Winter Maintenance Contractor Performance Issues

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<th>March 19, 2013</th>
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<td>To:</td>
<td>Public Works and Infrastructure Committee</td>
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<td>From:</td>
<td>General Manager, Transportation Services</td>
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SUMMARY

The purpose of this report is to respond to City Council's request that the General Manager, Transportation Services review the City of Toronto's current winter maintenance contracts specifically in relation to contractor performance in the context of the snow storm of February 8, 2013. This report describes what measures were taken by staff to respond to contractor performance issues both during and after the storm, and addresses the performance of contractors during extreme snow events within the approved levels of service.

Financial Impact
There are no financial impacts arising from this report.

DECISION HISTORY
City Council, at its meeting of February 20 and 21, 2013, adopted the following:

1. City Council direct the General Manager, Transportation Services, to review the City of Toronto's current contracts for snow removal and report to the next meeting of the Public Works and Infrastructure Committee with respect to whether snow removal services provided in response to the snowstorm on February 8, 2013 were in compliance with contractual requirements and what penalties for non-compliance exist under the contracts.
ISSUE BACKGROUND

On February 8, 2013, the city of Toronto was impacted by a significant winter storm that, in the days leading up to the event, was initially forecasted to bring up to 10 - 15cms of snow, and ultimately deposited approximately 30-34cms of snow throughout the city. Initially anticipated to begin shortly after Midnight and to end by about Noon, the storm actually turned out to be much longer in duration with the heaviest snowfall occurring between Noon and 6:00p.m., and continuing until about 10:00p.m.

Since amalgamation in 1998, Toronto had previously experienced only four other snow events of similar severity, occurring about every four years or so. Typical snow events in Toronto that necessitate a ploughing response are generally in the 8 - 15cm range. The uniqueness and infrequency of the February 8, 2013 storm is significant.

Transportation Services’ response to the storm began with the application of liquid salt brine on the Thursday night preceding the event and continued with salting operations on expressways, arterials, and collector roads as snow began to fall in the overnight hours into Friday. The response escalated into ploughing operations on those road classifications through the overnight hours as snow accumulation thresholds were met. Multiple rounds of salting and continuous rounds of ploughing were required in order to ensure expressways, arterial roads and collector roads remained open to vehicular traffic throughout the storm. Due to the amount of snow forecast and the protracted nature of the storm, staff determined that two rounds of ploughing on local roads would be required.

The first round of local road ploughing with driveway windrow opening was activated during the day on Friday, February 8, 2013, and the second round of local ploughing with driveway windrow opening occurred during Saturday, February 9, 2013 and was completed at approximately 9:00a.m. on Sunday, February 10, 2013, roughly 36 hours after the storm ended. It was identified that the amount of snow was problematic for the driveway windrow opening program because of the physical challenge for the blades to be able to contain the snow volumes across driveways.

Where mechanical sidewalk clearing is performed within the City, two rounds of ploughing and one round of salting were completed over the three day period from Friday to Sunday (Feb.8 to 10, 2013). Mechanical bus stop clearing began at approximately Midnight on Friday, February 8, 2013 after the main roads had been substantially ploughed at the end of the snowfall and continued for approximately 48 hours until Midnight on Sunday, February 10, 2013.

During the February 8, 2013 winter storm and the weekend that followed, Transportation Services was actively involved in responding to the immediate safety needs of keeping roads open for users and ploughing the streets and sidewalks. Further post-storm cleanup began on Monday, February 11, 2013 with targeted snow removal operations focussing on transit/street car corridors, bridges/overpasses, intersection sight line issues, bike lanes, and BIAs. In-house staff began working 12-hour days and were supplemented with
additional contracted resources on February 14, 2013. The targeted snow removal operations were completed by Sunday, February 17, 2013.

To date the feedback on the divisional response to the storm of February 8, 2013 has been mixed. It is clear that Councillor’s in some wards were satisfied with the response, while others were not. This unevenness may be caused in some part by the unevenness of the snow event itself (large accumulations in some geographic areas), but also likely indicates an uneven operational performance.

