



INFORMATION REPORT

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	December 4, 2023
SUBJECT/REPORT NO:	Review of Level of Service for Winter Control in Alignment with the Principles of Vision Zero (PW23077) (City Wide) (Outstanding Business List Item)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Peter Sniulis (905) 546-2424 Ext. 7646 Robert Marques (905) 546-2424 Ext. 7642
SUBMITTED BY:	Carolyn Ryall Director, Transportation Public Works Department
SIGNATURE:	

COUNCIL DIRECTION

On March 20, 2023 Public Works Committee provided the following direction:

- a) That staff undertake a review of the City of Hamilton's current level of service for winter control and provide options on how operations could be adapted to enhance accessibility and safety in alignment with the principles of Vision Zero, thereby protecting the interests of vulnerable road users;
- b) That staff report back to the Public Works Committee with the results of the review of the City of Hamilton's current level of service for winter control in advance of August 31, 2023, with possible level of service revisions and best practices including any cost and resourcing implications; and
- c) That staff ensure the following areas of focus are included in the review of the City of Hamilton's current level of service for winter control:
 - i. HSR transit stops including boarding access;

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OUR Mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

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- ii. Controlled crosswalks, crosswalks with stationed crossing guards, school crossings, sidewalks with sloped access, neighbourhood pedestrian and multimodal pathways; and
 - iii. School zones
- d) That staff consult with the Advisory Committee for Persons with Disabilities and the Seniors Advisory Committee when reviewing snow clearing needs of the community; and
- e) That staff report back in full the comments and opinions of the disability and senior's communities including the Committee for Persons with Disabilities and the Seniors Advisory Committee.

BACKGROUND AND OVERVIEW

The focus of this information report is on potential enhancements or changes to winter operations, where applicable. This includes best practices surrounding Hamilton Street Railway transit stops, controlled crosswalks, crosswalks with stationed school crossing guards, school crossings, sidewalks with sloped access, neighbourhood pedestrian and multimodal pathways, and school zones. Staff have provided options on how to adapt winter operations in these areas to enhance overall safety and accessibility in alignment with the principles of Vision Zero for the upcoming 2023/2024 winter season as well as future winter seasons. Additionally, staff proactively sought out information regarding driveway snow windrow clearing, which has been included.

The City has a 24/7 winter response team equipped with; over 500 total pieces of winter equipment (in-house and contracted), which includes 164 road plow salt/sanders and 34 sidewalk plows. The response team maintains the City's 6,478 lane-kilometres of roadway, approximately 1,100 cul-de-sacs, and over 2,300 bus stops.

The City currently clears snow from 882 km of the approximately 2,468 km of sidewalks. This includes sidewalks on municipally owned property, reverse frontage lots, all sidewalks in Ward 12, adjacent to school property owned by the Hamilton-Wentworth District School Board and the Hamilton-Wentworth Catholic District School Board, and along all Priority 1 roadways and Priority 2A roadways where transit operates, in conjunction with the Snow and Ice By-law No. 03-296.

In November 2021, Report PW19022(d) presented financial and contract details regarding the expansion of sidewalk snow clearing, integrating an Equity, Diversity, and Inclusion lens into the development of new service standards related to winter snow clearing from sidewalks. This initiative was approved and following a year of program implementation during the 2022/2023 winter season, Council provided direction to

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explore further improvements focusing on winter snow clearing, particularly related to sidewalks, transit, multimodal pathways, and services in school zones.

The City implemented its Vision Zero Action Plan in 2019. The action plan is a multidisciplinary approach that requires the collaboration of policymakers, engineers, planners, and everyday road users to ensure a holistic approach is applied when considering how streets can be made safer for motorists, pedestrians, and cyclists. With support from Hamilton Police Services, the City of Hamilton continues to remain focused on improving roadway safety and formally recognizes that traffic-related deaths and serious injuries are preventable.

Motorists, pedestrians, and cyclists can make mistakes and the Vision Zero safe systems approach (safe drivers, safe speeds, safe roads, and safe vehicles) is crucial to reducing the chance of collisions and preventing severe injuries and fatalities. Roadway operations is an important component of roadway safety, particularly during the winter season. Winter weather can increase vulnerable road users exposure to potentially unsafe conditions and therefore it is critical to ensure that operations take this into consideration.

