OGRA Managing Winter Operations Workshop

Winter Service Response to Sidewalks in the City of Toronto

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Mississauga Grand Banquet Centre

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The Key Figures

- 7,945 km of sidewalks
- 6,000 km of plowed sidewalk
- 10,000 bus stops
- 329 sidewalk plows and bus stop machines
- 133 cm annual snow (30 year average)
- 2007/08 tied record
  • 207 cm total snowfall
- 7,000 tonnes salt
- $19 million budget
Yes, it does snow in Toronto…

- Toronto receives the bulk of its snow between December and March
- 4 to 6 events/year >10 cm snowfall
- 40 events/year = 2 cm (approx.)
- Difficult to compare one winter to another

Recent Years’ Snowfall (cm)
105cm/yr (10yr avg) – trending downwards
Toronto Temperatures

| J | F | M | A | M | J | J | A | S | O | N | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Mean | Max | Min |
| 30 | 25 | 20 | 15 | 10 | 5 | 0 | 5 | 10 | 15 | 20 |

Media Pressure to Maintain High Levels of Service

Politicians keep urging us to leave cars at home, but it’s no easy task with snow-choked sidewalks.

The city that walks, slips and falls

A man shovels the snow from the sidewalks on Fairview Blvd, in Toronto yesterday. More snow is expected today.

Cindy Hs. a woman helped an elderly woman carrying grocery bags atop a high snow barrier so that she wouldn’t have to bend down to pick them up. Later at the corner of St. George and

The Toronto Star claims that the high levels of service are due to the high rates of snow removal. However, complaints from residents suggest that the sidewalks are not being cleared effectively.

Toronto Star
As a pilot for the 2017/18 winter season low volume pedestrian roads will be cleared at 2 cm.

Toronto Service Considerations

- No monolithic sidewalk in combination with on-street parking
- Street must be greater than 8 m in width (to allow for on-street snow storage)
- Sidewalk must be equal or greater than 1.5 m in width
- Consideration to be given to whether the mechanical clearing could be done in a contiguous area

- No obstructions such as utility poles, planters, retaining walls immediately adjacent to or within the sidewalk
- Creates significant potential for damage
- Operating safety concern for the equipment operator and/or the public
Sidewalk Snow Clearing City of Toronto

Sidewalk Clearing

- Transportation Services clears snow from sidewalks in most areas of the City, but only where a mechanical snow plow is able to physically clear snow (inner area local streets excluded)
- Sidewalk plowing activities are activated when snow accumulations on the sidewalk have reached 2 cm for high volume sidewalks and 8 cm on low volume sidewalks
- New pilot for 2017/18 winter season threshold will also be 2 cm for low volume sidewalks
Sidewalk Clearing Operations

- Typically, it takes between 24 hours (2 to 8 cm snow snow) and 48 hours (8 cm + snow) to clear all sidewalks.
- Often plows will clear sidewalks on the first day and return to apply a sand / salt mix on the second day (or thereafter, if icy) especially during significant (+15 cm) snow events.
- Commencement of sidewalk plowing may be delayed until the completion of roadway plowing to ensure corner radii can be opened up on first pass and not plowed back in.

Sidewalk Clearing

- Biggest challenges are encroachments (retaining walls, hedges, street furniture, etc.) and narrow sidewalks 900mm to 1.5m.
Sidewalk Clearing

• Sidewalks on all classifications of road are cleared wherever mechanical clearing is possible
• Difficult on local, residential roads
• Sidewalk plows create windrows across driveways when plowing causing complaints
• Monolithic sidewalk = sidewalk plows vs. road plows

Steps and Pinch Points

• Hand crews are used to clear steps and priority locations
• Areas too narrow for a sidewalk machine to get through:
  • Pedestrian bridges over rail lines
  • Walkways
  • Street furniture obstructions
  • Pedestrian crossovers, etc.
Walkways

Bus Stop Clearing

- Bus / transit pads need to be cleared as part of the plowing operation
- Bus stop clearing generally begins following the final round of roadway plowing
- Needs to be coordinated with plowing to ensure windrows in front not pushed back or existing snow storage
- Crosswalks can also be opened with this equipment
- Catch basins can also be cleared in advance of melting conditions
Bus Stop Clearing

- Mobilized following roadway plowing operations at 2 cm accumulation (new for 2017/18)
- Clear plow windrows, bus pads, corner radii, open catch basins, sightlines, etc.
- Manual crews behind salt
- Snow storage problems – pressure to relocate snow not just plow

