

SECTION	SUBJECT
ROADS SECTION ROADS MAINTENANCE	WINTER OPERATIONS

OBJECTIVE:

- 1.1 The objectives for **WINTER OPERATIONS** are:
 - 1.1.1 To reduce the occurrences of adverse driving conditions on Roadways for motorists and adverse walking conditions on Sidewalks for pedestrians.
 - 1.1.2 To reduce economic losses to the community and industry caused by workers not being able to get to their jobs.
 - 1.1.3 To facilitate the handling of emergencies by fire and police officials.

SUMMARY:

- 2.1 **WINTER OPERATIONS** shall be addressed in accordance with the following:
 - 2.2 Patrolling
 - 2.2.1 In addition to Roadway Patrolling (RMO - 13) winter operation Roadways patrolling shall be done between the months of November through to May.
 - 2.2.2 The route to be patrolled will be a combination of Arterial Roadways and Collector Roadways which are deemed by the City to be representative of the City’s Roadways, as determined by the City by September 30th each year.
 - 2.2.3 Winter patrolling shall consist of observing the Roadway either by driving on or by Electronically Monitoring the Roadway.
 - 2.2.4 Winter patrolling frequency during adverse weather conditions will increase in order to respond to adverse weather event.
 - 2.3 Weather Monitoring
 - 2.3.1 Monitoring of weather shall be done between the periods of November through to May.
 - 2.3.2 Monitoring shall consist of reviewing the current weather conditions and the forecast to occur in the next 24 hours, 3 times per day.
 - 2.4 Arterial Roadways
 - 2.4.1 Roadways within this category shall have Asphalt Surfaces maintained as bare as possible through the use of all assigned staff, equipment and materials suited to the conditions.

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2.4.2 In cases where the Snow Event conditions are so severe so as to necessitate a withdrawal of staff and equipment from the Roadways, then maintenance efforts shall cease until the Snow Event conditions sufficiently subside and the health and safety of staff and equipment is no longer at risk.

2.4.3 Transit routes located within the classification of Arterial Roadways shall be given priority for maintenance purposes over other portions of the Arterial Highways.

2.4.4 Plowing shall commence at 2:00 a.m. after the following condition have been met:

2.4.4.1 Snow depths of 5 cm or more have accumulated on the Roadways.

2.5 Collector Roadways

2.5.1 Roadways within this category shall have surfaces maintained as bare as possible through the use of all assigned staff, equipment and materials suited to the conditions.

2.5.2 Transit routes located within the classification of Collector Roadways shall be given priority for maintenance purposes over other portions of the Collector Roadways.

2.5.3 Plowing shall commence at 2:00 a.m. after the following condition have been met:

2.5.3.1 Snow depths of 5 cm or more have accumulated on the Roadways.

2.6 Local Roadways

2.6.1 Applies to all other Roadways other than Arterial Roadways and Collector Roadways.

2.6.2 Plowing of Local Roadways shall not commence until all the following conditions have been met:

2.6.2.1 All Arterial Roadways and Collector Roadways have been plowed;

2.6.2.2 Snow depths of 10 cm or more have accumulated on the Roadways.

2.7 General – Plowing

2.7.1 Normally plowing of Arterial Roadways and Collector Roadways will be completed within 7 hours from the time plows start to clear Arterial Roadways and Collector Roadways.

2.7.2 In some Snow Event situations the normal plowing routes and schedules for Arterial Roadways and Collector Roadways may be abandoned to ensure major emergency routes are kept open during a Severe Snow Event.

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2.7.3 Normally plowing of Local Roadways will be completed within 72 hours from the time the Snow Event has stopped and plows start to clear Local Roadways. This plowing timeline is to accommodate Calendar Parking requirements.

2.7.4 In Severe Snow Events the following conditions shall apply:

2.7.4.1 Only one lane of Roadways may be plowed in the first 72 hour period.

2.7.4.2 Local Roadway plowing may be abandoned to ensure Arterial Roadways and Collector Roadways are kept open.

2.7.4.3 Local Roadway plowing may be abandoned to ensure major emergency routes are kept open.

2.7.5 Ice Cutting of the Roadway surfaces will be carried out only when personnel and equipment are not required for maintaining Arterial Roadways and Collector Roadways.

