed inside with loader upon delivery. Any yards that are unpaved, plan and budget for paving.

Ensure proper records are kept that include weigh ticket with truck number for each delivery, weather conditions, covering of materials.

## **2.1.6 Record of Material Usage**

Good record keeping includes the retention of accurate records on the amount of material used on each route by each vehicle and for each storm event.

- Implement a material tracking system, which records usage on each route, by each truck for each storm event.
  - With accurate records and comparisons, adjust amount of materials used for varying weather and pavement conditions.
- Implement a record of responses made to the winter storm events

## **2.1.7 Weather and Pavement Temperature Forecasting**

In order to ensure that the right material in the right amount is applied to the road at the right time, timely and accurate weather temperature forecasting is essential.

## **2.1.8 Storm Response**

Follow the minimum standards act as a base for storm response.

To assist patrol staff in decision making for winter maintenance, develop a set of guidelines for response to winter storm events that includes but is not limited to combinations of precipitation, air temperature, time of day and traffic volume.

- Type of storm event
- Air temperature during event
- At end or after the storm event; temperature rising, temperature falling
- Time of day; effect of heat gain during daylight hours
- Time of day; traffic volumes assist in breaking the bond of snow/ice with the pavement
- Wind direction
- Drifting conditions; do nothing and let the wind blow the snow across the road
- Initiate a snow fencing program to minimize drifting at troublesome locations

### **2.1.9 Winter Patrol**

Winter Patrol is used to monitor road conditions and to react quickly to changing weather and road conditions. It is necessary to establish Council approved winter patrol policy that is developed in conjunction with the annual level of service policy review.

- Patrol coverage 24/7
- Patrol coverage as Council directs for the winter season
- Patrol coverage for the shoulder season before and after the designated winter season to deal with frost and black ice.
- Ensure patrollers are trained and under the supervision of a seasoned winter maintenance supervisor.

### **2.2.0 Training**

All staff involved in winter maintenance; operators, patrollers, and supervisors need ongoing training, and need to share their skills and experience with the other municipal staff. Training should be refreshed annually before the upcoming winter season

- Operators should be trained on the equipment that they are assigned to operate and allowed sufficient time to reacquaint themselves with controls and how they operate.
- Managers and Supervisors should attend workshops, to learn the latest information about new technologies and techniques being used in other jurisdictions, and their experiences with various products and materials.
- All workers need training in the health and safety requirements for use of equipment and materials.

### **2.2.1 Technological Review**

Existing and new technology should be continuously monitored to determine their applicability in current policy and procedures with a view to altering them for continuous improvement in response to winter storm events.

- Material storage with inside loading
- Environment protection at snow dumps to prevent discharge of debris and chemicals directly into a watercourse with the melt water.
- Controlled run-off from loading pads at salt storage facilities

### **2.2.2 Environmentally Sensitive Areas**

It is necessary to understand the impacts of the municipal winter maintenance policies and practices on environmentally and agriculturally sensitive areas. We will be using pure salt on a limited base near all wetlands, streams and valleys, environmentally sensitive areas, pond, lakes, reservoirs, woodlands, fish, wild life, plant habitat, threatened and endangered species, flood plains and hazard lands, and areas of natural and scientific interest.

### **2.2.3 Communication Strategy**

The Township of Whitewater Region communication strategy is to effectively communicate its winter maintenance program to the public in addition to municipal staff.

- Prepare and distribute a winter maintenance guideline to the general public to ensure public awareness of the program that is being delivered.
- Prepare an internal handbook for employees that communicates the Council approved winter maintenance policies and procedures and other important information such as, contact list, operator and patroller shift assignments, strategies for dealing with the media, school boards and the public, etc.

- Provide winter maintenance information on the municipal website, and update regularly.

### **3.1.0 Monitoring and Updating**

An annual review of the salt management plan will occur by management and staff at the end of each winter season. As a result of this review the plan will be updated to include any changes in department policy, strategies and new techniques or equipment to be used in the upcoming winter season.

### **4.1.0 Performance Measures**

Performance measures should be used to determine whether the objectives of the salt management plan have been met. Achievement, year over year, will be measured in this salt management plan.

Some of the indicators should include:

Monitoring the severity of the winter season:

- Total annual cm of snow accumulation
- Total number of days with measurable snowfall
- Total number of days with freezing rain

Monitoring the salt used

- Tonnes of salt purchased annually
- Total tonnes of salt applied annually per system km

Ensuring customer satisfaction

- Total number of complaints received regarding winter operations
- % of complaints that resulted in a response





## Appendix 2

### Yard Facilities

Winter Maintenance Facilities – The Township of Whitewater Region															
Location	Site Drainage				Material Storage										
	Washing On-site	Washing Inside	Oil/Grit Separator	Discharge Drainage	Sand	Salt	Liquids	Structure Type	Structure Floor Paved	Salt Sand Loading	Door Overhang	Lighting	Mechanical Ventilation	Paved Loading Area	Liquid Containment
Cobden		Y		Y	Y	Y		Shed	N	Outside	N	Y	N	N	
Mineview		Y	Y	Y				Shed	Y					Y	
Westmeath		Y	Y	Y	Y	Y		Dome	Y	Outside	N	Y	N	Y	

### Snow Removal and Disposal

Snow Disposal Sites -(Municipality Name)								
Location	Surface		Drainage/Run Off		Surrounding Land Use			
	Paved	Unpaved	Controlled	Uncontrolled	West	East	North	South
Cobden	N			Y	Res	Swamp	Swamp	Road
Beachburg	Partly			Y	Ag	Res	Ag	Road
Westmeath	N			Y	Ag	Road	Ag	Ag

## Appendix 3

### Continuous Improvement Practices and Strategies

Salt Management Plan- The Township of Whitewater Region										
Continuous Improvement Options	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Level Of Service Policy	Y	Y	Y							
New Dome			Y							

## Appendix 4

### Definitions

**De-icing..** means the application of solids, liquids, pre-treated material to the road surface after the on-set of the winter event.

**Paved Road..** is a road with an asphalt surface, concrete surface, composite pavement, or Portland cement.

**Surface Treated Road..** is road with bituminous surface treatment comprised of one or two applications of asphalt emulsion and stone chips over a gravel road.

**Unpaved Roads..** is a road with a gravel, stone or other loose traveling surface.

**Winter Event..** is a weather condition affecting roads such as snowfall, wind blown snow, sleet, freezing rain, frost, black ice, etc to which a winter event response is required.

**Winter Event Response ..** is a series of winter control activities performed in response to a winter event.

**Winter Event Response Hours ..** are the total number of person-hours per year (plowing, salting/sanding, winging back, etc.) to respond to winter events.