TTC Stops, Crosswalks & Intersections

- Activity is initiated after arterial road plowing has been completed to prevent filling in cleared areas
- Mechanical and/or manual clearing of snow around bus stops, crosswalk entrances & intersections
- Activity is completed within 48 hours after the end of a snowfall
- Mid blocks need to be cleared at same time as sidewalks on Bathurst Street with kneeling streetcars
Seniors Snow Clearing

• Where it is not possible to deliver a mechanical service a manual service may be provided
  • residents of single or two-family dwelling
  • 65 years of age and/or physically challenged
  • application form and/or annual renewal required
• Locations will grow in numbers after each snow event

Seniors Snow Clearing

• Free service provided to the following:
  • residents of single or two-family dwelling
  • 65 years of age and/or physically challenged
  • application form and/or annual renewal required

• Eligible residents call: 416-392-7768 e-mail address: trarow@toronto.ca
Sidewalk Sod Damage

• Overgrowth – residents not maintaining property and trimming sod back
• Varying width of sidewalk from arterial to local roads
• Attempts to avoid encroachments, parked cars, etc.
• Plowing at night
• Bends in sidewalk
• Lack of windrow to use as guide
• Reinstate in spring

Equipment

• Wide range of equipment depending on the application
• Estimated travel speed of approx. 2.5kph x 13 hrs = 32 km routes
• Smaller machines for narrower sidewalk (Kubota, John Deere)
• High hp equipment (Holders, Trackless) for carrying snow blowers
• Skidsteers (Cat, Bobcat) for relocating snow, bus stops, opening catch basins, etc.
Salt on sidewalks

- A sand/salt mix is used to provide grit and traction on sidewalks
- 80:20 salt to sand blend
- Downtown core uses 100% salt
- Application rate of 100 kg /sidewalk km

Use of Sand

- Need salt to break through snow pack
- Sand may provide immediate traction, but it will eventually wash off, blow off, or be swept off at the end of the season
- Retailers, Offices opposed to sand use due to mess, tracking
- Post winter cleanup has been virtually eliminated through the use of salt
- If sand were used instead of salt, we would apply 28,000 tonnes per year as compared to 7,000 tonnes of salt
- Mechanical sweeping, Catch Basin cleaning & Disposal costs for sand are higher than salt costs
- PM10 – particulate matter of less than 10 micrometers in diameter has been shown to pose the greatest threat to health - ground up sand becomes airborne
By-Law Enforcement

• City of Toronto Municipal Code Chapter 719, Snow & Ice Removal
• Responsibility of every owner or occupant to clear sidewalk abutting the property within 12 hrs after any snowfall wherever the City does not do so mechanically
• Notice of Inspection
• Notice of Infraction
• Prohibits the clearing of snow from private property and depositing onto the public roadway, sidewalk, or lane
• City has the authority to clear the sidewalks and to add the resulting costs of the work to the tax bill
• Residents can be fined and billed for the cost of the work

By-Law Enforcement

• At the discretion of the By-law Officer, he/she might first deliver a “Notice of Inspection”
• If the resident had received a warning in the season or was fined in the past two years, an automatic fine may be given
• Follow up inspection is made 24 hrs later unless it has snowed again (at which inspection will be done 12 hrs after snow fall)
• If the sidewalk remains snow covered the By-law Officer will issue a “Notice of By-law Infraction”
• Negligent owners are fined $100.00 plus a $25.00 victim surcharge (part one). If resident is a repeat offender, fines will increase
• City charges owners $6.00 /sq.m. for shoveling and $3.00 /sq.m. for salting to clear sidewalk snow and ice
Challenges

Sidewalk Plowing
Sidewalk Equipment Limitations

Note: Sidewalk Sod Damage

Street Furniture Damage
Street Furniture Damage

Monolithic Sidewalk

- No boulevard space between curb and sidewalk for snow storage
- Road plows push snow onto the sidewalk and sidewalk plows push snow onto the road
- Road plows instructed to leave snow on road wherever there is monolithic sidewalk
- Snow is removed from the road as part of a snow removal operation
Encroachments & On-street Parking

Encroachment Damage
Encroachments

- Encroachment by-law prohibits adjacent property owners from installing fences, hedges, retaining walls, etc., close to the sidewalk
- Many encroachments have been in place for so long that it is impossible to have owners remove them
- If damaged by sidewalk plows, we will reinstate the structure, but in accordance with the by-law

Sidewalk Equipment Obstructions

Note: insufficient space for sidewalk plow due to pole, fence & garbage containers
Sidewalk Equipment Obstructions

