

For Information Only

Winter Control Update

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Recommendation

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Background

Enclosed are details of the Winter Control Plan for the 2013 / 2014 winter season. The plan detailed herein includes information about snow plowing standards for roadways and sidewalks, snow removal and technology used for winter control. The service levels have remained the same for the past six years and are familiar to most of our citizens.

Staff has been placed into their winter assignments as of November 2nd. For this season, there is a total of 83 operational hourly staff assigned to winter control activities. In addition to our winter control compliment, there is an additional 17 hourly staff working in the Forestry, Building Maintenance and the Sign Shop. There are a total of 21 Forepersons and six Superintendents filling supervisory and road patrol roles. When conditions warrant, the City has the ability to call in an additional 37 Contractor crews, which include 27 contracted plows for roadways and 10 loaders and/or 4x4 units to handle parking lots lanes and cul-de-sacs.

The winter control plan is designed to deploy City crews on the Class 1 to 3 road network when the winter event starts, sanding/salting/plowing as required. City crews will continue to treat Class 1 to 3 roads until a snow depth of 8 cm is achieved, at which point the road supervisor will call in the Contractors. The Contractor crews will be placed on our Class 1 to 3 network and City crews will be switched into the Class 4 to 6 road network. The loaders and 4x4 units will be deployed at a snow depth of 8 cm and will focus on either parking lots or cul-de-sacs depending on the time of day. During freezing rain events, deployment on the Class 4 to 6 roads, parking lots, lanes and cul-de-sacs will be immediate with the focus on sanding/salting. Appendix A summarizes the current winter control policy.

To achieve service levels, staff has access to 34 tandem axle combination plows, eight single axle plows, seven graders, 28 sidewalk plows, eleven loaders and five, 4x4 units. Contractors equipment on standby includes 23 tandem axle combination plows, four graders, six loaders and four, 4x4 combination plows. If the

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storm conditions warrant, staff has access to a casual pool of employees to call in as well as additional Contractors.

There are Forepersons, in each geographical section, on a twenty-four hour, seven day a week schedule. The Forepersons are expected to perform road patrols, monitor weather and deploy / supervise staff as conditions dictate. In addition to the Forepersons, an Overall Responsible Superintendent is placed on standby each day to provide overall management of a winter event as required.

Snow Plowing – Roadways

Service levels have been established for our roadways based on the classification of the road as well as type of winter event. Roadway classification is based on the traffic counts in combination with the posted road speed. City roadways have been split into two (2) categories, Class 1 to 3 and Class 4 to 6 with service levels defined for both. For the purpose of service standards, two different types of winter weather events have been defined, snow and freezing rain.

When a winter event starts (regardless of type of event) crews are dispatched to the Class 1 to 3 network as soon as practicably possible. On snow events, crews will commence plowing services once a 5 cm snow depth and will continue to plow until the event is over. On freezing rain events, crews will apply salt/sand immediately and continue to do so until the event has concluded. In both weather conditions, it is expected to have the Class 1 to 3 network returned to bare pavement within 3 to 8 hours after the storm concludes.

On the Class 4 to 6 roadways, crews are deployed when an 8 cm depth is achieved on snow events and immediately on freezing rain events. Crews will continue to service these types of roadways until the storm ends. On snow events the service level dictates that the roadways will be returned to snow packed condition within 12 to 24 hours after the storm ends regardless of the type of event.

Currently there is 17, Class 1 to 3 and 28, Class 4 to 6 roadway beats to service during snow events. In addition to the roadway routes there is also 10 parking lots, lane and cul-de-sac beats that are managed.

To achieve these service level standards rock salt and/or pickled sand is used to either melt or provide traction during winter events. Due to environmental and cost concerns associated with the use of rock salt (sodium chloride), the locations where this is applied is limited to Class 1 to 3 roadways and some select hills (warranted by grade). Pickled sand (5% sodium chloride) is always used on Class 4 to 6 roadways, parking lots, laneways and cul-de-sacs and pickled sand is also used on Class 1 to 3 roadways when the temperature is lower than -13 degrees Celsius as rock salt is no longer effective.

Table 1 attached provides details on how the City's service levels compare to the minimum maintenance standards as well as select northern communities. As highlighted, the City meets or exceeds the minimum maintenance standards.

