

ROADWAY DE-ICING LEVEL OF SERVICE TABLE 2015 - 2022

ROAD CLASSIFICATION	TYPICAL	WINTER (1) SERVICE LEVELS	DEICER	APPLICATION RATE KG/LANE-KM	TIME FRAME TO COMPLETE DE-ICER OPERATIONS
Expressways	DVP / FGGE	Bare Pavement	100% Rock Salt	70 / 140 / 180(4)	Up to 2.5 cm of snow 1-2 hrs
Arterials (minor / major)	Yonge St. / Sheppard Ave.	Bare Pavement	100% Rock Salt	70 / 140 / 180(4)	Up to 5 cm of snow & continuing 2-4 hrs
Collectors	Main Streets through sub-division	Centre Bare Pavement (3)	100% Rock Salt	70 / 140 / 180(4)	Up to 8 cm of snow & stopped 4-6 hrs
Locals	Residential (2)	Safe and Passable Pavement	100% Rock Salt	70 / 90	Up to 8 cm of snow + stopped 8-12 hrs
Laneways		Safe and Passable Pavement	100% Rock Salt	180	24 hrs from the end of snowfall

Note:

- (1) This is the desired condition of the pavement surface. However, it is necessary to have sufficient traffic volumes to activate and improve the characteristics of the de-icer, the time to achieve this condition will vary with the time, duration and intensity of each storm.
- (2) Local roads that have >10% truck traffic shall be given a higher priority.
- (3) One lane open in the direction of traffic.
- (4) Where salt is pre-wet using 23% salt brine, these application rates shall be reduced by 10%.

ANOMALIES

- If any link has one or more of the following anomalies present, the winter service level is bumped-up according to the next highest road classification:
- Ball bank reading >12 at posted speed
- Slope >4%
- Presence of emergency services (i.e. Police, Fire or Ambulance Station, Hospital)
- TTC bus route including turnaround loops

Approved by Council: December 16, 2013

Winter Maintenance Program Review

**PLOWING AND DRIVEWAY WINDROW OPENING LEVEL OF SERVICE TABLE
2015 - 2022**

ROAD CATEGORY	PAVEMENT CONDITION AFTER SANDING /SALTING	START OF PLOWING AFTER ACCUMULATION OF (cm)	TIME TO COMPLETION PLOWING (HOURS) AFTER THE END OF SNOWFALL			
			STORM TYPE 1 30-40 per year (up to 5cm)	STORM TYPE 2 3-6 per year (5-15 cm)	STORM TYPE 3 Once/2-3 years (15-25 cm)	STORM TYPE 4 Once 10/years (over 25cm)
Expressways	Bare pavement	2.5 to 5.0 and still snowing	2-3 ⁽¹⁾	2-3 ⁽¹⁾	2-3 ⁽¹⁾	2-3 ⁽¹⁾
Red (arterial roads, streetcar routes)	Bare pavement	5.0 and still snowing	-	6-8	8-10	12-14+ ⁽²⁾
Blue (bus routes, collector roads, local streets with hills)	Centre Bare	5.0-8.0 ⁽³⁾	-	8-10	10-12	14-16+ ⁽²⁾
Green (local streets)	Safe and Passable	8.0 ⁽³⁾	-	14-16	18-20	24-36+ ⁽²⁾
Yellow (local streets without boulevards and with long term on-street parking)	Safe and Passable	8.0 ⁽³⁾	-	14-16	18-20	24-36+ ⁽²⁾
Dead Ends (or cul-de-sacs) with limited or no snow storage	Safe and Passable	8.0 ⁽³⁾	-	14-16	18-20	24-36+ ⁽²⁾
Laneways ⁽⁴⁾	Salt as necessary to maintain safe and passable conditions	Ploughing and/or removal, subject to localized laneway conditions	-	-	-	- Salted within 24hrs of the end of a snow event
Residential Driveway Windrow Opening	<ol style="list-style-type: none"> 1. Driveway windrow opening to commence at same time as roadway plowing on local roads when windrow height exceeds 25cms and be completed within 2 hrs of roadway ploughing 2. Driveway windrow opening to commence at the final round of roadway plowing on arterial and collector roads when windrow height exceeds 25cms. 3. Objective of driveway windrow opening program is to clear sufficient space (3m) so that a small car may pass safely. There will be some residual snow left in the driveway that the resident will have to clear by hand. 4. Driveway windrow opening not provided in areas where there is overnight on street parking and the sidewalk is not adjacent to the street. 5. Consideration to be given to whether driveway windrow opening can be done in a contiguous area. 					

