

<b>POLICY MANUAL</b>	Policy No. 84-2020
Township of North Dundas	Effective Date: October 1, 2020
Subject: Winter Maintenance and Salt Management Plan	Revised: December 11, 2023

**Purpose:**

To establish a policy to provide guidance with respect to the manner in which the Corporation of the Township of North Dundas will conduct roads winter maintenance operations in the municipality.

**Background:**

It is the Township of North Dundas Transportation Services Department's strategy to develop a Winter Maintenance and Salt Management Plan to achieve the Winter Maintenance Service objective:

"To deliver an efficient and cost-effective service for the roadways within the Township of North Dundas, which, so far as is reasonably practicable, enables the safe movement of all modes of transportation and pedestrian traffic with a minimum of delay throughout the winter period whilst limiting the environmental impact of the service."

**Policy:**

The Council of the Corporation of the Township of North Dundas hereby confirms that the policies set out in Sections 5.5.4, 3.5.1.9, 3.5.2.3 and 3.5.2.8 of the SDG Official Plan shall constitute the policy as required by Section 270(1)7 of the *Municipal Act, 2001* and that Schedule "A" attached hereto constitutes an integral part thereof;

Further, the Township of North Dundas shall strive to provide funding in the annual municipal budget to support winter maintenance level of service and salt management in the municipality.

Approved by Council      Date: December 11, 2023

Resolution #: 2023-421



## **SCHEDULE A**

### **TRANSPORTATION SERVICES DEPARTMENT**

## **WINTER MAINTENANCE AND SALT MANAGEMENT PLAN**

**Effective October 1, 2020  
Revised December 11, 2023**

# WINTER MAINTENANCE AND SALT MANAGEMENT PLAN

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**Winter Maintenance and Salt Management Plan  
for the  
Township of North Dundas  
Transportation Services Department**

## **1.0 Introduction to the Winter Maintenance and Salt Management Plan**

### **1.1 Purpose:**

It is the Township of North Dundas Transportation Services Department's strategy to develop a Winter Maintenance and Salt Management Plan to achieve the Winter Maintenance Service objective:

"To deliver an efficient and cost-effective service for the roadways within the Township of North Dundas, which, so far as is reasonably practicable, enables the safe movement of all modes of transportation and pedestrian traffic with a minimum of delay throughout the winter period whilst limiting the environmental impact of the service."

### **1.2 Relevant Legislation:**

- . O. Reg. 239/02 Minimum Maintenance Standards for Municipal Highways
- . Highway Traffic Act
- . Employment Standards Act
- . Occupational Health & Safety Act

### **1.3 Activity List:**

Key activities are needed to provide a full winter maintenance service. The following is a brief summary:

- . Precautionary salting
- . Precautionary and post storm ~~stone dusting~~/salting
- . Plowing snow
- . Snow clearance at intersections/junctions
- . Heavy snow operations
- . Reactive Treatments

### **1.4 Winter Maintenance Period:**

1. The Winter Maintenance period will operate from the last Monday in October to the last Friday in March. During the starting period, the last Monday in October to the 3<sup>rd</sup> Monday in December, winter operations staff will work a single shift, typically 7:00 am to 3:30 pm,

unless weather conditions dictate a prolonged response/varied shift schedule. From the 3<sup>rd</sup> Monday in December until the last Friday in March, staff will be assigned to either a Day Shift from 4:00 am to 3:30 pm, or an Afternoon Shift from 3:30 pm to 4:00 am, to provide coverage for winter events. Shift start times and responses are subject to change at the discretion of the Director of Transportation Services or their designate.

Snow-clearing operation (plow trucks/routes) may be limited to once per weekend, if needed, in case of consistent snow throughout previous week or anticipated following week, to be within hours-of-service requirements. However, afternoon shift will ensure snow-clearing operations on Sundays. Whereas, day shift will undertake snow-clearing operations on Saturdays. The above schedules may change at the discretion of the Director of Transportation Services.

### **1.5 Winter Maintenance and Salt Management Plan Distribution:**

The Winter Maintenance and Salt Management Plan is a key document and will be issued to those shown in the distribution list in the Appendices; Appendix "A".

## **2.0 Policies and Responsibilities**

### **2.1 Service Delivery Responsibilities:**

The Transportation Services Department is responsible for providing the Winter Maintenance Service for the roadway operations within the boundaries of the Township of North Dundas Road System. This involves:

- . Design of the Winter Maintenance and Salt Management Plan
- . Annual production and distribution of the Winter Maintenance and Salt Management Plan
- . Establishing treatment priorities for roadways
- . Design of treatment routes for roadways
- . Ensuring availability of resources, plant, and materials
- . Maintenance of operation equipment
- . Ensuring availability of weather forecast service and condition monitoring systems
- . Monitoring of highway conditions
- . Decision making to commence Winter Maintenance operations and activities as necessary
- . Day-to-day direction of operations
- . Monitoring performance
- . Providing accurate and timely information to relevant parties as required
- . Maintaining comprehensive records for Winter Maintenance operations and activities
- . Liaise with other Highway Authorities, Emergency Services and Police
- . Implementing annual reviews of the service

- Providing emergency support, if capacity permits, to assist neighboring municipalities in their response to winter events.