2.8 Snow Pickup/Blowing/Benching

2.8.1 Snow Pickup, Snow Blowing or Benching will be performed on Arterial Roadways to restore traffic capacity only when all Arterial, Collector and Local Roadways have been plowed.

2.8.2 Intersections within Arterial Roadways will have snow banks removed, Snow Blown or Benched back to restore traffic capacity and reduce line of sight obstructions as soon as possible following completion of plowing.

2.8.3 Snow Pickup, Snow Blowing or Benching will be performed on Collector Roadways to restore traffic capacity only when all Arterial, Collector and Local Roadways are plowed and all Arterial Roadways traffic capacity has been restored.

2.8.4 Snow Pickup, Snow Blowing or Benching will be performed on Local Roadways to restore traffic capacity only when all Arterial and Collector Roadways have been plowed and all Arterial and Collector Roadways traffic capacity has been restored. The following conditions apply:

2.8.4.1 Snow Pickup on Local Roadways shall consist of one side of the Roadway receiving Snow Pickup to allow for one lane of passable traffic.

2.8.4.2 Snow on the even side of the Local Roadways will be picked up on an even year during a Winter Season.

2.8.4.3 Snow on the odd side of the Local Roadways will be picked up on the odd year during a Winter Season.

2.8.4.4 Snow Pickup for the purposes of odd and even designations will be based on the year the Winter Season begins.

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- 2.8.4.5 If for any reason the criteria for Snow Pickup cannot be achieved on a certain Local Roadway, the Roads Supervisor will determine the best method to restore a passable lane along that Local Roadway.

- 2.9 Snow Pickup for the Downtown Cores will be based on the following conditions:
 - 2.9.1 The Downtown Cores may receive one pickup each winter season if traffic capacities of Roadways are impacted.
 - 2.9.2 Prior to Snow Pickup operations beginning, all Arterial, Collector, and Local Roadways will have been plowed and traffic capacity resolved.
 - 2.9.3 A minimum 10 working days free of Snow Events is required to complete this work, and the initiation of this work will be based on weather forecasts from Environment Canada.
 - 2.9.4 In the event of a Snow Event occurring during any pickup operation, all assigned personnel and equipment will be immediately re-assigned to snow plowing operations.
 - 2.9.5 Snow Pickup in the Downtown Cores will resume when the preceding conditions have all been met.

- 2.10 Sidewalks
 - 2.10.1 Sidewalk surfaces will be addressed through the use of assigned personnel and equipment using the following criteria:
 - 2.10.2 Plowed Sidewalk surfaces will be maintained to a minimum of a Hard Pack Snow Condition.
 - 2.10.3 Snow Blown Sidewalk surfaces will be maintained to a minimum of a Hard Pack Snow Condition.
 - 2.10.4 Sidewalks on Arterial and Collector Roadways and Roadways in the surrounding property of schools, transit routes, and government and privately operated senior facilities, hospitals and Downtown Cores are considered priority routes.
 - 2.10.5 Plowing of Sidewalks on Arterial Roadways and Collector Roadways will commence only when snow reaches an accumulated depth of 5 cm or more.
 - 2.10.6 Plowing of Sidewalks on Arterial Roadways and Collector Roadways will normally be completed 14 hours after a Snow Event has stopped and plowing has commenced.
 - 2.10.7 Snow Blowing of Sidewalks on Arterial Roadways and Collectors Roadways, when necessary, will normally be completed 36 hours after a Snow Event has stopped and plowing has commenced.
 - 2.11 Plowing of Sidewalks on Local Roadways will commence subject to the following conditions:
 - 2.11.1 Snow depths of 5 cm or more have accumulated on the Sidewalk.
 - 2.11.2 All Sidewalks on Arterial and Collector Roadways have been plowed.
 - 2.11.3 Plowing of Sidewalks on Local Roadways will normally be completed 72 hours after all Sidewalks on Arterial and Collector Roadways have been cleared.

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2.11.4 Snow Blowing of Sidewalks on Local Roadways, when necessary, will normally be completed 125 hours after all Sidewalks on Arterial and Collector Roadways have been cleared.