**COMMENTS**

**Storm Types and Levels of Service**
Transportation Services presently classifies winter events by Storm Type. Storm Type is the basis for level of service tables that describe the various winter maintenance activities performed in the City. The levels of service were most recently approved by City Council on January 27 and 28, 2009 through its adoption of Public Works and Infrastructure Committee Item PW21.8. Appendix 1 outlines the levels of service for ploughing and driveway windrow opening. The February 8, 2013 event was a Storm Type 4 (over 25cm accumulation). Storm Type 4 is the most severe and infrequent category of winter event, estimated to occur only once every ten years.

During Storm Type 4 events, as was the case during this event, multiple rounds of roadway salting, roadway ploughing, and sidewalk clearing are required. Where multiple rounds of an activity are required breaks must be built in to allow rest periods for operators to meet health and safety concerns.

As part of the Division’s response to a 2010 audit of the winter maintenance program by the Auditor General, Transportation Services will report to Public Works and Infrastructure Committee in Fall, 2013. The report will contain a full overview of Transportation Services’ winter maintenance program and present the existing levels of service for all activities.

Further, through the Core Service Review and Service Efficiency Study completed within Transportation Services by KPMG in 2011, staff have identified the need for a specific review of Toronto’s winter maintenance program by an external consultant to compare the winter maintenance services delivered by the City of Toronto to those of other North American municipalities. It is anticipated that this review will be completed by the end of 2013.

**Contract Management Procedures**
Transportation Services staff meet frequently with winter maintenance contractors throughout the winter season so that there is regular communication with contractors.

At the beginning of the season, a pre-construction meeting is held for each of the approximately 45 winter maintenance contracts. During the winter season, the Contract
Administrator holds regular monthly progress meetings with each contractor. The contractor's performance in preceding winter events is reviewed and deficiencies are addressed. Wherever penalties are being applied for non-compliance with the specifications of the contract, they are communicated to the contractor.

Under the specifications of the contracts, all of the equipment contained within a contract for local road ploughing or sidewalk ploughing must be mobilized and on the road within two hours of notification by the Contract Administrator. Time lines for mobilization of equipment on expressways and major roads are much shorter (i.e., ranging from 5 minutes to one hour).

As part of the season ending progress meetings, staff are incorporating debriefing sessions with contractors to identify opportunities for improvement based on the experience of the preceding winter. Performance and challenges experienced during the February 8, 2013 storm will be specifically addressed at the conclusion of this winter with all contractors.

**Contractor Performance Issues**

Whenever staff identify poor performance on the part of any winter contractor, the initial course of action is to direct the contractor to immediately rectify any substandard work at the contractor's expense (i.e., no additional cost to the City), in order to achieve a safe and desired roadway or sidewalk condition. This has historically been the approach taken to remedy any deficiencies and has worked very well in terms of ultimate compliance with level of service expectations. Given the urgency of winter maintenance operations, it is also the quickest way of remedying issues with contractor performance while also responding to residents’ needs. Additionally, liquidated damages within contract specifications are applied typically when a contractor does not mobilize equipment within the timeframes noted in the specifications.

Due to the number of pieces of equipment involved as part of the City’s winter maintenance program (i.e., about 1,100), it can be expected that some problems will arise with equipment breakdowns or operator errors. To offset this, contractors are required to maintain a minimum of one spare piece of equipment for each of their operations.

It should also be noted that 10% of amounts owing to all winter contractors through both operating and standby items is held back as a guarantee against any damages caused by the contractor, and this holdback amount is not paid until April/May following the winter season.

**Issues Experienced**

The City of Toronto has a network of arterial roads that are designated as Emergency Snow Routes. These roads are primarily in the Toronto and East York District. If a Snow Emergency is declared, parking on Emergency Snow Routes is prohibited for a 72 hour period. A snow emergency can be declared by the Mayor or General Manager, Transportation Services. Despite approximately four snow events with accumulations
greater than 25cms since amalgamation in 1998, a snow emergency has been declared only once. This was in response to the successive storms of January, 1999. For the event of February 8, 2013, staff determined that this measure was not necessary. During the 72 hours from the outset of the storm to completion of ploughing, no expressways, arterial, or collector roads were ever shut down to traffic.