## **2.2 Decision Making Process and Responsibilities:**

Operational decisions will be made by the Director of Transportation Services and the Patrol Supervisor or their designate (Lead Hand) with the aid of available forecasting, Minimum Maintenance Standards, patrolling etc. However, it should be emphasized that decisions will be subjective and external input, whether in this plan or elsewhere, merely acts as an aid to that decision making by the Director or Patrol Supervisor or their designate. It is vital therefore that the Patrol Supervisor records the prevalent conditions and relevant information when they make a decision.

## **2.3 Responsibilities of the Patrol Supervisor or their Designate:**

The Patrol Supervisor or their designate is responsible for monitoring the road and weather conditions for reaching an appropriate decision on the treatment for the roadway and for passing on this decision to the Operators.

The Patrol Supervisor or their designate will be responsible for the timetable to clearly identify personnel involved in winter maintenance operations to encompass 24-hour coverage during the entire period. The Patrol Supervisor will ensure the operations proceed in accordance with safe working procedures, hours of work, time off and on call.

The Patrol Supervisor or their designate will audit the working practices of the winter maintenance operators to ensure compliance with winter maintenance standards and material applications rates.

The Patrol Supervisor or their designate will maintain a Daily Log and Patrol Record which will contain details of phone calls, decisions made and associated times. This log will be held on file by the Township.

The Director of Transportation Services and Patrol Supervisor or their designate will be responsible for monitoring the weather as per MMS (Minimum Maintenance Standards).

As an example, the Patrol Supervisor or their designate is responsible for at a minimum the following documentation:

- Patrol Supervisor's Diary – will be kept up to date on a daily basis and once the diary is completed it will be retained in accordance with the Township's Records Management system. The Patrol Supervisor's diary will be made accessible for documentation in the event of a damage claim. Entries in the diary will be clear, concise and legible.
- Winter Patrol Record - the Patrol Supervisor will complete this record for roads patrolled.

This document will provide the date patrolled, roads completed, time, weather and road conditions, any accidents that are observed, who it was patrolled by and when the patrol was completed.

- . Schedule – the Patrol Supervisor will be responsible for scheduling their Operators.

## **2.4 Operator Responsibilities:**

Central to the success of any plan are the personnel involved. The Transportation Services Department Winter Maintenance Operators will be responsible for the Winter Maintenance Operation twenty-four (24) hours per day throughout the winter period.

The Operators at a minimum must complete the following records:

- . Vehicle Inspection Report (Circle Check) – (as per the Vehicle Inspection Policy which applies at all times during the year but referenced here for the purpose of the Winter Maintenance).
- . As per applicable legislation, the Operator must perform a circle check prior to leaving the yard for each call out event. The Patrol Supervisor will keep this record on file. No Operator will knowingly leave the yard if their vehicle or equipment has an identified mechanical/operational failure resulting from the completion of the circle check.
- . Each vehicle and salting winter maintenance equipment will be inspected prior to every individual call out operation.
- . The Operator ensures that their vehicle and salting equipment is cleaned sufficiently after each individual call-out operation.
- . At the request of the Patrol Supervisor, the Lead Hand or employee as designated by the Patrol Supervisor shall patrol representative roadways and document the patrol completion in their winter patrol record.
- . Record of Duty Status / Hours of Service.

## **2.5 Operating Hours:**

The Township adheres to the Highway Traffic Act, Reg.4/93. Operators are required to track operating hours and report daily hours of service to their Supervisor to comply with legislation. Drivers may be sent home for an “off-duty period” prior to working their next shift.



## **2.6 Hours of Work:**

The Township will operate as outlined below:

**In case of Storm Event (Patrol/Operators):** The regular working hours will begin at 4:00 a.m. and work until 12:30 p.m., Monday through Friday. At the discretion of the Director, Operators will be able to work thirteen (13) hours until 3:30 p.m., under the limitation of operating hours. Afternoon shift, if implemented, will start at 3:30 pm and work until 3:30 am if needed.

**In case of clear day (Patrol/Operators):** The Operators will work 7:00 a.m. until 3:30 p.m., five (5) days a week, Monday through Friday. This work provides patrolling and maintenance of roads and vehicles. Afternoon shift, if implemented, will start at 3:30 pm and work until 12:00 am.

**Weekend (Patrol/Operators):** The Weekend patrol will be at the discretion of the Patrol Supervisor or their designate based on forecast and weather conditions. Morning weekday shift will be called in on Saturday, if needed and afternoon weekday shift will be called in on Sunday, if needed. In case of only Saturday or Sunday snow clearing operation, any one of the shifts can be called in at the discretion of the Patrol Supervisor or Director of Transportation Services.

**Emergency (On-Call Operators):** During an unexpected event outside regular working hours (4:00 am to 3:30 pm), On-Call Operators will be called to assist with Road Maintenance, on an as-needed basis.

## **2.7 Requirements for the Completion of Documents:**

Please note that the forms as per the Winter Maintenance and Salt Management Plan which are to be completed by the Patrol Supervisor are mandatory.

However, it is duly noted that the Patrol Supervisor/Lead Hand/Operator will **not** sustain "personal liability" for recording Township information.

The Township will retain the original copy of documents regardless of their appearance. Coffee stains or dirt on originals are preferable to copies of original documents.