Current Levels of Service:

Ontario Regulation 239/02 to the *Municipal Act, 2001* “Minimum Maintenance Standards for Municipal Highways” describes the base level of service for roadways, including winter maintenance. In addition to these defined levels of service, the City also has self-imposed enhanced winter levels of service which are greater than and in addition to the Minimum Maintenance Standard for Municipal Highways. City approved enhanced levels of service versus Minimum Maintenance Standards for Municipal Highways is attached to Report PW23077 as Appendix “A” for reference.

The City’s ability to provide winter operations in compliance with the required levels of service is contingent upon weather conditions such as the severity of weather events, extreme cold cycles and fluctuating freeze and thaw events. The operational response to any of these situations can vary greatly and are dependent on the severity and frequency of each weather event. In circumstances where winter weather conditions exceed or hinder the City’s capability to meet levels of service, particularly through delayed response times, a Significant Weather Event is declared to clearly indicate to the public a delay in response in achieving levels of service.

In the 2022/2023 winter season (November 2022 through the end of April 2023), the Transportation Division fielded over 10,000 phone calls regarding winter activities, processed approximately 2,600 service requests, and received over 13,000 emails. Public inquiries and requests peak during and after severe weather events and can place a strain on internal resources. Many public inquiries and requests ask for work that is not in alignment with the approved levels of service, which is why it is important

that regular public communications are provided to educate residents on the levels of service that the City provides. Maintenance Standards for Municipal Highways Policy (PW18096(a)) (City Wide) has also been provided in Report PW23077 as Appendix “B”, which outlines the guidelines for delivering levels of service for maintenance operations. In addition to the Maintenance Standards for Municipal Highways Policy, Council approved an enhanced level of service for sidewalk snow clearing, which was first used during the 2022/2023 winter season.

Based on examining the first operational winter season for the enhanced level of service for sidewalk snow clearing, applying lessons learned, and working in collaboration with the City’s sidewalk snow clearing contractor, opportunities for increased efficiencies and process improvements have been identified. Many of these opportunities can be leveraged and applied to the 2023/2024 winter season with minimal resourcing implications. The existing sidewalk snow-clearing contract expires after the 2026/2027 winter season, after which substantive modifications can be included in a subsequent tender.

2023/2024 Winter Season Opportunities:

Several improvement opportunities were identified through examination of the 2022/2023 winter operations program performance. These opportunities will be leveraged during the 2023/2024 winter season and are anticipated to result in an enhanced ability to meet levels of service and improve the performance of the winter operations program.

Winter Status Dashboard

A comprehensive storm update dashboard was developed to assist internal operations as it provides visual tracking of the status of completion for roadway snow clearing, predictive completion timelines, and resource allocation status. Before the development of this dashboard, operational activities were tracked manually which was found to be inefficient and not enabling the availability of information in a timely manner that the program requires. Future enhancements to the dashboard will be progressed, and the option to make this public facing will be explored. An example of the Winter Maintenance Dashboards have been attached to Report PW23077 as Appendix “C”.

Digital Activity Logs

Digital activity logs will be implemented this winter season for the use of the City’s sidewalk contractors. The digital logging process ensures that contractor operation activities are tracked in a format that is accessible on demand to internal staff who manage the contractors. The digital logs replace paper logging which had to be filled in by contractors and submitted to the City and processed. The digital activity logs

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increase information accuracy, and legibility and eliminate the delay that is associated with using paper logs which need to be passed from the contractor to the City. An example of a Digital Activity Log for snow-clearing has been attached to Report PW23077 as Appendix “C”.

Quality Control Based Internal Resource Allocation

A strategy was identified to adjust five available internal resources which will improve quality control through prioritized inspections during storm events during the week, as it pertains to monitoring the operations of the City’s sidewalk snow-clearing contractor. This will enhance the ability to identify and rectify issues earlier during, and after winter events.

Contract Considerations for Future

Winter maintenance contracts are being examined and updated in anticipation of future tenders after the existing tenders expire. These contracts, coupled with strategic optimizations, are poised to enhance the efficiency and modernization of resource utilization in the provision of winter maintenance services, incorporating Council discussions, direction and applying lessons learned through continuous improvement principles.