Notes:

- (1) Ploughing on Expressways is continuous for bare pavement conditions
- (2) Completion of ploughing under Type 4 Storm conditions, is dependent upon total snow accumulation
- (3) Snowfall to be substantially completed prior to ploughing operations commencing (except for heavy snowfalls)
- (4) Snow removal at laneway frontages will be completed within 48hrs of the ploughing on the adjacent local road

Approved by Council: December 16, 2013

Winter Maintenance Program Review

SIDEWALK AND TRANSIT SNOW CLEARING LEVEL OF SERVICE TABLE 2015 - 2022

ROAD CLASSIFICATION	SNOW ACCUMULATION REQUIRED TO COMMENCE OPERATIONS			TIME TO COMPLETE SIDEWALK CLEARING OPERATIONS AFTER THE END OF SNOWFALL(5)				MATERIAL USED(8)	TARGET APPLICATION RATE
	November & April(1)	December & March(2)	January & February(3)	STORM TYPE 1 30 - 40 per year (up to 5cm)(4)	STORM TYPE 2 3 - 6 per year (5 - 15cm)	STORM TYPE 3 Once 2/3 years (15 - 25cm)	STORM TYPE 4 Once/10years (over 25cm)		
High volume pedestrian routes (arterial roads, school zones, transit areas, accessibility locations) – where mechanical clearing is possible only	8cms	2cms	2cms	1 round(6)	2 rounds	3 rounds	4 rounds	Salt/Sand mixture appropriate to conditions	100kg / linear km
Low volume pedestrian routes(collector roads, local roads)	8cms	8cms	8cms	1 round(7)	1 round(7)	1 round(7)	1 round(7)	Salt/Sand mixture appropriate to conditions	100kg / linear km
Transit stops & crosswalk pads (Windrows at bus stops and crosswalks opened after ploughing)	8cms	2cms	2cms	1 round(7)	1round(7)	1 round(7)	1 round(7)	Salt/Sand mixture appropriate to conditions	n/a
Notes:					Criteria For Service(Approved through Public Works & Infrastructure Committee Item PW20.10 on January 27 & 28, 2009):				
(1) Shoulder season level of service - all times to complete sidewalk clearing operations are doubled due to absence of contracted forces (2) Standard level of service (3) Amount of snow accumulation required to commence operations is reduced due to fewer freeze/thaw cycles (4) Not every storm Type 1 will require a mobilization. (5) Time to complete operations is dependent on total snow accumulation (6) One round takes approximately 15 hrs to complete. Multiple rounds are separated by at least an 8hr break due to legislative requirements. (7) One round takes approximately 48hrs to complete. (8) T&EY does not use sand to prevent tracking into storefronts					(1) Street must be greater than 8m in width (2) Sidewalk must be greater than 1.5m in width (3) Sidewalk is not immediately adjacent to the street (4) Parking is not immediately adjacent to the sidewalk (5) No obstructions such as utility poles, planters, retaining walls, immediately adjacent to or within the sidewalk that would create significant potential for damage or an operating safety concern for the equipment operator or public. (6) Consideration to be given to whether the mechanical clearing could be done in a contiguous area				