## **2.8 List of Township Roads Employees:**

The Township Transportation Services Department will create annually a list of all Township Transportation Services Employees/ Full-time/Part-time/Contract/Casual assigned to winter operations. Each employee will be asked to "Print" their name as well as provide a "Written Signature" and their driver's license number. The Township will perform at a minimum once a year, a license verification, driver's license and CVOR abstract on each employee operating a Township vehicle for winter operations.

After the list has been completed, a signatory form will be completed by additional persons working for or with the Township Transportation Services Department.

## **2.9 Road Closures and Liaison with the Police:**

When visibility declines to a point that it is hazardous to the driving public or snowplow operators to be on the roadway, snowplowing or ice control operations may be suspended. Suspended operations shall be resumed when visibility improves.

When weather conditions have rendered a route or roadway unsafe for use and the Director of Transportation Services or their designate determines the road must be closed to all traffic then this decision shall be provided to the Ontario Provincial Police and Emergency Services. Routes closed by Township instruction must be re-opened on Township instruction.

The Director of Transportation Services, Patrol Supervisor, Emergency Services (Fire and Ambulance), Ontario Provincial Police, Counties, Elected Officials and CAO, must be informed as soon as possible of roads closed by weather conditions. The Township will provide "Road Closure" signs and/or barricades to alert the public of the closed road. If at all possible, detours or diversion routes will be decided upon as a result of such a closure. In the event that a detour or diversion is not possible or will further endanger the travelling public by re-routing the traffic from a Township Road to a lesser travelled road, the Township will be held harmless from any motorist continuing forward on the "closed road" once so notified. The Township Transportation Services Department will be responsible for contacting the local media to notify the travelling public of the closed road(s) and the appropriate staff person to have it posted on the Township social media at its first available opportunity.

## **2.10 Salt Management – Objective:**

The Township 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 staff will strive to provide safe winter road conditions for vehicular traffic as set out in this document.

## **2.11 Significant Weather Event:**

As per the Ontario Municipal Act, a Municipality/Township may declare a significant weather event when a weather hazard, either forecasted or occurring, has the potential to pose a significant danger to users of the roadways in which the Municipality/Township have authority.

This declaration suspends the standard timelines required for Municipalities/Township

to meet their winter maintenance objectives. All roadways are deemed in a state of repair with respect to snow accumulation and/or ice conditions, until the municipality declares the significant weather event has ended.

In each case, during the course of a declared significant weather event, the standard for addressing winter maintenance is to monitor the weather and deploy resources to address the issue, starting from the time the municipality deems it most appropriate to do so. When the municipality declares an event has ended, standard timelines for winter maintenance activities then begin.

**Examples of Conditions when a significant weather event may be declared:**

- . Significant snow accumulation during a twenty-four (24) hour period or back-to-back continuous events
- . Ice formation that occurs without warning from the weather forecast
- . High winds leading to blowing snow and large snow drifts
- . Freezing temperatures when de-icing operations will not be effective

The declaration of a significant weather event is to notify the public that due to the forecasted or current weather conditions, caution is to be exercised when travelling on roadways, and that it may take longer than usual to restore the conditions back to a normal state of repair.

**Notification of a significant weather event:**

Significant weather event notifications will be declared by the Chief Administrative Officer (CAO) and the Director of Transportation Services or their designate, and will be posted on the Township's website and social media accounts.

### **3.0 Quality Control**

#### **3.1 Quality Management Regime:**

Operational records are usually paper-based although where possible the Township of North Dundas will promote information being recorded electronically in a computerized system. Throughout the winter maintenance period, roads maintenance staff will produce and manage various reports as documented below and in the Appendices, which may be amended from time to time.

Major/minor incidents should be reported as soon as practically possible to the Patrol Supervisor.

#### **3.2 Information Recording and Analysis:**

The Patrol Supervisor completes record of action used and provides this information to

the Township's staff.

This information is required for every individual call out operation.

### 3.3 **Budget and Material Monitoring:**

Inspection of winter maintenance operations and compu-spread information, if available, can be provided by the Patrol Supervisor to ensure spreading rates, equipment speed, and route compliance.

## 4.0 **Route Planning**

### 4.1 **Route Planning and Treatment Priorities:**

Treatment priorities for the roadways within the Township of North Dundas have been devised to ensure effective, efficient coverage within the timescales defined in the Minimum Maintenance Standards. This system of coverage is readily adaptable to prevailing conditions.

For the purposes of this policy, the *highways* under the jurisdiction of the Township of North Dundas are classified according to the Minimum Maintenance Standards.

### 4.2 **Township Roads Maintenance Priority Class Categories:**

**Table 1 – Priority Class Categories**

Posted Speed (AADT) Average Daily Traffic	91 - 100 km/h	81 - 90 km/h	71 - 80 km/h	61 - 70 km/h	51 - 60 km/h	41 - 50 km/h	1 - 40 km/h
53,000 or more	1	1	1	1	1	1	1
23,000 - 52,999	1	1	1	2	2	2	2
15,000 - 22,999	1	1	2	2	2	3	3
12,000 - 14,999	1	1	2	2	2	3	3
10,000 - 11,999	1	1	2	2	3	3	3
8,000 - 9,999	1	1	2	3	3	3	3
6,000 - 7,999	1	2	2	3	3	4	4
5,000 - 5,999	1	2	2	3	3	4	4
4,000 - 4,999	1	2	3	3	3	4	4
3,000 - 3,999	1	2	3	3	3	4	4
2,000 - 2,999	1	2	3	3	4	5	5
Posted Speed (AADT) Average Daily Traffic	91 - 100 km/h	81 - 90 km/h	71 - 80 km/h	61 - 70 km/h	51 - 60 km/h	41 - 50 km/h	1 - 40 km/h
1,000 - 1,999	1	3	3	3	4	5	5
500 - 999	1	3	4	4	4	5	5
200 - 499	1	3	4	4	5	5	6
50 - 199	1	3	4	5	5	6	6
0 - 49	1	3	6	6	6	6	6

Based on 2013 traffic volumes, Township roads are classified as class 4 or 5.

