



SUBJECT: Winter services update and disposition of related staff directions

TO: Environment, Infrastructure & Community Services Cttee.

FROM: Roads, Parks and Forestry Department

Report Number: RPF-18-21

Wards Affected: All

File Numbers: 155-03-11

Date to Committee: September 13, 2021

Date to Council: September 21, 2021

Recommendation:

Receive and file roads, parks, and forestry department report RPF-18-21, regarding an update on winter services and disposition of related staff directions.

PURPOSE:

This report has been prepared to update council on actions arising from the Winter Maintenance improvement recommendations of the 2019 Service Delivery Review Report, as well as to address any outstanding winter related staff directions.

Vision to Focus Alignment:

- Improve integrated city mobility
- Support sustainable infrastructure and a resilient environment
- Deliver customer centric services with a focus on efficiency and technology transformation

Background and Discussion:

Winter Maintenance Levels of Service Context

The current levels of service for winter maintenance takes the following into consideration:

- Requirements of the Ontario Municipal Act
- Provincial Minimum Maintenance Standards (Reg. 239/02)

- Council-approved enhanced service levels

The Ontario Municipal Act gives municipalities jurisdiction over the maintenance of city-maintained properties including the road and sidewalk network. Should a municipality neglect to reasonably maintain its facilities including maintenance relating to winter conditions, it can be found liable for damages a person may incur. With regards to sidewalks, the Municipal Act states that a municipality is not liable for a personal injury caused by snow or ice on a sidewalk except in cases of gross negligence.

Compliance with the Provincial Minimum Maintenance Standards (MMS) provides municipalities with a defense against claims of default of maintenance for roads and sidewalks. Municipalities are free to establish service levels that exceed MMS, but as a consequence will be held to those higher standards in court. Winter maintenance service levels for non-road corridor facilities such as parks and recreational facilities, do not fall within MMS and would be based on appropriate industry practices.

The city's current winter maintenance levels of service are detailed in Appendix A.

Winter Maintenance Related Staff Directions

1. At the Committee of the Whole meeting of March 4th, 2019, the following staff directions were brought forward and was an outcome of a presentation on winter operations from the Department of Roads, Parks and Forestry (COW-02-19):
 - i) *Direction regarding winter operations (SD-15-19): Direct the Director of Roads, Parks and Forestry to complete a review of winter operations and provide recommendations to Committee of the Whole for 2020 budget considerations including the following:*
 - *Improvements to sidewalk, pathway and bike lane clearing in accordance with recent revisions to the Minimum Maintenance Standards; and*
 - *Increased management oversight of winter operations on shifts; and*
 - *Increased oversight of contracted services; and*
 - *Consideration of changes to equipment and service provision for plowing (10 year contract preparations are commencing); and*
 - *Options for enhanced service on residential roads; and*
 - *Options for enhanced service on laneways and pathways; and*
 - *Options for changes to the Windrow Program; and*
 - *Options for enhanced communications; and*
 - *Options for salt boxes in neighbourhoods near pathways; and*
 - *Consultation with citizen advisory committees for service level suggestions; and*
 - *Review of road prioritization / service levels for snow removal; and*
 - *Options to purchase a grader or to secure a contract for the operation of a grader, including analysis of the value proposition of those options; and*
 - *Report back at a workshop before the 2020 budget*

ii) *Direction regarding pathway at Brant Hills Community Centre (SD-16-19): Direct the Director of Roads, Parks and Forestry to add the path adjacent to the Brant Hills Community Centre to the route of the sidewalk plow, to be plowed with the same priority as sidewalks on a primary route, including salting (consistent with current service standards) for the remainder of winter 2019.*

2. At the Committee of the Whole meeting of June 10th, 2019, the above noted staff direction (SD-15-19) was embedded into report CM-14-19, which outlined the content for the Provincial Audit and Accountability Fund Service Reviews, with the intent to include winter services and assess efficiencies in service delivery, cost effectiveness of employing internal vs external resources, review of service standards and best practices.

2019 Service Review – Winter Maintenance Recommendations

On December 2nd 2019, the final report and presentation of the results from the Audit and Accountability Service Review was tabled at the Committee of the Whole. The recommendation included as part of the report was as follows:

Direct the City Manager to report back in Q1, 2020, on the proposed disposition of the four service reviews and recommendations contained in the “City of Burlington 2019 Service Delivery Reviews Final Report.”