The use of the enhanced parking prohibitions enacted when a snow emergency is declared may have reduced the number of incidents where careless parking impacted streetcar operations. In advance of future winter events, staff will review the use of the snow emergency by-law in the context of larger snow events, modify the Emergency Snow Route network where required, and consider the use of alternative terminology to describe a 'snow emergency' where the main focus is to remove parked cars from the roadway. Furthermore, overnight parking prohibitions during winter months may enhance service delivery for snow ploughing.

Designated on-street bicycle lanes continue to pose challenges for winter maintenance operations and receive a priority level of winter service. Bicycle lanes are typically cleared of snow within 8 – 10 hours of the end of a storm. For a period of 48 – 72 hours after a storm, ploughs are again sent out to 'clean up' curb lanes where the majority of bike lanes are located, with instructions to operators to move the snow as close as possible to the curb without blocking the public sidewalk. A targeted snow removal operation was mobilized in response to the February 8th storm and bike lanes were given priority as part of this operation.

**Service Request Summary**

For the period from February 7 to February 14, 2013, roughly 4140 winter related Service Requests were created by 311 operators. Appendix 2 provides a listing of the complaint types and volumes. Response to the storm began in the evening of February 7, 2013 and continued throughout the following weekend. Given the severity of the storm, operations did not wind down until the evening of Sunday, February 10, 2013. More than 50 percent of all the complaints that were received by 311 were logged before noon (12 PM) on the Sunday. Local road ploughing did not finish until 9:00a.m. that day, and sidewalk ploughing did not finish until much later that same evening. Service Requests for missed streets, missed driveways, and sidewalk clearing were logged in the 311 system well before these operations were complete.

Two rounds of local road ploughing and driveway windrow opening were required. Of the 862 complaints received related to driveway windrow opening, more than 50 percent were logged before the second round of local road ploughing was complete. Driveway windrow opening continues to be a significant source of winter maintenance complaints. It must be emphasized that the City Council adopted level of service for residential driveway windrow opening is to clear a 3 metre wide opening so that a small car may pass safely and that there will be some residual snow left in the driveway that the resident may wish to clear. Staff recognizes that there is a difficulty in communicating this level of service to residents, but upon investigation, the majority of driveway windrow opening complaints were for locations where the level of service in fact was met.
There are approximately 1,100 pieces of equipment on the road throughout the city when all operations are mobilized during significant winter events. During major events, additional staff is brought in to assist with contract inspection. However, during initial operations, staff focus primarily on contractor inspection, and, except for emergencies, are unavailable able to also respond to Service Requests. Once operations are substantially complete, staff then begin to focus efforts on responding to Service Requests.

Traditionally, direction has been given to 311 operators to hold off on the creation of winter service requests while the active storm response operations are underway. Operators are provided with the Snow Advisory documents that are generated regularly by each of the Transportation Services districts to determine when operations are complete. For the subsequent February 27, 2013 winter event, staff implemented a simpler communication to 311 operators that more clearly stated when operators may begin to take Service Requests for specific activities.

From a review of the Service Requests and direct communications from Councillors' offices staff have identified certain types of services that require additional improvement – namely driveway windrow openings – and certain geographic locations where contractors need to be more closely monitored. Staff will continue to work during the off-season to better address these challenges.

**Areas for Improvement**

As with any storm event of this magnitude, there are always lessons learned and areas for improvement. Main routes were kept open throughout the storm and were cleared to bare pavement quickly within hours after the end of the snowfall. Regular communications with the media, Councillors, 311 and senior staff were maintained through snow advisories and electronic communication releases. Overall coordination of response activities were delivered in a purposeful and consistent manner across all districts in the City.