#### 4.3 **Service Standard 1 – Routine Patrolling:**

- 1) The minimum standard for the frequency of patrolling of highways to check for conditions described in the Regulation is set out in Table 2 to this section.
- 2) If it is determined by the Township that the weather monitoring referred to in section 3.1 of the Minimum Maintenance Standards indicates that there is a substantial probability of snow accumulation on roadways, ice formation on roadways or icy roadways, the minimum standard for patrolling highways is, in addition to that set out in subsection (1), to patrol highways that the Township selects as representative of its highways, at intervals deemed necessary by the Township, to check for such conditions.
- 3) Patrolling a roadway consists of observing the roadway, either by driving on or by electronically monitoring the roadway, and may be performed by persons responsible for patrolling roadways or by persons responsible for or performing highway maintenance activities.

**Table 2 - Patrolling Frequency**

<b><i>Class</i></b>	<b>Winter Storm Condition</b>	
	<b><i>Maximum Cycle</i></b>	<b><i>Desirable</i></b>
1	3 x every 7 days	2 x per day
2	2 x every 7 days	1 x per day
3	Once every 7 days	1 x per day
4	Once every 14 days	Once every 3 days
5-6	Once every 30 days	Once every 7 days

#### **Township Patrolling of Representative Roads**

Minimum patrolling of representative roads is as per table 2. Representative roads are Patrol Routes.

#### 4.4 **Service Standard 2 – Snow Accumulation**

- 1) The Township of North Dundas has adopted the minimum maintenance standards for addressing snow accumulation as indicated below:
  - a. **after becoming aware** of the fact that the snow accumulation on a roadway is greater than the depth set out in the Table 3 to this section, to deploy resources as soon as practicable to address the snow accumulation; and
  - b. after the snow accumulation has ended, to address the snow accumulation so as to reduce the snow to a depth less than or equal to the depth set out and within

the time set out in Table 3,

- i.) to provide a minimum lane width of the lesser of three metres for each lane or the actual lane width, or
  - ii.) on a Class 4 or Class 5 highway with two lanes, to provide a total width of at least five metres. O. Reg. 47/13, s. 4.
- 2) If the depth of snow accumulation on a roadway is less than or equal to the depth set out in Table 3 to this section, the roadway is deemed to be in a state of repair with respect to snow accumulation. O. Reg. 47/13, s. 4.
- 3) For the purposes of this section, the depth of snow accumulation on a roadway may be determined in accordance with subsection (4) by a municipal employee, agent or contractor, whose duties or responsibilities include one or more of the following:
  1. Patrolling highways.
  2. Performing highway maintenance activities.
  3. Supervising staff who perform activities described in paragraph 1 or 2. O. Reg. 47/13, s. 4.
- 4) The depth of snow accumulation on a roadway may be determined by,
  - a. performing an actual measurement;
  - b. monitoring the weather; or
  - c. performing a visual estimate. O. Reg. 47/13, s. 4.
- 5) For the purposes of this section, addressing snow accumulation on a roadway includes, but is not limited to,
  - a. plowing the roadway;
  - b. salting the roadway;
  - c. applying abrasive materials to the roadway; or
  - d. any combination of the methods described in clauses (a), (b) and (c). O. Reg. 47/13, s. 4.
- 6) This section does not apply to that portion of the roadway designated for parking. O. Reg. 47/13, s. 4.
  - a. "Snow accumulation" means the natural accumulation of any of the following that, alone or together, covers more than half a lane width of a roadway:
    - . New fallen snow
    - . Wind-blown snow
    - . Slush

**Table 3 - Snow Accumulation**

<b>Class</b>	<b>Response to Snow Accumulation</b>		<b>Surface Condition</b>		
	<b>Depth</b>	<b>Time</b>	<b>Lag time</b>	<b>Desired Condition</b>	<b>Minimum Condition</b>
1	2.5 cm	4 hours	12 hours	Safe & passable	Safe & passable
2	5 cm	6 hours	12 hours	Safe & passable	Safe & passable
3	8 cm	8 to 12 hours	18 hours	Safe & passable	Safe & passable
4	8 cm	12-16 hours	24 hours	Safe & passable	Safe & passable
5	10 cm	16-24 hours	24 hours	Safe & passable	Safe & passable

Given the Township roads are class 4 or 5, this allows for efficient winter plow operations and response commencing at 4:00 AM shift, subject to emergencies.

Please note that Safe and passable is defined as there may be some snow remaining but the surface can be safely travelled if done so in accordance with the conditions.