Table 1						
Plowing and Abrasives Application Comparison of Large Northern Ontario Municipalities						
Road Authority	Snow Plowing	Road/ Sidewalk	Snow Accumulation Trigger	Response for a Single Pass	Abrasives Application	Other Notes
Sudbury	Roads	Class 1 – 3	5 cm	3 – 8 hrs	Salt or Sand	17 Beats
	Roads	Class 4 – 6	8 cm	Up to 24 hrs	Sand	28 Beats
	Sidewalks	All Sidewalks	8 cm	12 to 24 hrs	Sand	20 Beats
Timmins	Roads	Class 1 – 3	8 – 10 cm	8 – 12 hrs	Sand	13 Total Beats
	Roads	Class 4 – 6	8 – 10 cm	8 – 12 hrs		
	Sidewalks	All Sidewalks	8 – 10 cm	8 – 16 hrs	Sand	6 Beats
North Bay	Roads	Class 1 – 3	8 – 10 cm	8 – 12 hrs	Salt or Sand	13 Total Beats
	Roads	Class 4 – 6	8 – 10 cm	8 – 12 hrs	Sand	
	Sidewalks	All Sidewalks	8 – 10 cm	Up to 12 hrs	Sand	5 Beats
Sault Ste. Marie	Roads	Class 1 – 3	5 cm	Up to 12 hrs	Salt or Sand	17 Total Beats
	Roads	Class 4 – 6	5 cm	Up to 24 hrs	Sand	
	Sidewalks	All Sidewalks	5 cm	Up to 12 hrs	Sand	9 Beats
Thunder Bay	Roads	Class 1 – 3	5 cm	Up to 72 hrs	Salt or Sand	34 Total Beats
	Roads	Class 4 – 6	10 cm	Up to 72 hrs		
	Sidewalks	High Priority	5 cm	14 – 24 hrs	Salt or Sand	15 Total Beats
	Sidewalks	Low Priority	5 cm	Up to 72 hrs		
Minimum Maintenance Standards	Roads	Class 1 – 3	2.5 – 8 cm	4 – 12 cm		
	Roads	Class 4 – 5	8 – 10 cm	16 – 24 hrs		
	Sidewalks	N/A	N/A	N/A		

Snow Plowing – Sidewalks

Currently, winter sidewalks maintenance is being provided in areas that were identified pre-amalgamation with a few exceptions. New sidewalks constructed as part of a development that tie into an existing, winter maintained sidewalk will automatically be added to the routes as well as new sidewalks that have been constructed under the Capital program and identified for inclusion under the City's winter sidewalk maintenance program.

There is approximately 425 km of sidewalks and walkways connecting neighborhoods within the City of Greater Sudbury. Approximately 25% of the sidewalks are not maintained during the winter months. Some of these sidewalks do not meet the current sidewalk standard width of 1.5 metres and cannot be plowed with the City's existing sidewalk plowing equipment due to their narrow width.

Currently, there are no plans to change the level of winter maintenance on sidewalks for the 2013/2014 winter season. The service level includes plowing/sanding sidewalks when an accumulation of 8 cm of snow is reached or when icy conditions are detected. The plan is designed to provide snow clearing services within 4 to 24 hours after the storm has ended. The only exception to this approach is the former City downtown business core which receives plowing/sanding services 5 days a week (Monday to Friday, 12:00 a.m. until 8:00 a.m.).

There are a total of 20 sidewalk routes throughout the City. The routes are designed based on an area being plowed within 8 hours with a straight blade and 12 hours with a snow blower attachment using municipal tractors.

Snow Removal

Currently, snow removal in the form for snow pickup, blowing or benching is completed at intersections to address sight line issues, along roadways when lane width or traffic capacity problems occur, at select bus stops and along Elm Street between Elgin and Lisgar Street to allow for on street parking. We also remove snow in the central business districts up to twice a year. The City does not provide for snow removal at private driveways.

Snow pickup is used when there is a small amount of snow to be removed. Snow blowing is used primarily in the central business districts and when there is a significant amount of snow to be removed. Snow benching is used in rural areas to establish lane width/storage capacity on the shoulders.

Technology and Monitoring

Staff will continue to use all the technology available to them to manage winter control events. Each year Staff builds on the services used in previous years to help better monitor/predict the state of a winter event.

In early September staff commenced work on the installation of new AVL (Automatic Vehicle Location) devices in the winter fleet. The installation of new AVLs is a multi-phase project. Phase one includes the installation of the new hardware in each piece of City / Contractor equipment used for winter control. This phase will provide staff the ability to monitor the location of the winter control fleet as well as provide vehicle technicians with key indicators of the status of the plows (maintenance information). Future phases will include the installation of hardware in the balance of the Roads and Transportation Services fleet as well as the development of a customized winter control application. The application will allow staff the opportunity to introduce AVR (Automatic Vehicle Routing) technology, monitor material application rates and road patrol integration. For this year staff will continue to use a Storm Centre to monitor plows as they complete their various routes. Next season it is scheduled to have the customized application in place that will monitor the fleet and advise Winter Control Forepersons as to any deviation from the preset routes and/or other key vehicle data.