Future Potential Levels of Service Opportunities (2024 onwards):

Identified opportunities are summarized in Appendix “D” attached to Report PW23077 which is organized by options identified within the March 20, 2023 Council motion. The summary includes information on how the issues could be addressed during the 2023/2024 winter season and during future winter seasons. Some opportunities, as noted above, will be incorporated in the 2023/2024 winter season operations and do not require direction from Council, while other future opportunities are presented here for Council’s consideration. Opportunities took into consideration consultation with the Seniors Advisory Committee and Advisory Committee for Persons with Disabilities as attached in Report PW23077 as Appendix “E”.

Option 1 - Additional sidewalk clearing and support equipment

This option increases the quantity of equipment under the existing sidewalk clearing contract by introducing additional equipment, notably eight sidewalk plows and eight filler trucks, to complement the current fleet of 34 sidewalk plows and 21 filler trucks. The objective is to enhance operational efficiency and reduce route lengths, enabling earlier commencement of clearing operations and facilitating secondary sidewalk clearing when needed. Implementation would be targeted for future winter seasons.

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In conjunction with the increased equipment, this enhancement necessitates additional operational hours to activate the sidewalk and transit clearing contractor earlier during storms. This proactive measure mitigates snow depths, benefiting pedestrians and impeding snow accumulation on sidewalks.

Furthermore, the introduction of this service level enhancement entails utilizing supporting equipment, such as skid steers, to expedite windrow removal at critical points like crosswalks, intersections, transit stops, school crossings, and other high pedestrian areas. It is important to note that while this service will be activated toward the end of the storm, it will not instantaneously resolve windrow issues. Rather, it expedites the final clean-up process. Implementation of this enhancement, if approved by Council, could be targeted to begin in the 2024/2025 winter season and continue with subsequent winter seasons.

It is also worth noting that this option would yield additional minor tangible benefits, notably an enhanced level of service around schools. The City's earlier activation of snow removal services will prompt the contractor to attend to sidewalks around schools earlier, ensuring safer pedestrian pathways during winter.

To enhance the existing level of service, this change would require a total investment of \$5.46 million. This comprises a projected cost for contractual services of \$2,920,713 in 2024 and a projected cost for contractual services of \$2,043,317 in 2025. Staffing compliment included in this total cost includes for:

- Supervisors – Roadway Maintenance (four permanent full-time employees) representing an estimated annual cost of \$495,448; inclusive of salary and benefit costs.

With the additional four Roadway Maintenance Supervisors required to oversee the program, their roles would encompass inspecting contracted work, identifying any deficiencies, and enhancing communication with the contractor, staff, and residents. During non-winter seasons, these supervisory staff will also ensure property restoration by the Contractor and provide support for summer contracts like grass cutting.

It should be noted that the additional supporting equipment for the 2024/2025 winter season onwards is estimated since contract pricing would need to be confirmed by a competitive bidding process.

Option 2 - School Zone Level of Service Increase

The Minimum Maintenance Standards and the City's current Council approved enhanced levels of service will not elevate school zones to a heightened level of service. Clearing operations follow a hierarchy based on roadway classification,

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commencing from main roads and escarpment crossings, progressing to collector roads, and concluding with neighbourhood streets. Consequently, this approach yields perceived service disparities among schools, given their varying roadway classifications. Attached to Report PW23077 as Appendix “F” is a map of all Hamilton-Wentworth District School Board and Hamilton-Wentworth Catholic District School Board school locations found on all road classifications throughout the City.

The enhancement being proposed involves clearing roadways and sidewalks before and after school hours, superseding roadway class distinctions. This option does not include sidewalks or locations directly across from schools or anything on school property, such as internal pathways or parking lots. Deadhead of the roadway and sidewalk plows will occur as they are moving between prioritized locations; not clearing the surrounding roadway or sidewalk enroute to the school.

Enhancing the level of service around School Zones would result in an estimated total annual cost increase of \$12 to \$13 million with an implementation date targeting 2025/2026. The City would need to issue a new procurement to implement this enhancement with multiple contracts with the private sector to fulfil the increased service demands and specified timelines. Staffing compliment included in this cost includes for:

- Supervisors – Roadway Maintenance (eight permanent full-time employees) representing an estimated annual cost of \$990,903.52; inclusive of salary and benefit costs.