#### **4.5 Service Standard 3 – Icy Roadways**

The Township of North Dundas has adopted the minimum maintenance standards for treating icy roadways as indicated below:

- 1) The minimum standard for the prevention of ice formation on roadways is doing the following in the twenty-four (24) hour period preceding an alleged formation of ice on a roadway:
  1. Monitor the weather in accordance with section 5.1.
  2. Patrol in accordance with section 4.
  3. If the municipality determines, as a result of its activities under paragraph 1 or 2, that there is a substantial probability of ice forming on a roadway, treat the roadway to prevent ice formation within the time set out in the Table to this section, starting from the time that the municipality determines is the appropriate time to deploy resources for that purpose. O. Reg. 47/13, s. 5.
- 2) If the municipality meets the minimum standard set out in subsection (1) and, despite such compliance, ice forms on a roadway, the roadway is deemed to be in a state of repair until the earlier of,
  - a) the time that the municipality becomes aware of the fact that the roadway is icy;

or

- b) the applicable time set out in the Table to this section for treating the roadway to prevent ice formation expires. O. Reg. 47/13, s. 5.
- 3) The minimum standard for treating icy roadways after the municipality becomes aware of the fact that a roadway is icy is to treat the icy roadway within the time set out in the Table to this section, and an icy roadway is deemed to be in a state of repair until the applicable time set out in the Table for treating the icy roadway expires. O. Reg. 47/13, s. 5.
- 4) For the purposes of this section, treating a roadway means applying salt to the roadway. O. Reg. 47/13, s. 5.

**TABLE 4 - ICE FORMATION PREVENTION AND ICY ROADWAYS**

Class of Highway	Time
1	3 hours
2	4 hours
3	8 hours
4	12 hours
5	16 hours

O. Reg. 47/13, s. 5.

#### **4.6 Winter Maintenance Operational Routes**

The Winter Maintenance Routes for Mountain, Hallville, Inkerman, Ormond, Morewood, Chesterville Winchester Springs and Winchester may be subject to change by the Patrol Supervisor or their designate in the event of an emergency.

Routes will be reviewed at the end of each winter season to determine whether changes are warranted.

A route is defined as a full surface.

#### **Winter Routes:**

Winter patrolling routes vary depending on weather conditions.

Plow routes are categorized as follows and can change regularly depending on weather conditions:

- Winchester Town
- Chesterville Town
- Hallville Route



- Inkerman Route
- Mountain Route
- Winchester Springs Route
- Ormond Route
- Morewood Route

#### **4.7 Allocation of Vehicles, Equipment and Materials:**

The Township Transportation Services Department will ensure that two (2) plow trucks and two (2) sidewalk machines will be ready for use by October 15<sup>th</sup> of each year.

Two additional snow plow trucks will be ready for use on October 31<sup>st</sup>. The remaining fleet used for winter maintenance activities will be ready for use November 15<sup>th</sup>.

##### **4.7.1 Calibration Procedures:**

Calibration of the ~~mix~~/salting equipment (compu-spreads, application rates for ~~mix~~ and salting equipment, etc.) will be carried out annually before the start of the winter maintenance season and re-checked as deemed necessary. New equipment calibration performed by supplier upon delivery. For other equipment, calibration is performed by a third party and the Shop Foreman at the start of each season.

##### **4.7.2 Fuel Stock and Locations:**

The yard at 12715 County Road 43 has mobile re-fueling tank on patrol light duty truck for diesel fuel. Diesel fuel usage is closely monitored through the diesel fuel stock entries. The Patrol Supervisor reorders diesel fuel on an as-needed basis. Clear fuel and gas operated vehicles are filled at local vendor (Guy Fuels) on credit.

##### **4.7.3 Material Availability:**

Salt is tendered on a (2) two-year contract with SDG Counties and released early in the season once the previous winter maintenance season has ended. The successful supplier must supply the Township on an as-needed basis over the course of the winter season (October through April). Salt domes are located at 12269 County Road 43, Winchester and filled prior to the winter period. Salt sheds are monitored closely by staff and usage is documented so that the facilities may be refilled prior to depletion.

##### Salt Dome Facility Location:

Yard at 12269 County Road 43 - straight rock salt - Capacity of Dome – 1,100 tonne.

In the event of an emergency or in the event of a shortage, salt may be available from SD&G Counties or other neighboring Municipalities.

## **5.0 Weather Prediction and Information**

### **5.1 Weather Prediction and Information Support:**

The information used in decision making will be a combination of a road weather forecast and manual road condition checks.

The Patrol Supervisor will discuss possible actions with the Equipment Operators. Further discussions may ensue should the forecast suggest extreme weather conditions.

The Patrol Supervisor assesses the conditions on a continuing basis with the aid of the forecast, and upon the completion of each of the routes will consider the potential need for additional resources and deploy action accordingly.

## **6.0 Operational Procedures**

### **6.1 Township Winter Maintenance Treatment Procedures:**

During periods of adverse weather conditions or forecast predictions and where there may be uncertainty about the course of action required the Patrol Supervisor or their designate and the Equipment Operator should consult the following guide:

Background: Each storm has individual characteristics and must be dealt with accordingly. Therefore, exceptions to this plan may be necessary and shall be made based on best practices and/or institutional practical knowledge.

While the Township may implement winter maintenance procedures and minimum maintenance standards it is also the responsibility of the travelling public to acknowledge adverse weather conditions and drive accordingly.