With respect to Winter Maintenance, the above noted service review recommended efficiency improvements as follows:

- Immediate implementation of the increase to guaranteed service delivery program (GSD). (This had been implemented prior to the presentation of the final report.)
- Work with Halton Region on the recovery/billings methodology for Regional roads.
- Redesign of future winter contracts based on review findings.
- Investigate the feasibility of temporary re-supply depots.

Furthermore, winter related technological improvements were also recommended as follows:

- Implementation of an Automatic Vehicle Locator (AVL) solution that supports winter control functionality, performance and route optimization (which will replace manual processes).
- Installation of dashboard mounted cameras and tablets.
- Ensure the rollout of the new corporate maintenance management system includes event specific reporting of expended labour hours (City and contractor), for local, secondary and primary road categories.

Actions Arising from Winter Maintenance Service Review Recommendations:

Guaranteed Service Delivery (GSD) Program:

The shift premium recommendation for staff on the GSD program was implemented in 2019. This change has helped with GSD staff retention as well as mitigated the expense of an alternative shift model to preserve 24/7 winter control response levels.

Halton Region Road Maintenance Agreement – Winter Maintenance Recovery

The recovery model for the Halton Regional Maintenance Agreement was reviewed and confirmed to be appropriate and in-line with how the other regional municipalities are recovering costs from the region. Expenditures for dedicated regional road winter contracts are fully recoverable and where resources are also used for city roads, costs are allocated based on road class, lane kms and a weighting to reflect the effort required for the class of road maintained. In addition, all expenses including labour and materials are marked up with an appropriate administration fee.

Winter Maintenance Contracts

Improved service delivery sustainability has been incorporated in new winter service contracts as follows:

- i) Longer term contracts with options to extend to allow for improved equipment standards and economies of scale;
- ii) Updated bid schedules to better define standby and hourly in-service rates;
- iii) Mechanisms for price adjustments based on fuel and CPI increases in order to mitigate hedging of bid costs;
- iv) Requirements for replacement operators to ensure resources are available for extended winter events; and
- v) Mandated electronic spread controls with remote monitoring capability.

Temporary Re-Supply Depots

As a consequence of growth and intensification, there will be a need for additional facility space for not only winter operations but also for a variety of other city services. Therefore, opportunities for short and long term facility expansions or new operations depots have been under consideration for some time, inclusive of the option for an expanded operations campus on Harvester Road. The onset of the pandemic has also required the provision of additional facility space to comply with health and safety requirements, resulting in several city services being displaced to satellite facilities. However, opportunities for short term facilities to support winter operations are limited to the availability of large outdoor storage space, as well as having site conditions that align with environmental standards for handling of winter materials. The search for

these additional facilities are continuing including the requirement to update the long-term capital forecast to fund this recommendation.

Automatic Vehicle Locator (AVL) Solution

The provision of a new AVL system is in progress with implementation planned for this upcoming winter season (subject to the availability of materials as supply chains have been impacted worldwide by the pandemic). This new solution will include the re-establishment of a web-based plow tracking application that will display progress of winter response inclusive of the plowing of local residential roads.

Dashboard Mounted Cameras and Tablets

The installation of in-vehicle tablets will be included as part of the new AVL system rollout, which will eliminate paper handling and allow for improved management of operations. Dash mounted cameras are not part of this initial phase of the AVL system but an available future option if warranted. The original intent of the cameras was to help mitigate liability as well as better manage driver performance, which we believe can both be achieved through analysis of vehicle telematics available from the new AVL system.

Corporate Maintenance Management System

The provision of a new enterprise asset management system (EAMS) is also in progress. The new system will be integrated with the city's customer response management (CRM) system and will not only improve inquiry tracking, but also allow for increased accuracy in the reporting of expenditures as they relate to both asset maintenance and service response. Implementation of the new EAMS system as it relates to winter related work orders is planned to be in place for the 2022/23 winter season.