Approved by Council: December 16, 2013

**SNOW REMOVAL LEVEL OF SERVICE TABLE
2015 - 2022**

ROAD CATEGORY	NET SNOW ACCUMULATION FOR REMOVAL START	TYPE OF OPERATION	TIME TO COMPLETE REMOVAL
EXPRESSWAYS	20 to 30 cm	Full operation (Overtime if required)	3 Days
Arterials (Red) [Selected sections] *Without or small Boulevard *Commercial on-street Parking	20 to 30 cm 30+ cm	Partial Operation (8 hr shifts) Full Operation (Overtime if required)	2 Weeks
Collectors (Blue) Bus Routes Collector Roads Local Streets with hills	20 to 30 cm 30+ cm	Partial Operation (8 hr shifts) Full Operation (Overtime if required)	2 Weeks
Local (Green) - Local Streets without Boulevards and long term on-street parking - sightline problems	30+ cm	(Only required for sight lines, etc.)	2 Weeks
DEAD ENDS (or cul-de-sacs) -with limited or no storage space for snow	20 to 30 cm	Full Operation (Overtime if required)	2 Weeks
LANEWAYS	30+ cm	Full Operation (Overtime if required)	2 Weeks
LANEWAY FRONTAGES	5 to 15 cm	Linked to snow ploughing level of service	Within 48hrs ploughing of adjacent local road

Guidelines for Snow Removal

1. In response to colder temperatures, snow removal will typically take place in January or February only
2. Snow removal may take place when there has been a series of subsequent snow storms
3. Lack of any significant thaw or mild weather forecast that would naturally melt snow banks

Approved by Council: December 16, 2013

**CYCLING FACILITY LEVEL OF SERVICE TABLE
2015 - 2022**

BIKE LANE CATEGORY	DESIRED PAVEMENT CONDITION AFTER SALTING / PLOWING (1)	ACCUMULATION (cm) TO INITIATE PLOWING	TIME TO COMPLETION FOR SALTING / PLOWING & SNOW REMOVAL (AFTER THE END OF SNOWFALL) (2)			
			STORM TYPE 1 30-40 per year (up to 5cm)	STORM TYPE 2 3-6 per year (5-15 cm)	STORM TYPE 3 Once/2-3 years (15-25 cm)	STORM TYPE 4 Once 10/years (over 25cm)
Martin Goodman Trail	Bare pavement	5.0 and still snowing	Plowing & salting within 6-8hrs	Plowing & salting within 6-8hrs	Plowing & salting within 6-8hrs	Plowing & salting within 6-8hrs
Cycle Tracks (incl bus pads) - Sherbourne St - Roncesvalles Ave	Bare pavement	5.0 and still snowing	Salted to a higher level of service as the road they are on/adjacent to	Plowing & salting within 6-8hrs	Plowing & salting within 6-8hrs	Plowing & salting within 6-8hrs
Priority Bike Lanes - East – west - North - south	Bare Pavement	5.0 and still snowing	Salted to a higher level of service as the road they are on/adjacent to	Plowing & salting as per road classification. Full removal within 48 – 72hrs when required to achieve bare pavement.		
Red – Arterial Roads - Bike lanes - Contra-flow - Sharrows	Bare Pavement	5.0 and still snowing	Salted to a higher level of service as the road they are on/adjacent to	Plowing & salting within 6-8hrs	Plowing & salting within 8-10hrs	Plowing & salting only within 12-14hrs
Blue – Collector Roads - Bike lanes - Contra-flow - Sharrows	Bare Pavement	5.0-8.0	Salted to a higher level of service as the road they are on/adjacent to	Plowing & salting within 8-10hrs	Plowing & salting within 10-12hrs	Plowing & salting only within 14-16hrs

- Multiple applications of salt may be required to achieve a bare pavement condition. This may take up to 72hrs and will be subject to temperature constraints.
- Bike lane snow removal to prioritized within hierarchy of Managed Snow Removal operations

Approved by Council: June 10, 2014