Motorists should drive their vehicles during adverse weather conditions with additional caution and watchfulness, especially with respect to reduced traction and/or visibility. Motorists are advised to reduce their speed substantially below the posted speed limits during the periods of adverse conditions.

### **6.2 Standard Township Procedures for Winter Maintenance Operations:**

The primary method of snow removal shall be by plowing. Salt may be used to preclude the formation of ice, enhance snow/ice removal or to improve traction. It can be expected that snow will be plowed into driveways as a normal part of snow removal operations.

The Township will not be responsible for snow or ice pushed or otherwise placed on the roadway or shoulders by others (sec. 181, Highway Traffic Act). **The Township will not be responsible for damage to lawns on the Township road right-of-way or for the deposition of gravel in road ditches unless there are extenuating circumstances. These areas may be repaired on a case-by-case basis at the discretion of the Director of**

**Transportation Services, or their designate.**

**A piece of Township snow removal equipment may damage a mailbox located in or immediately adjacent to the roadway. The Township will not repair damage to items if the damage is due to the force of the snow being discharged by the snow removal equipment. The Township may repair/replace personal property damaged by direct contact by its equipment on a case-by-case basis. Damaged mailboxes will be replaced with standard, conventional boxes or materials only, as the Township takes no responsibility for special installations or mailbox designs which are installed on the Township road right-of-way.**

**Under no circumstances shall the Township use one of its pieces of equipment to push, pull or tow stranded, private vehicles from a roadway or ditch except in a life or health threatening situation. In such cases a Township employee may give brief assistance or call for emergency response. Likewise, no Township employee may use a Township vehicle or piece of equipment to perform snow or ice control operations on private or commercial property.**

**Sidewalks:**

The Transportation Services Department is responsible for maintaining/plowing snow from sidewalks in Winchester, Chesterville, Morewood, South Mountain, Mountain, Inkerman and Winchester Springs. The Township may remove the snow accumulated on areas between the sidewalk and main streets in Winchester and Chesterville on clear days, depending upon weather conditions and resources. This will be completed as a low priority function, following the completion of the Township priority work on the driving surface. However, with the implementation of afternoon shift, regular snow removals may be performed on clear days. Snow removal in Winchester by the staff will be performed in conjunction with the snow-clearing contractor.

**6.3 Guidelines for Salt**

The following material rates are provided as a guideline for winter maintenance operations. Staff are permitted to vary these rates in order to address area-specific issues based on best practices.

Condition	Rate
Some snowpack or ice, no precipitation	65 kg / ln km salt
Mostly snowpack or ice covered or light precipitation (2 to 5cm)	65 kg / ln km salt
Snow packed or iced over, or heavy precipitation (5cm or higher)	75 kg / ln km salt
Freezing Rain	75 kg / ln km salt
Gravel Road: Freezing rain	65 kg / ln km – one way

**Note:** Patrol Supervisor or their designate can make adjustments as necessary based on local climate.

### **Conventional Salting**

- Two-way salting shall be the Township standard unless weather conditions or circumstances dictate otherwise.

### **6.4 Contract Routes:**

The Township of North Dundas will review the need for contract truck routes annually. The contracted routes will be awarded by tender process. Contract trucks will be called out by the Patrol Supervisor or their designate, if needed, subject to approval of Director of Transportation Services.

### **6.5 Environmentally Sensitive Areas**

It is necessary to understand the impacts of the Township winter maintenance policies and practices on environmentally and agriculturally sensitive areas. The following measures are employed to assist the Township in identifying environmentally sensitive areas within the Township:

- Identify wetlands, streams and valleys, environmentally sensitive areas, pond, lakes, reservoirs, woodlands, fish, wildlife, plant habitat, threatened and endangered species, flood plains and hazard lands, and areas of natural and scientific interest adjacent to salt storage areas.

- Attempt to use minimal amounts of road salt inside of sensitive areas while maintaining the standards as required in the Minimum Maintenance Standards (MMS).
- Liaise with conservation authorities.
- Seek guidance from federal/provincial ministries and/or agencies, when necessary.

The Township salt storage and facilities lie outside the ten (10) year capture zone and environmentally sensitive features, so salt storage is not a significant concern.

## **7.0 Training**

### **7.1 Training Provided to Winter Operators and Applicable Roads Staff**

The Township Public Works Department will endeavor to provide the following training to its staff:

- a) Full-Time Roads staff will be given the opportunity to receive First Aid/CPR Training.
- b) All Roads staff will be given WHMIS training.
- c) All Roads Staff will be provided with access and knowledge on Occupational Health and Safety.
- d) Third party snowplow driver training will be provided if deemed necessary.

## **8.0 Continuous Improvement Practices and Strategies**

### **8.1 Monitoring and Updating**

An annual review of the Winter Maintenance and Salt Management Plan by management and staff will occur 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. Changes made to the plan will be incorporated in the annual fall maintenance session in preparing for the upcoming winter control season.

### **8.2 Performance Measures**

Consider performance measures to determine whether the objectives of the salt management plan have been met. Achievement, year-over-year, will be measured against the benchmark/previous four (4) years average. Some of the indicators may 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
- Total number of continuous winter event responses
- Total number of spot winter event responses

- . Total number of winter event hours

#### Monitoring the salt used

- . Tonnes of salt purchased annually
- . Percent of applications where discharge rates were exceeded
- . Total tonnes of salt applied annually per lane km

#### Ensuring customer satisfaction

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

#### Measuring the success of the plan

- . Percent of the goals, if any, set out in the plan that were met.