Actions Arising from Winter Related Staff Direction SD-15-19:

Improvements to sidewalk, pathway and bike lane clearing in accordance with recent revisions to the Minimum Maintenance Standards:

The May 2018 MMS amendments included several new standards related to winter maintenance:

i) On-Road Bicycle Lane Winter Maintenance

The new MMS clauses regarding bicycle lanes only apply to on-road cycling facilities, although staff do anticipate future MMS amendments will expand to include off-road cycling facilities as well. All existing on-road bicycle lanes in Burlington are currently separated only by road markings and these lanes are cleared along with the remainder of the road surface during winter operations. Under these conditions, the new MMS

requirements for on-road bicycle lanes did not present a change in operations and had no budget implications.

However, plans are being developed as part of Plains Road improvements that will implement the city's first sections of physically separated bike lanes. This arrangement will require supplemental equipment for snow clearing and will have year-round budget implications once implemented.

ii) Sidewalk Winter Patrolling

The new MMS require that if there is a substantial probability of snow accumulation, ice formation or icy sidewalks, that representative sidewalks are patrolled as necessary. This requirement for formal sidewalk patrolling of representative sidewalks was incorporated within the existing winter road patrol program to meet the new standard. Patrollers are required to assess conditions of the sidewalks at several locations throughout the city once every eight-hour shift. There was no budget impact with this program modification.

iii) Sidewalk Winter Maintenance

Prior to the May 2018 amendment, there were no MMS requirements for sidewalk winter maintenance. The new requirements require all sidewalks to be plowed when accumulations exceed 8cm of snowfall within 48 hours after accumulation has ended. In addition, sidewalks are to be treated to prevent the formation of ice or improve traction within 48 hours of becoming aware that the sidewalk is icy. The city's current sidewalk service level is to plow all sidewalks when accumulations exceed 5cm of snowfall and within 48 hours after accumulation has ended. The city also addresses icy conditions of sidewalk as necessary. The city's service levels therefore exceed the MMS requirements and no operational changes were necessary. However, this is an area of opportunity if the city wishes to reduce its service levels to align closer to the MMS winter sidewalk requirements.

Increased management oversight of winter operations on shifts, and Increased oversight of contracted services:

The city's winter response model provides for 24-7 coverage throughout the winter season from December to March. Management coverage for winter events occurring during non-regular business hours or on weekends are ensured through an on-call system where supervisory staff are paired in 12 hour shifts with back-ups identified and available as necessary. This coverage arrangement provides for basic management oversight for winter operations and is a typical model used throughout the industry. Opportunities to increase the quality of this oversight will be realized through the new

AVL system and its available real time data, as well as through improved work request tracking via the new corporate asset management/work order system (EAMS). However, this opportunity is contingent on the provision of support staff to assist with systems monitoring and analytics. These additional resources have been identified and included as part of the city's Designing and Evolving Our Organization (DEOO) initiative and will have a year-round benefit for non-winter operations oversight as well.

Consideration of changes to equipment and service provision for plowing (10 year contract preparations are commencing):

This item was included as part of the Provincial Audit and Accountability Fund Service Reviews in 2019. As noted earlier in this report, the recommendations arising from this review for improved winter related contracts have been incorporated in the latest winter contracts.

Options for enhanced service on residential roads; and Options for enhanced service on laneways and pathways:

The city's current winter maintenance levels of service for roads, laneways and pathways (within the road corridor) are in general accordance with provincial minimum maintenance standards and in-line with how other municipalities deliver this service. Opportunities to enhance the quality of services delivered for these facilities will be realized through improved oversight of operations that will be provided via the new AVL system and its available real time data, as well as through improved request tracking from the new enterprise asset management/work order system (EAMS). As previously noted, this opportunity is contingent on the provision of support staff to assist with systems monitoring and analytics, and these resources have been identified as part of the city's DEOO initiative.

Options for changes to the Windrow Program:

The city's Windrow Clearing Program is a discretionary service provided for persons who are physically unable to clear the windrows left at the bottom of their driveway by the road plow. The program is limited to 175 spots (increased from 150 spots in 2019), is funded approximately 65% by the tax levy with a service fee of \$58.29 plus HST per driveway. The service is provided each time residential roads are plowed (when snowfall exceeds 7.5 cm). The current level of service is to complete clearing of all driveway windrows within 16 hours after the city has finished plowing all roads.