With the additional eight Roadway Maintenance Supervisors required to oversee this program, these staff will be able to inspect contracted work, identify deficiencies, and improve communication to contractors, staff, and residents. During the non-winter season, these supervisory staff members will also ensure property restoration is completed by the Contractor and assist with summer contracts like grass cutting.

Again, it should be noted that the cost identified is estimated, as contract pricing would need to be confirmed by a competitive bidding process.

Option 3 - Clearing all Sidewalks

The City of Hamilton currently clears 882 km of the approximately 2,468 km of sidewalks. This proposed enhancement is like Option 1 but includes the cost to clear the remainder of the 2,468 km network of City sidewalks; the entire City sidewalk network.

In order to maintain all sidewalks across the City, an increase in equipment and operational hours will be required. To fulfil this enhancement, the required equipment

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includes an additional 88 sidewalk plows and 39 filler trucks, supplementing the existing fleet of 34 sidewalk plows and 21 material trucks. Implementation would be targeted for the 2027/2028 and future winter seasons once the existing contract expires.

In conjunction with the increased equipment, this enhancement necessitates additional operational hours to activate the sidewalk and transit clearing contractor earlier during storms. This proactive measure mitigates snow depths, benefiting pedestrians and impeding snow accumulation on sidewalks.

Furthermore, the introduction of this service level enhancement entails utilizing supporting equipment, such as skid steers, to expedite windrow removal at critical points like crosswalks, intersections, transit stops, school crossings, and other high pedestrian areas. It is important to note that while this service will be activated toward the end of the storm, it will not instantaneously resolve windrow issues. Rather, it expedites the final clean-up process.

The City already has a Council approved enhanced completion time of 24 hours following the completion of the winter event when compared to the Minimum Maintenance Standards timeline of 48 hours and reduced to a depth of eight centimetres or less following the completion of a winter event. Increasing these timelines any further would introduce additional risk and liability to the City.

The proposed service enhancement could be implemented commencing the 2027/2028 winter season, coinciding with the expiration of the existing contract. Importantly, adopting this option would alleviate the need for additional Municipal Law Enforcement support to monitor negligent property owners who fail to comply with By-Law 03-296, as identified in Option 4.

This option would result in an annual cost increase of approximately \$11.7 million based on current contract prices. These prices are expected to increase prior to the contract being posted for competitive bidding ahead of the 2027/2028 winter season. To support the increase of levels of service and contracted equipment, the following staffing resources are required:

- Supervisors – Roadway Maintenance (12 permanent FTE's) representing an estimated annual cost of \$1,486,335.28; inclusive of salary and non-salary costs;
- Investigators – Roadway Maintenance (two permanent FTE's) representing an estimated annual cost of \$196,881.28; inclusive of salary and non-salary costs;
- Project Manager - Roadway Maintenance (one permanent FTE) representing an estimated annual cost of \$138,745.25; inclusive of salary and non-salary costs.

Option 4 - Municipal Law Enforcement Increase

In consultation with both the Advisory Committee for Persons with Disabilities and the Seniors Advisory Committee, it was recommended that there be more enforcement from Municipal Law Enforcement Officers to proactively enforce sidewalks under the Snow and Ice By-law 03-296.

At present, Municipal Law Enforcement responds proactively to enforce the Snow and Ice By-law 03-296 only when Public Works declares a snow emergency. All other enforcement under the Snow and Ice By-law 03-296 is reactive. Procedurally, Municipal Law Enforcement issues residents with an order to comply, providing residents 24 hours to clear and clean snow from the sidewalk. Municipal Law Enforcement may enhance proactive and reactive enforcement efforts by proceeding with fines and charges, opposed to an order to comply for non-compliance.

To enhance Municipal Law Enforcement's ability to enforce sidewalk snow clearing under By-Law 03-296, Transportation will work with Municipal Law Enforcement on an enforcement strategy and model in 2024 to assist the Division.

During the non-winter season, there is an opportunity to transfer any enhanced services to summer to proactively enforce residents who do not cut their grass within the timelines outlined under the City's By-Law 10-118.

