



P.O. Box 1749
Halifax, Nova Scotia
B3J 3A5 Canada

Item No. 4
Halifax Regional Council
April 25, 2016

TO: Mayor Savage and Members of Halifax Regional Council

Original Signed by Director

SUBMITTED BY: _____
Bruce Zvaniga, Director, Transportation and Public Works

DATE: March 28, 2017

SUBJECT: Sidewalk Snow Removal Options

INFORMATION REPORT

ORIGIN

On December 6, 2016 Halifax Regional Council requested a staff report that analyzes the cost and benefits of clearing sidewalks to bare concrete, comparing the options of contracting out these services and providing the service in-house.

LEGISLATIVE AUTHORITY

Subsection 79(1) of the *Halifax Regional Municipality Charter* provides that “The Council may expend money required by the Municipality for ... (f) snow and ice removal”.

Subsection 322(3) of the *Halifax Regional Municipality Charter* provides that “The Council may expend funds for the purpose of clearing snow and ice from the streets, sidewalks and public places in all, or part, of the Municipality.”

BACKGROUND

Winter maintenance operations play an important role in assuring the safety, mobility and productivity of Halifax’s multi-modal transportation network. Winter maintenance activities offer direct benefits to the public including fewer collisions, improved mobility and reduced travel times and costs. They also offer indirect benefits such as sustained economic productivity, reduction in collision claims, emergency services, and improved commuter experience. The municipality must balance expectations during inclement weather with resource constraints and environmental consequences inherent in the use of chemicals and abrasives for snow and ice control.

All existing contracted sidewalk winter services are set to expire in April 2017. In November 2016, Regional Council directed staff to maintain service standards to stay within the current operational budget. The procurement process for issuing of tenders is well underway and we are on schedule for tender awards mid-July which allows for industry to prepare to be service ready by the start of the winter season.

Consideration was given to the 2017-2021 Strategic Plan priorities of fiscal responsibilities, pedestrian safety, service delivery and accessible community.

DISCUSSION

Summary of existing sidewalk clearing practices in Halifax Regional Municipality

At present, the municipality services sidewalks during winter with a combination of in-house and contracted services.

Service standards were introduced by Council in 1998 to standardize the service, provide efficiencies and optimize safety. Council approved these standards which are currently in place today.

In 2005, the sidewalk clearing program was expanded to include main arterials in Halifax and transit routes on the peninsula and in Spryfield. Performance-based contracts for sidewalk snow removal were introduced in 2006 in an effort to provide a consistent service and support the approved service standards. In 2007 there was further reduction of hourly-based sidewalk contracts and an expansion of performance-based contracts. The service standards set by council require both HRM and contractors to achieve bare pavement. The time within which that standard has to be achieved depends on whether the sidewalks are Priority 1, Priority 2 or Priority 3. (see chart)

The municipality currently provides the following service objectives as they relate to sidewalk snow clearing:

Figure 1.1
Service Objectives

Sidewalk Classification	Typical	Service Level After Operations	Time to completion from End of Snowfall
1. Capital Districts (P1)	Spring Garden Road, Argyle St, Alderney Drive	Bare*	12 hours from end of snowfall
2. Main Arterials (P1)	Robie Street, Sackville Drive, Portland Street	Bare* or with salt/sand for traction	12 hours from end of snowfall
3. Transit routes (P2)	Parkland Caledonia Rd Metropolitan Ave	Bare* or with salt/sand for	18 hours from end of snowfall

4. School routes (P2)	About 200 feet on either side of school entrance	traction Bare* or with salt/sand for traction	18 hours from end of snowfall
5. Residential Streets and walkways (not on bus route) (P3)	Central Ave Lincoln Cross Bayview Rd	Bare* or with salt/sand for traction	36 hours from end of snowfall

Notes:

1. Sidewalk service levels **cannot** mirror what is possible on streets. This reflects the physical characteristics of sidewalks (limited width and lack of direct drainage), effects of pedestrian traffic versus vehicles, and limitations of sidewalk equipment.
2. While the objective is to get sidewalks down to bare conditions, many factors are key to achieving this. Wet snow packed to ice, freezing rain and sudden freezes after rain can produce a heavy ice buildup on sidewalks. Sand will be applied to provide improved traction.
3. In the case of multiple snowfalls where there has been insufficient time to complete all sidewalks, operations will go back to the highest priorities and start over.
4. During late winter/early spring sidewalks are subject to runoffs from melting snow during the day and re-freezing overnight. Spot sanding will take place during regular, non-overtime hours only.

It is easier to achieve bare concrete within the Capital District, weather conditions aside, because sidewalks that fall within the Capital District are in better condition and they are designed to facilitate proper drainage and avoid water pooling and subsequent freezing. In the Capital District the service standard is greater than that of other areas which decreases the potential for sidewalks to become snow packed from pedestrian traffic. The district receives priority incremental snow removal (removal of snow banks) which allows for better drainage of the sidewalks. In the downtown area there is also reduced impact from residential snow removal and run off from residential properties, causing ice flows.