Challenges were experienced with the sheer volume of snowfall for a large metropolis like Toronto and duration over which it fell. Most notably, the capacity of the driveway windrow clearing program was exposed by windrows that exceeded the physical ability for the plough blades to contain snow across driveway openings without some spillover occurring, even with two successive rounds of local road ploughing. Parked cars caused difficulty on some transit/streetcar routes delaying transit vehicles, and they also made it more difficult for ploughs to effectively clear away snow to the curb on local roads.

As a result, staff have identified several areas for improvement:

1. Explore ways to improve messaging to the public before, during, and after the storm to improve public awareness and enlist cooperation.
2. Incorporate end of season debriefing sessions with contractors into the contract management process to review 'lessons learned'.

3. Review the future use of overnight parking prohibition bylaws and the powers of the Snow Emergency by-law to assist with roadway snow ploughing on select corridors for 'non-emergency' events.

4. Provide more clear communication and direction to 311 staff on the status of winter maintenance activities.

5. Continue to provide pre-winter training and orientation sessions to 311 staff.

6. Provide more frequent updates to key elected officials and senior staff within appropriate City divisions and agencies on the status of winter maintenance activities and for coordination of services where mutually beneficial.

7. Provide pre-winter orientation sessions to elected officials and their office staff.

8. Continue to expand the use of GPS technology and determine ways to better use it for the management of contractor forces.

9. Review, in consultation with parking supply operators, opportunities to provide discounted off-street parking during major events to permit the streets to be ploughed more effectively.

**Divisional Actions Taken during the February 8th Event**

Contractor performance issues surrounding the February 8, 2013 storm were primarily related to the local road ploughing and driveway windrow opening activities (see summary of complaints in Appendix 2). There are approximately two hundred local road ploughing routes, and there were performance issues on approximately ten percent of them. The performance issues experienced during the operation were: failure to plough snow back to the curb, substandard ploughing of snow around bends, missed streets and cul-de-sacs, substandard opening of driveway windrows, and equipment breakdowns.

Over the course of the storm, supervisors and inspection staff were actively engaged in reviewing the work of the contractors. In some instances, difficulty in ploughing to the curb was experienced due to the volume of snow, parked cars on the road and garbage bins in those areas that had garbage collection scheduled for Friday. However, in locations where staff felt that there were significant deficiencies in the contractor's service obligations, the contractors were directed to return to correct the deficiency at their cost (i.e., no cost to the City).

There were also instances of contractors not mobilizing equipment within two hours of notification as required in the contract specifications. In these cases, liquidated damages were assessed and applied in accordance with the contracts. Appendix 3 provides...
samples of letters that were sent to contractors for failure to commence ploughing within the required time. Liquidated damages of $5.00 per minute for each piece of equipment plus the loss of daily standby for that equipment were deducted from the February progress payment.

**Divisional Actions Taken after the February 8th Event**

Since the February 8th event, the City has taken the following actions to improve operations:

- met with contractors who had performance issues to reinforce requirements under contract specifications;
- created a multi-divisional, multi-agency snow management team to improve communications before, during, and after major winter events;
- developed improved communication protocols for partners and external stakeholders through implementation of Snow Event Update distributed to Councillors, senior staff, and key staff in other agencies; and
- developed improved messaging for use by 311 to more clearly communicate to the public the status of our operation and when service requests will be taken.

**External Review of Winter Services**

In the Spring of 2013, Transportation Services will engage consultants to perform an external review of all aspects of our winter services, and to make recommendations based on national and international best practices. Topics to be addressed within the study are:

- Snow operations planning
- Snow ploughing techniques
- De-icing techniques
- Equipment
- Technology
- Use of emergency declarations and parking prohibitions
- Education, communications and messaging
- Monitoring and inspection
- Penalty structures and amounts
This report is expected to be completed by the end of 2013.

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**SIGNATURE**

_______________________________  
Stephen Buckley,  
General Manager, Transportation Services

DG/PN/ef

**ATTACHMENTS**

Appendix 1 – Ploughing & Driveway Windrow Opening Level of Service Table  
Appendix 2 – Winter Related Service Requests  
Appendix 3 – Liquidated Damages Letter to Contractor