### **8.3 Level of Services Policy**

The Township currently maintains a winter maintenance level of service as per this document that meets or exceeds Ontario Regulation 239/02.

### **8.4 Equipment Calibration and Verification**

- . Properly calibrated equipment is one of the keys to the effective placement of de-icing material on municipal roads.
- . Applications rates for all materials are outlined in this document and are subject to annual review.
- . Prior to the winter season and each year thereafter, all spreaders will have their calibration verified and will be calibrated as needed.

### **8.5 Equipment Washing**

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

- . An oil/water separator is in place at the patrol yards and vehicle washing happens indoors.

### **8.6 Material Delivery and Handling**

In the fall season, salt is delivered and stockpiled.

- . Ensure all deliveries of salt are covered while in transport, and schedule deliveries in good weather if feasible.
- . Ensure the loading areas are swept clean following the transfer of the material.
- . Ensure proper records are kept that include weigh tickets.

### **8.7 Storm Response**

The Patrol Supervisor has decision-making authority for winter road maintenance during winter storm events that includes, but is not limited to, combinations of precipitation, air and

pavement temperatures, time of day and traffic volume. The patrol staff have the ability to call in plow operators on an as-needed basis given the current road conditions, factors to be considered are:

- . Type of storm event
- . Air and/or pavement 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
- . Frost penetration in the road base contributing to pavement temperature.

## **8.8 Technological Review**

Existing and new technology should be continuously monitored to determine applicability in the current policy and procedures with a view to altering them for continuous improvement in response to winter storm events. Technological improvements should be periodically reviewed for the following aspects of salt management:

- . Pre-wetting
- . Direct liquid application or anti-icing
- . Impact of different liquids on the equipment used for application
- . GPS for vehicle locating and data transfer
- . Electronic spreader controls with capability for solids, liquids, and data transfer via GPS
- . New spreader equipment with liquid capabilities
- . Environment protection at snow dumps to prevent discharge of debris and chemicals directly into a watercourse with the melt water
- . Use of RWIS for localized weather and pavement temperature forecasting
- . Use of infrared thermometers for measuring pavement temperature
- . Use of pavement temperature as a tool in determining when and what material is to be used.

## **9.0 Conclusion**

### **9.1 Final Statement:**

The Winter Maintenance and Salt Management Plan Policy laid out above is to establish goals and guidelines for the Township of North Dundas Transportation Services Department employees regarding winter maintenance of snow and ice control. It is not to be construed to create any duty to a specific individual or employee but is to act as a guideline for winter maintenance operations for the Township of North Dundas. The policy can be updated from time-to-time at the discretion of the Director of Transportation Services in consultation with the CAO. Updates will be documented and reported to the Council for consideration and input.

## 10.1

### Appendix "A"

#### Distribution List

Name	Title	Telephone Number
Angela Rutley	CAO	Office: 613-774-2105 ext. 231 arutley@northdundas.com
Jamie Cheney	Director of Transportation Services	Office: 613-774-2105 ext. 241 jcheney@northdundas.com
Todd Helmer	Patrol Supervisor	Office: 613-774-2105 thelmer@northdundas.com
Roads Staff	Operators/ Laborer/Administrative Assistant	Office: 613-774-2105



## **10.2**

### **Appendix “B”**

#### **Copies of Records/Reports to be Completed by Patrol Supervisor and/or Operators (See attached)**

- a. Routine Patrol Record**
- b. Winter Patrol Record**
- c. Patrol Supervisor’s Diary (typical – not attached)**
- d. Samples Record of On-Duty Status as referenced in 2.4, Hours of Work Record and Highway Traffic Act, Hours of Service**
- e. Winter Weather (forecast records, not attached)**
- f. Daily Inspection Report**

### 10.2.a. Patrol Record – Township of North Dundas

Date of Patrol:	Weather		
	Clear	<input type="checkbox"/> Wind	Light <input type="checkbox"/> Moderate <input type="checkbox"/> Strong <input type="checkbox"/>
Start of Patrol (Time)                      End of Patrol (Time)	Partly Cloudy	<input type="checkbox"/>	Direction _____
	Overcast	<input type="checkbox"/> Visibility	Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor <input type="checkbox"/>
Patrolled by: (Please Print)	Rain	<input type="checkbox"/> Air Temperature	
	Snow	<input type="checkbox"/>	
Signature:	Freezing Rain	<input type="checkbox"/>	
	Fog	<input type="checkbox"/>	

Blank space =  
Acceptable

Condition Codes		Action Required
N/A	Not applicable	No action required
	Acceptable	No action required
M	Marginal - a defect observed, that does not create a hazard	Monitor defect
NS	Observed Defect Needs Service	Schedule repair to comply with MMS or LOS

[illegible]

Unit#:  
Page\_\_of\_\_

Date: \_\_\_\_\_

(mm/dd/yyyy)

Approved by: \_\_\_\_\_

Shift: Starts: \_\_\_\_\_ End: \_\_\_\_\_

[illegible]

COMMENTS:

BD-bare & dry	CB-center bare	SC-snow covered	I-ice	D-drifting
BW-bare & wet	TB-track bare	SP-snow packed	SL-slush	