Note: partial sidewalk in block, on street parking next to sidewalk & no outer boulevard for snow storage

Typical City Sidewalk

Note: no boulevard, on street parking & obstructions
Typical Suburban Sidewalk

Note: wide boulevard & no obstructions

MMS & Sidewalks

• There is currently no winter maintenance standard for sidewalks in MMS
• Under Municipal Act, Section 44, (9) Sidewalks

   Except in case of gross negligence, a municipality is not liable for a personal injury caused by snow or ice on a sidewalk.
**DRAFT Municipal Act, 2001, Ontario Regulation 239/02**

**Minimum Maintenance Standards for Municipal Highways**

### Snow accumulation on Sidewalks

16.2 (1) The standard for addressing snow accumulation on a sidewalk after the snow accumulation has ended, is to address the snow accumulation so as to reduce the snow accumulation to a depth less than or equal to 8 centimetres within 48 hours, to provide a minimum width of 1 metre.

(2) If, at any time, the depth of snow accumulation on a sidewalk is less than or equal to 8 centimetres, the sidewalk is deemed to be in a state of repair with respect to snow accumulation.

(3) If the depth of snow accumulation on a sidewalk exceeds 8 centimetres while the snow continues to accumulate, the sidewalk is deemed to be in a state of repair with respect to snow accumulation, until 48 hours after the snow accumulation ends.

(4) For the purposes of this section, the depth of snow accumulation on a sidewalk may be determined in the same manner and by the same persons as under s. 4(3) and s.4(4) of this regulation.

(5) For the purposes of this section, addressing snow accumulation on a sidewalk includes, but is not limited to,

(a) plowing the sidewalk;
(b) salting the sidewalk;
(c) the application of other chemical or organic agents to the sidewalk;
(d) applying abrasive materials to the sidewalk; or
(e) any combination of the methods described in clauses (a), (b), (c) or (d).

### Ice formation on sidewalks and icy sidewalks

16.3 (1) The standard for the prevention of ice formation on sidewalks is to

(a) monitor the weather in accordance with s.3.1 of this Regulation in the 24-hour period preceding an alleged formation of ice on a sidewalk; and

(b) if the municipality determines, as a result of its weather monitoring under subparagraph a, that there is a substantial probability of ice forming on a sidewalk, treat the sidewalk if practicable to prevent ice formation and/or improve traction within 48 hours, starting from the time that the municipality determines is the appropriate time to deploy resources for that purpose.

(2) If the municipality meets the standard set out in subsection (1) and, despite such compliance, ice forms on a sidewalk, the sidewalk is deemed to be in a state of repair in respect of ice until,

(a) the time that the municipality becomes aware of the fact that the sidewalk is icy and,
(b) 48 hours elapses thereafter.
DRAFT Municipal Act, 2001, Ontario Regulation 239/02
Minimum Maintenance Standards for Municipal Highways

(3) The standard for treating icy sidewalks after the municipality becomes aware of the fact that a sidewalk is icy is to treat the icy sidewalk within 48 hours, and an icy sidewalk is deemed to be in a state of repair until 48 hours expires after it has been treated.

(4) For the purposes of this section, treating a sidewalk means applying material to the sidewalk, including but not limited to, salt, sand or any combination of salt and sand.

(5) If at any time a municipality declares a significant weather event under this Regulation, then all sidewalks within the municipality’s jurisdiction are deemed to be in a state of repair in respect of any ice present, until 48 hours expires following the end of the declared significant weather event.

Winter Sidewalk Patrol
16.4 (1) If it is determined by the municipality that the weather monitoring referred to in section 3.1 indicates that there is a substantial probability of snow accumulation on sidewalks in excess of 8 cm, ice formation on sidewalks or icy sidewalks, the standard for patrolling sidewalks is to patrol sidewalks that the municipality selects as representative of its sidewalks at intervals deemed necessary by the municipality, to check for such conditions.

(2) Patrolling a sidewalk consists of visually observing the sidewalk, either by driving by the sidewalk on the adjacent roadway, or by driving or walking on the sidewalk, or by electronically monitoring the sidewalk, and may be performed by persons responsible for patrolling roadways, sidewalks or by persons responsible for or performing roadway or sidewalk maintenance activities.

Draft Sidewalk Inspection Form
Sidewalk Clearing at Intersections

Note: Bobcats to be mobilized at the same time as sidewalk clearing to address corner plowing all the way through the intersections

Thank You
Questions?
For more information, contact
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