2.12 Sidewalk Snow Plowing and Snow Blowing may be abandoned in extreme circumstances under the following conditions;

2.12.1 Extra storage capacity is required to keep the Arterial and Collector Roadways open.

2.12.2 All personnel and equipment resources are required for emergency Roadways plowing.

2.13 Sanding & Salting of Roadways

2.13.1 Salt shall, whenever possible, be applied very early in a Snow Event in order to take advantage of the brine sandwich effect. The brine sandwich effect is when road salt dissolves into a liquid form and is located as a layer of salt brine between the roadway and accumulated snow on the roadway. The brine sandwich prevents the snow from bonding to Asphalt Surfaces resulting in ice.

2.13.2 Salt, Winter Control Sand and a combination of both Sand and Salt shall be applied as per the City's Salt Management Plan.

2.13.3 Continuous sanding generally shall be carried out only during freezing rain or general icy conditions caused by a failure of other treatments.

2.13.4 Continuous sanding shall be applied as per the City's Salt Management Plan.

2.13.5 Spot Sanding and Salting shall be carried out on designated Roadways to address icy conditions.

2.13.6 Predetermined routes for plowing, sanding and salting shall be followed except in critical situations.

2.14 Sanding & Salting Sidewalks

2.14.1 Pure salt shall never be applied to concrete Sidewalk surfaces unless authorized by the Manager of the Roads Section as a special consideration for unusually icy conditions.

2.14.2 Sanding of Sidewalks will be carried out under the following conditions:

2.14.2.1 All Sidewalks on Arterial, Collector and Local Roadways have been plowed.

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2.14.2.2 Sidewalks on Arterial and Collector Roadways and Roadways in the surrounding property of schools, transit routes, and government and privately operated senior facilities, hospitals and Downtown Cores are considered priority routes.

2.15 General

- 2.15.1 Private Driveway entrances will not be cleared.
- 2.15.2 Local special permit parking areas will not be cleared.
- 2.15.3 Private Driveway snow banks will not be removed.
- 2.15.4 The maintenance of private Driveways and special permit parking areas is the sole responsibility of the property owner.

2.16 Level of Service Table

2.16.1 The preceding levels of service are summarized in the following table.

**INFRASTRUCTURE & OPERATIONS
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Road Classification (Urban)	Minimum Allowable Accumulation	Plow	Standard	Expected time of completion	Snow Pick Up	Salt	Sand	Remarks
**Arterial Roadways	5 cm.	Yes	As bare as possible	Within 7 hours from time plowing begins.	To maintain traffic capacity as required.	Yes, if required	Yes	Most important routes. All effort authorized.
**Collector Roadways	5 cm.	Yes	As bare as possible	Within 7 hours from time plowing begins	To maintain traffic capacity as required.	Yes, if required	Yes	Second most important routes.
** Bus Routes	5 cm.	Yes	Clean up only when staff & equipment not required for maintaining Arterial & Collector Roadways.	Within 7 hours from time plowing begins	To maintain traffic capacity as required.	Yes, if required	If needed to control icy spots.	Second most important routes.
Local Roadways	10 cm. (all priority route plowing completed first)	Yes	Same as above	Within 72 hours after priority plowing completed.	To maintain one passable lane as required.	No	If needed for ice.	Devote effort to these Roadways only after other levels are addressed

Roadways Objective

Note: **(priority routes)

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Sidewalks Objective

Sidewalk Class Level of Service Plowing	Overtime Authorized	Minimum Allowable Accumulation	Standard	Expected time of Completion	Plow/ Blow	Remarks
Roadways deemed to be Priority Routes	Yes	5 cm	Hard Pack Snow Surface	Plowing: 14 hours Blowing: 36 hours	Yes	Priority Routes 1) Arterial and Collector Roadways 2) School zones 3) Transit Routes 4) Senior Facilities 5) Hospitals 5) Downtown Cores
All Other Roadways	Yes	5 cm.	Hard Pack Snow Surface	Plowing: 72 hours Blowing: 125 hours	Yes	Second most important routes; Sidewalks on Local Roadways
Sidewalk Class Level of Service Sanding	Overtime Authorized	Minimum Allowable Accumulation	Standard	Expected time of Completion	Sand	Remarks
Roadways deemed to be Priority Routes	Yes	5 cm	Hard Pack Snow Surface	24 hours	Yes	Priority routes 1) Arterial and Collector Roadways 2) School zones 3) Transit Routes 4) Senior Facilities 5) Hospitals 5) Downtown Cores
All Other Roadways	Yes	5 cm.	Hard Pack Snow Surface	72 hours	Yes	Second most important routes; Sidewalks on Local Roadways.