Reducing the completion time from 16 hours to 12 hours, after the city has finished plowing all roads would be a service change more in-line with the expectations of the program participants. Implementing such a service level change on a full cost recovery basis, would increase the program fee by \$40 per driveway.

Options for enhanced communications:

Communicating information on service levels and the status of operations is an important part of the city's winter response program. Information is provided on the city's website and communicated through social media as necessary. Updates are provided through these media channels as well as through email notice subscriptions. Over the past couple of winter seasons, media communications have been improved through updated infographics, targeted flyer drops and Tim Horton's in-store infomercial videos. Opportunities for enhancement will be realized through new AVL system and its public facing real-time progress tracking of snow clearing operations.

Options for salt boxes in neighbourhoods near pathways:

Sand boxes are installed adjacent roads or sidewalks where inclines are steep and localized icy conditions can be quickly addressed by drivers or pedestrians. They are also installed at school crossing guard locations for use as necessary by crossing guards. Requests for new sand box locations are reviewed by staff and generally limited to areas that are not regularly salted or sanded. The sand is to be only used for public roads, sidewalks or pathways and misuse for private facilities, material theft, contamination with waste, vandalism or non-use typically results in removal.

Consultation with citizen advisory committees for service level suggestions:

The industry standard for winter maintenance service levels within the road corridor are the Provincial Minimum Maintenance Standards (MMS). Municipalities are free to establish service levels that exceed MMS, but as a consequence will be held to those higher standards in court. Winter maintenance service levels for non-road corridor facilities such as park pathways and trails, do not fall within MMS are discretionary services and more appropriately suited for public dialogue on service changes. It should be noted that work on Burlington's Integrated Mobility Plan is underway which will include public consultation on a wide range of mobility options, and feedback on winter maintenance service levels for off-road facilities will be included as part of this initiative.

Review of road prioritization / service levels for snow removal:

The city's winter control and snow clearing service levels are based on a road classification/priority system and establishment of road class (with associated service level) is determined by Provincial Minimum Maintenance Standards (MMS). MMS primarily defines road class based on vehicle volumes and posted speed limits. Further to these, factors such as connectivity/proximity to other secondary or primary routes, adjacent facilities, transit routing and road profile are also considered to ensure appropriate and fair distribution throughout the city. Requests to consider changes to the city's winter road priority network are reviewed annually, with updates only occurring several months in advance of the winter season, as route maps and response plans are fixed during the winter season and cannot be adjusted mid-season.

Options to purchase a grader or to secure a contract for the operation of a grader, including analysis of the value proposition of those options:

The use of road graders has been part of the city's winter response for many years. Currently the city does not have a grader in its equipment inventory and options to include it as part of the city's 10 year equipment growth plan are under review and would additionally benefit non-winter shoulder maintenance and other road reconstruction operations.

Report back at a workshop before the 2020 budget:

The timing and requirement for a winter workshop was impacted as a consequence of the original staff direction being referred to the Provincial Audit and Accountability Fund Service Reviews in 2019, with such outcomes occurring after the 2020 budget process. Thereafter, the opportunity for a workshop was further impacted by the pandemic response in 2020. Moving forward, plans to include winter maintenance service levels as part of an upcoming Integrated Mobility Plan workshop are in progress and will provide for this discussion opportunity.

Actions Arising from Winter Related Staff Direction SD-16-19:

Direct the Director of Roads, Parks and Forestry to add the path adjacent to the Brant Hills Community Centre to the route of the sidewalk plow, to be plowed with the same priority as sidewalks on a primary route, including salting (consistent with current service standards) for the remainder of winter 2019:

This request has been incorporated as part of the city's current sidewalk plowing winter response plans.

Strategy/process

The City's winter control and snow clearing service levels are based on a road classification priority system. Higher order roads such as arterials are highest priority; roads such as residential/local streets are lowest priority. Winter response proceeds based on this hierarchical system and is the industry standard for how winter operations are managed and most efficiently deployed. The city maintains the following roads, sidewalk and pathway network in the winter:

Road Network

- Primary roads – 716 lane kilometers
- Secondary roads – 630 lane kilometers
- Local roads (includes laneways) – 580 lane kilometers

Plowing of primary and secondary roads occur when the snowfall exceeds 5cm. Surfaces for these road classes are maintained to a final bare pavement state. Plowing

of local roads is carried out when the snowfall exceeds 7.5cm. The city's service level for local roads allows them to be in 'snow pack' condition. Local roads are typically treated with sand along curves, hills and intersections, however if icy conditions exist, the city may treat local roads with salt as appropriate.