In areas outside the Capital District, the varying surface condition, width, drainage and increased obstructions present challenges in achieving bare concrete regardless of weather conditions. Current contracts define our end result as "Sidewalk down to full-width bare surface", while recognizing that many factors may affect this and sand/salt can be applied to provide traction if this occurs.

Sidewalk clearing performance is measured and monitored by supervisors both in the Capital District and in our contract areas. In the Capital District we presently have five supervisors that monitor service delivery 24/7; their roles include deploying staff, equipment, inspection of work and coordination with fleet and are responsible for approximately 200 kms of sidewalk. In contracted areas we have 6 supervisors that oversee contractor service obligations (12, 18 and 24 hours) and monitor approximately 800 km of sidewalks during snow events.

Benefits of Clearing Sidewalks to Bare Concrete

In the past two years, the municipality has focused on improved accessibility across the municipality. Following the 2014/15 winter season which resulted in harsher than average snow and ice conditions,

staff reviewed sidewalk snow clearing practices and through consultation with community stakeholders, made improvements to the program. Following the November 22, 2016, Council Report, staff are addressing many of the issues identified in the new sidewalk tender documents to be released in the spring.

Sidewalks are a key component to the municipality's infrastructure. Sidewalks contribute to a vibrant and connected community, facilitating active modes of transportation. Clearing to bare concrete increases the ease of accessibility and improves mobility. Neighbourhoods where walking is attractive, convenient and a safe option have healthier residents, fewer cars on the road and a stronger sense of community.¹

Cost Analysis

Presently, the municipality clears sidewalks via in-house and contracted services across the region. In-house (Capital District) sidewalk snow removal costs for the 2015/16 season were \$8,681/km, in what was categorized as a mild winter. In our contract service areas (839 km of sidewalk) the average cost is \$5,230/km for sidewalk snow removal.²

Due to the challenges identified above to service all sidewalks within the municipality to a desired state of bare surface, excepting adverse weather conditions, with in house resources, it is estimated we would require an additional \$3,655/km totalling \$12,336/km. This 42 per cent increase is a result of the requirement of additional labour and monitoring resources (see figure 1.2).

Figure 1.2
Options

No.	Description	Financial Implications	Additional Information
1	Enforce contractors to clear to bare surface instead of accepting the service standard of bare or with salt/sand for traction.	Projected increase of \$195,000.	In order to enforce contractors to clear to bare surface, additional supervisory resources would be required. 6 additional supervisors would be required to divide the geographic inventory to allow for a thorough inspection of each sidewalk. We presently use six so would require six more, ultimately dividing their areas in half to permit this detailed inspection in a timely fashion. This will achieve a more consistent monitoring and attention to the quality with a reduced geographic area of responsibility.
2	Increase in-house service delivery to all sidewalks with a bare surface finish result (eliminating sidewalk contracts).	Projected change of additional \$3,655/km, equalling \$12,336/km for service.	Service change would require the municipality obtain 51 pieces of mechanical sidewalk equipment (+/- based on one for every 20 km and one spare for

¹ Keep It Clear- Recommendations for Sidewalk Snow and Ice Removal in Massachusetts – Walk Boston

² Contract number includes the cost of snow damage repairs per the agreement. In house calculations do not include these figures.

No.	Description	Financial Implications	Additional Information
			<p>every 100 km), 42 manual snow blowers, and 42 trucks, for which the upfront capital investment is estimated at \$8.25M. The cost per km calculation includes operational and amortization costs of the equipment, but does not include additional resources required to support the equipment (fleet maintenance, administration etc.)</p> <p>420 employees to operate increased equipment on day and night shifts (336 employees for hand crews and 84 for operating the additional sidewalk equipment).³</p> <p>10-12 additional supervisors (two supervisors to supervise 100km of sidewalk routes day and night shift)</p> <p>Decrease in financial certainty with respect to overtime costs due to winter weather.</p> <p>Other items not included in this calculation: Capability to transport equipment to outlying areas or obtain facilities to accommodate equipment storage.</p> <p>Increased employee count does not factor in the training and resources required to support these new hires.</p> <p>This cost per km does not include any cost to repair damages associated with winter operations.</p> <p>To implement this option, staff estimate it would take</p>

³ Due to collective agreements, some of these employees are currently seasonal employees as a result of this hiring increase, those currently listed as seasonal would convert to permanent full time employees, increasing TPW's FTE count and salary costs.