In addition to AVL technology, staff will be monitoring weather and road conditions 24 hours a day, 7 days a week. Staff will be using data contained in customized weather reports, radar site monitoring as well as RWIS (Road Weather Information System) data to better predict when / where to deploy the winter control resources. The weather reports and radar monitoring provides us tools for tracking weather events while RWIS data gives staff a snapshot of the current condition at a specific location. Currently, the City has one dedicated RWIS site in the Northwest (Levack) and is planning on adding more in the future.

Parking Restrictions

To assist with the efficient operation of winter control activities, parking restrictions are imposed on municipal roads from December 1st to March 31st. All vehicles are restricted from parking between midnight and seven (7) a.m. Additional restrictions are imposed on commercial traffic.

Appendix 'A' - Current Winter Plowing, Salting and Sanding Policy/Practice

Road Winter Maintenance - Snow Events			Service Timelines ¹		Written City Policy	City Practice
Road Classification	Protocol / Action	Snow Accumulation	Complete Round #1 / Initial Deployment	Clear / Material Application	Written City Policy	City Practice
Class 1 - 3	Apply Brine/Salt	N/A	Within 2 - 4 Hours of Significant Snowfall	-	Yes	Yes
	Plow Roads	5 cm	Within 3 - 8 Hours of reaching 5 cm Threshold	3 - 8 Hours after Storm Ends if Required	Yes	Yes
	Salt/Brine/Sand Roads	N/A	Within 3 - 8 Hours of reaching 5 cm Threshold	3 - 8 Hours after Storm Ends if Required	No	Yes
Class 4 - 6						
	Plow Roads	8 cm	Within 24 Hours after reaching 8 cm Threshold	24 Hours after Storm Ends if Required	Yes	Yes
	Spot Sand Roads	N/A	Within 24 Hours after reaching 8 cm Threshold	24 Hours after Storm Ends if Required	Yes	Yes

Appendix A - Current Winter Control Practice

Road Winter Maintenance - Ice Events			Service Timelines ¹		Written City Policy	City Practice
Road Classification	Protocol / Action	Ice Detection	Complete Round #1 / Initial Deployment	Clear / Material Application	Written City Policy	City Practice
Class 1 - 3	Salt/Brine/Sand Roads	Detected	Within 2 - 4 Hours of Ice Detection	2 - 4 Hours after Storm Ends if Required	Yes	Yes
Class 4 - 5	Sand Roads	Detected	Within 12 - 16 Hours of Ice Detection	12 - 16 Hours after Initial Application if Required	Yes	No
Class 4 - 6	Sand Roads	Detected	Within 24 Hours of Ice Detection	24 Hours after Initial Application, if Required	No	Yes

Sidewalk Winter Maintenance - Snow Events			Service Timelines ¹		Written City Policy	City Practice
Sidewalk Classification	Protocol / Action	Snow Accumulation	Complete Round #1 / Initial Deployment	Clear / Material Application	Written City Policy	City Practice
Downtown	Plow & Sand Sidewalks	N/A	Midnight to 8 am, Weekdays	-	Yes	Yes
Class 1 ²	Plow & Sand Sidewalks	8 cm	Within 4 - 24 Hours of reaching 8 cm Threshold	12 - 24 Hours after Storm Ends if Required	Yes	Yes
Class 2 ³	Plow & Sand Sidewalks	8 cm	Within 8 - 24 Hours of reaching 8 cm Threshold	12 - 24 Hours after Storm Ends if Required	Yes	Yes

Sidewalk Winter Maintenance - Ice Events			Service Timelines ¹		Written City Policy	City Practice
Sidewalk Classification	Protocol / Action	Ice Detection	Complete Round #1 / Initial Deployment	Clear / Material Application	Written City Policy	City Practice
Downtown	Plow & Sand Sidewalks	N/A	Midnight to 8 am, Weekdays	-	Yes	Yes
All Sidewalks	Sand or Salt	Detected	Within 2 - 24 Hours of Ice Detection	2 - 24 Hours after Initial Application, if Required	Yes	No
All Sidewalks	Sand Sidewalks	Detected	Within 24 Hours of Ice Detection	24 Hours after Storm Ends if Required	No	Yes

¹ Winter Control Supervisor's may alter any policy statement to suit actual weather conditions.

² Class 1 Sidewalks - Sidewalks adjacent to Class 1 - 3 Roads

³ Class 2 Sidewalks - Sidewalks adjacent to Class 4 - 6 Roads