Providing a bare pavement level of service to all streets including local roads would have a significant impact not only on budget, but on the environment as well. The city, as well as other Canadian road agencies, are required to manage salt use and minimize environmental impacts. It would be very unusual for a municipality subject to winter climate conditions, such as Burlington, to consider a snow packed road surface as unacceptable for local residential roads.

Sidewalk and Pathway Network

- Primary Sidewalks – 253 kilometers
- Secondary Sidewalks – 359 kilometers
- Local Sidewalks - 234 kilometers
- Pathways and Trails – 30 kilometers

Sidewalk clearing operations progress in priority sequence based on the road class in which they are located. All sidewalk and pathway facilities are plowed after snow accumulates more than 5 centimeters, but only after roads are cleared. Sidewalks are treated with sand or salt as appropriate. However, the use of salt is minimized due to its impact on the environment and snow-covered conditions on sidewalks (less than 5cm) can exist for extended periods of time. Sidewalks within BIA districts are generally maintained to a final bare state.

Options Considered

Pathway and Trail Network

The city currently provides winter control services to 30 kilometers of pathways and trails, which is approximately a third of its formal network. As a future improvement opportunity, staff will be reviewing options to increase service coverage to more off-road facilities, as well as ways to better align winter maintenance services with the ideal pedestrian network, which is under development as part of the city's Integrated Mobility Plan review.

Financial Matters:

The Roads, Parks and Forestry winter maintenance operating budget for 2021 is as follows:

Roads	\$ 4,191,000
Sidewalks, Pathways and Trails	\$ 1,393,000

Bus Stops	\$ 124,000
Parks and Facilities	\$ 60,000
Windrow Program	\$ 18,000
Total	\$ 5,786,000

The winter maintenance operating budget is based on a rolling 5 year average winter season. The annual budget is also adjusted for inflationary or contract increases as necessary. In addition, the city maintains a Severe Weather Reserve Fund to offset budget shortfalls due to severity of the winter season. After a mild season, surplus funds are typically used to offset minor budget shortfalls in other departmental service areas or if significant, these funds will be used to top-up the reserve. The current balance of the reserve fund is \$ 4,725,000.

Total Financial Impact

The current winter maintenance service expenditures for the 2021 fiscal year are projected to be favourable due to a lighter winter in the first quarter of 2021. Final variances will be subject to the weather experienced in the latter part of the year. Should Council wish to modify any winter maintenance service level, changes would be subject to the availability of resources, and as these services are procured several months in advance, it is unlikely that significant changes could be implemented until the 2022/2023 winter season.

Source of Funding

The source of funding for winter maintenance is the operating budget and is split over two fiscal periods for the same winter season. The Severe Weather Reserve is relied upon when winter expenditures significantly exceed the allocated annual winter budgets.

Other Resource Impacts

Not Applicable

Climate Implications

Winter response is impacted by a changing climate such as severe weather events, extreme cold cycles and fluctuating freeze and thaw events. Response to any of these situations vary and are dependent on the severity of each weather event. The program is currently dependent on gas and diesel powered equipment, that contribute to the City's corporate greenhouse gas emissions. Through its green fleet replacement strategy, the city will endeavor to reduce its reliance on winter maintenance vehicles which are powered by internal combustion engines.

Engagement Matters:

Any change in winter maintenance service levels will impact the public. The adoption of options that remove or reallocate services should involve a public consultation and engagement process, as there will be community stakeholders who would find such changes either desirable or unacceptable, especially where the reduction of a services is contemplated.

Conclusion:

This report has been prepared to update council on actions arising from the Winter Maintenance improvement recommendations of the 2019 Service Delivery Review Report, as well as to address any outstanding winter related staff directions. With this report, we are considering the identified staff directions to be closed.

Respectfully submitted,

Matt Koevoets

Manager of Roads Operations

Appendices:

A. Winter Maintenance Service Levels

Report Approval:

All reports are reviewed and/or approved by Department Director, the Chief Financial Officer and the Executive Director of Legal Services & Corporation Counsel.