No.	Description	Financial Implications	Additional Information
			approximately 18-24 months to procure equipment, secure staffing resources and determine logistics of expanded service delivery.
3	Expand internal service delivery by select zones as opposed to all districts. Over a gradual period of implementation.	An average zone at 80kms is on average \$5,230/km under contracted service resulting in \$418,400 expenditure for total season to clear the sidewalk to standard. Under this proposed option the cost to service the same zone internally would cost \$986,880.	Calculated at one machine per 20 km = 4 machines, 10 employees per 20 km = 40 employees + two supervisors* *as per the above scenario, costs do not include capital investment for machinery, fleet, maintenance HR and administration costs.
4	Blended service delivery with property owner responsibility	Although there are no cost implications to TPW in the selection of this service, staff anticipate increased enforcement resources to ensure property abutters are clearing to bare concrete and assistance programs to support seniors and persons with disabilities clear their areas of responsibility. As presented in the 2017/18 Budget presentation, we estimate costs to establish such a program at \$1 million.	Council could direct staff to consider a blended service option where we maintain existing service objectives and standards, existing supervision and ask that residents assist in clearing any remnants of snow to achieve bare concrete.

In summary, the current in-house cost of clearing sidewalks in the capital districts is \$8,681/km. The additional cost to achieve bare concrete and providing this service in-house in the current contract service areas would result in an additional \$3,655/km for a revised cost of \$12,336/km. This is a direct result of the requirement of additional equipment, labour and monitoring resources. This equates to an annual additional cost of \$5,961,934, which does not include administration and HR costs, or additional staff required to maintain the equipment.

**Figure 1.4
Cost Comparison (in \$M) Option 2**

839 km of sidewalks cleared through Performance Based Contracts @\$5,230/km (current situation)	\$4.39 Million
839 km of sidewalks cleared by in-house Staff @ \$12,336/km	\$10.35 Million
Increased annual labour and equipment and operating costs	\$5.96 Million

The initial capital cost for the additional equipment required is estimated at \$8.25 Million.

FINANCIAL IMPLICATIONS

There are no financial implications associated with this report. However, should Council want to move any of the options forward, there would be a significant unbudgeted cost and staff would have to return with a recommendation report.

COMMUNITY ENGAGEMENT

N/A

ATTACHMENTS

Appendix A Jurisdictional Scan of Sidewalk Snow Clearing Practices

A copy of this report can be obtained online at <http://www.halifax.ca/council/agendasc/cagenda.php> then choose the appropriate meeting date, or by contacting the Office of the Municipal Clerk at 902.490.4210, or Fax 902.490.4208.

Report Prepared by: Victoria Horne, Coordinator, Transportation and Public Works 902.292-8434

Appendix A Jurisdictional scan of sidewalk snow clearing practices

Staff has reviewed sidewalk snow clearing standards in several municipalities and cities across the country. None of the municipalities reviewed presently clear to bare concrete, instead they list safe and passable or snow packed as their standard. However, Burlington, Kingston, Ottawa and Guelph all indicate they will attempt to achieve bare pavement/concrete through various methods when weather and resources permit¹.

Figure 1.2
Sidewalk Snow Clearing Standards in Major Canadian Municipalities

Municipality	Desired Pavement Condition by Sidewalk Class	Completion Time for Clearing by Sidewalk Class	Comments
St. John's	<p>City snow removal regulations require properties adjacent to designated downtown streets to keep sidewalks free of ice and snow.</p> <p>Outside the Downtown: city clears and salts sidewalks on at least one side of the majority of all arterial and collector streets in priority sequence.</p>	<p>Sidewalk clearing begins after pushback of streets is completed. Depending on amount of snow: four to seven days</p> <p>For property owners in downtown by midnight the day following a storm.</p>	Cost sharing agreement with Downtown St. John for storms greater than 5 cm.
Montreal	Safe and passable on all class. All sidewalks cleared where mechanically possible	14 hrs to complete one round on all road class. Manual sidewalk clearing in downtown core.	
Toronto	Safe and passable on all class. All sidewalks are cleared where mechanically possible.	13 hours to complete one round on all road class	Residents responsible for clearing snow on 1,100 km of sidewalk under bylaw snow removal
London	Surface maintained to snow packed	24 hours	City-wide sidewalks with the exception of the downtown (responsibility of merchants)
Burlington	Surface maintained to a snow packed condition however, will attempt to achieve bare pavement through de-icing when resources permit.	24-36 hours	City-wide standard
Kingston	Surface maintained to a snow packed condition however will attempt to achieve bare pavement	24-72 hours	City-wide tiered response standard

¹ Kitchener Staff Report (2016) *Winter Sidewalk Maintenance*. Community and Infrastructure Services Committee, November 7, 2016 accessed from Kitchener.ca

Municipality	Desired Pavement Condition by Sidewalk Class	Completion Time for Clearing by Sidewalk Class	Comments
Ottawa	through de-icing when resources permit. Surface maintained to a snow packed condition however the downtown, large employment centers and special tourism areas are maintained to bare concrete.	Outside of specialized areas- 12-16 hours	City-wide tiered response
Guelph	Surface maintained to a snow packed condition however the downtown and high priority areas are maintained to bare concrete.	20 hours	City-wide excepting high priority areas