If Option 3, clearing all sidewalks, is utilized then enhanced Municipal Law Enforcement would not be required as the City would be completing the clearing of all sidewalks over residents.

Option 5 - Residential driveway windrow snow clearing

A snow windrow is a pile of snow at the end of the driveway created by plows when the road is cleared. The clearing of driveway windrows caused by plowing roads can be a challenge for many residents, with difficulty being compounded by the amount of snowfall and its hardness from temperature fluctuations occurring during/after the snowfall event.

Currently, the City of Hamilton does not have a windrow snow clearing program but operates a Snow Angels program to assist Hamilton seniors and disabled residents with a financial subsidy to help them meet the requirements of the City of Hamilton Sidewalk Snow Clearing By-law. The subsidy can be used to pay for snow removal needed to clear the sidewalk and to provide safe walking access to the front door and through the windrow.

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A municipal scan (Attached to Report PW23077 as Appendix “G”) illustrates a wide variety in the way neighbouring municipalities manage windrows. Several municipalities do not provide this service, while some municipalities clear the windrows from all driveways (fee based), and other municipalities have a program for select residents that meet eligibility criteria.

A future windrow clearing program for the entire City (approximately 165,000 single family homes) would require contracting out over 300 pieces of equipment to clear the windrows in front of driveways to a width of approximately three metres. The target completion service level for the clearing of the windrow would be approximately 12 hours after the roadway has been plowed.

Some limitations to providing this service include but are not limited to:

- On-street and lower boulevard parking will impact the service from being completed;
- Town homes and homes within cul-de-sacs may not all be serviced as there is often no boulevard space available to move the windrow snow to;
- Waste pickup may hinder and prevent operations from occurring within service levels;
- The level of service would include the provision to provide a three metre wide opening however, larger accumulations of snow and more frequent winter events would limit where snow could be piled, ultimately reducing the ability to provide a three metre wide opening;
- Property damage may occur to driveway surfaces or encroachments; therefore increasing risks, liability, and costs to the municipalities;
- Delay in service after the roadway plow has gone by, ultimately resulting in more complaints;
- Windrows will continue to occur as the roads are continuously plowed; and
- Contractors bidding on these contracts would need to purchase specific equipment and have property to store the equipment.

Implementing a city-wide driveway windrow clearing program would result in an estimated total annual cost increase of \$24 - \$27 million to contract out the service. Cost estimations were based on a recent Request for Proposal by the City of Mississauga. To support the increase level of service and contracted equipment, the following resources are required:

- Project Manager - Roadway Maintenance (one permanent full-time employee) representing an estimated annual cost of \$ 138,745.25; inclusive of salary and non-salary costs;

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- Inspector – Roadway Maintenance (four permanent full-time employees) representing an estimated annual cost of \$501,808.00; inclusive of salary and non-salary costs;
- Investigators – Roadway Maintenance (one permanent full-time employee) representing an estimated annual cost of \$103,140.00; inclusive of salary and non-salary costs;
- Operational Support Coordinator – Roadway Maintenance (two permanent full-time employees) representing an estimated annual cost of \$166,162; inclusive of salary and non-salary costs;
- Supervisors – Roadway Maintenance (four permanent full-time employees) representing an estimated annual cost of \$495,448; inclusive of salary and non-salary costs; and
- Supervisor Claims Administration (one permanent full-time employee) representing an estimated annual cost of \$137,118; inclusive of salary and non-salary costs.

Should this option be considered, the City's Risk and Legal team will need to complete a comprehensive review of the implications, such as the significant potential for claims.

APPENDICES AND SCHEDULES ATTACHED

Appendix "A" to Report PW23077 – City Approved Enhanced Levels of Service versus Minimum Maintenance Standards for Municipal Highways

Appendix "B" to Report PW23077 – Maintenance Standards for Municipal Highways Policy (PW18096(a)) (City Wide)

Appendix "C" to Report PW23077 – Winter Maintenance Dashboards

Appendix "D" to Report PW23077 – Future Potential Levels of Service Opportunities (2024 onwards)

Appendix "E" to Report PW23077 – Relevant Consultation and Citizen Committee Report

Appendix "F" to Report PW23077 – Map of Schools on Different Road Classifications

Appendix "G" to Report PW23077 – Windrow Snow Removal Municipal Scan