Page        of       

### ROAD OBSERVATIONS & CONDITIONS

- 24-hour clock format is used
- Wind (L-Log), 14-3000 ft. S-Strong
- Temperature, °C
- Snow Accumulation, cm (T=Trace)

Weather Abbreviations			
C-clear	R-rain	SN-snow	F-fog
PC-partly cloudy	FR-freezing rain	OC-overcast	

Road condition Abbreviations				
BD-bare & dry	CB-center bare	SC-snow covered	I-ice	D-drifting
BW-bare & wet	TB-track bare	SP-snow packed	SL-slush	

## 10.2.c – Daily Driver Report

### DAILY DRIVER REPORT

Date: M /D /Y

Driver (Print Name):

Start Time: AM/PM

Finish Time: AM/PM

Total Paid Hours:

Starting Point (Address): ☐ 12269 County Road 43



☐ 12715 County Road 43

Hrs between shifts:

Hrs Driving:

Hrs On Duty:

Hrs Off Duty:

☐ Other specify:

#### First Unit

Unit #: Lic #: ON

Unit #: Lic #: ON

Finish Odometer: km

Start Odometer: km

Total for Day: km

Vehicle Inspection Time: ☐ AM ☐ PM

Vehicle Inspection Time: ☐ AM ☐ PM

Litres of Fuel:

#### Second Unit

Unit #: Lic #: ON

Unit #: Lic #: ON

Finish Odometer: km

Start Odometer: km

Total for Day: km

Vehicle Inspection Time: ☐ AM ☐ PM

Vehicle Inspection Time: ☐ AM ☐ PM

Litres of Fuel:

	<div style="display: flex; justify-content: space-between;"> <span>Midnight</span> <span>Noon</span> <span>Midnight</span> </div> <div style="display: flex; justify-content: space-between;"> <span>0</span><span>1</span><span>2</span><span>3</span><span>4</span><span>5</span><span>6</span><span>7</span><span>8</span><span>9</span><span>10</span><span>11</span><span>12</span><span>13</span><span>14</span><span>15</span><span>16</span><span>17</span><span>18</span><span>19</span><span>20</span><span>21</span><span>22</span><span>23</span><span>24</span> </div>																								TOTAL
Off-Duty Time																									
Driving Time																									
On-Duty Time																									
Remarks:																									(TOTAL)

Signature: (Certified true & correct)

**CYCLE (1) 70 HRS 7 DAYS**  
(Driver operating within 160 km of home terminal)

## 10.2.d - Daily Vehicle/Equipment Inspection Report (CVOR)

### DAILY VEHICLE INSPECTION REPORT

Date: \_\_\_\_\_

Driver (Print): \_\_\_\_\_

Driver Signature: \_\_\_\_\_

Start Mileage: \_\_\_\_\_ km

☐ No Defects Found

Location of  
Inspection: ☐ 12269 County Road 43

☐ 12715 County Road 43

☐ Other specify: \_\_\_\_\_

Driver (D) use an X if item is not satisfactory / Repair (R) use ✓ when corrected and your initials.



Unit # \_\_\_\_\_ Lic # \_\_\_\_\_ ON

Unit # \_\_\_\_\_ Lic # \_\_\_\_\_ ON

Make: \_\_\_\_\_

Pre-Trip Time: #1 \_\_\_\_\_ ☐ AM ☐ PM

#2 \_\_\_\_\_ ☐ AM ☐ PM

Post Trip: \_\_\_\_\_

TRACTOR/TRUCK		TRAILER		TRACTOR/TRUCK		TRAILER		TRACTOR/TRUCK		TRACTOR/TRUCK	
D/C	R	Inspection Item	D/C	R	Inspection Item	D/C	R	Inspection Item	D/C	R	Inspection Item
		Valid Inspection Decal			Safety Chains/Cables			Emergency Brake			Instrument Lamps
		Air System Leakage			Hitch/Couplers/Drawbars			Electric Brake			Driver Seat & Seatbelt Security
		Park Brake			Turntables/Self-Steering Axis			Brake Pedal Reserve & Fade			Glass
		Brake Performance/Brake Adjustment			Lamps/Reflectors			Tractor Protection			Wipers & Washers
		Glad Hands			Permanently Attached Equipment			Fuel System			Rear View Mirrors
		Tires			Hydraulic Brake			Exhaust System			Horn
		Wheels/Hubs/Fasteners			Hydraulic Brake Fluid			Power Steering & Fluid Level			Heater/Defroster
		Mudflaps			Compressor Build Up			Steering Wheel/Lash			Emergency Equipment
		Frame & Cargo Body Suspension			Governor Cut Out			Cab & Doors			Safety Devices
		Bumper/Underride Protection			Governor Cut In			Driver Controls			Dangerous Good (If Any)
		Load/Cargo Securement			Low Air Warning			Accelerator			Damage body
											Plow/Sander Controls
											Sander/Spinner

REMARKS:

- ☐ ABOVE DEFECTS CORRECTED  
☐ ABOVE DEFECTS NEED NOT  
 BE CORRECTED FOR SAFE  
 OPERATION OF VEHICLE

\_\_\_\_\_  
 AUTHORIZED REPAIRER'S SIGNATURE

\_\_\_\_\_  
 DATE

\_\_\_\_\_  
 DRIVER'S SIGNATURE

\_\_\_\_\_  
 DATE