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Sidewalk Snow Clearing and Sod Damage Information Report to Council

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In accordance with the Procedure By-law, any member of Council may make a request to the Town Clerk that this Report be placed on an upcoming Committee of the Whole agenda for discussion.

Executive Summary

The Town of Newmarket provides sidewalk snow clearing services for all Town-owned sidewalks. The service ensures safe and accessible travel for pedestrians and abides by minimum standards set out by the Province and the Town. Winter maintenance on sidewalks results in a number of resident calls regarding the overall service and also for sod damage due to plowing. This inadvertent damage not only results in repair costs, it also upsets property owners. Overall costs, incidents per snow event and resident calls have generally been trending downward over the past five years. Staff have worked on and successfully implemented a number of mitigation measures in an effort to minimize instances where damage occurs. In addition, staff continue to monitor new and innovative products and equipment within the industry. Further to that, Town staff continue to implement pilot projects, such as the Sidewalk Markers initiative, in an effort to improve sidewalk snow clearing services within the Town.

Purpose

This report is intended to provide an update on Sidewalk Snow Clearing Services and specifically the impact of that service on damage to sod. The information report will also outline solutions that are being put in place for the 2021-2022 winter season as well as innovative approaches to sidewalk snow clearing services that Town staff have been exploring and monitoring.

Background

Under the Municipal Act, the Town is required to provide safe travel for pedestrians on sidewalks owned by the Town. This is specified under the Ontario Reg. 239/02

regarding the Minimum Maintenance Standards for Municipal Highways Act, section 16.3 Snow Accumulation on Sidewalks. The Town also has specific policy minimum maintenance standards regarding sidewalk snow clearing (NMS-19-2006). The Town's minimum maintenance standard exceeds that of the Ontario Regulation.

Newmarket's Minimum Maintenance Standards-19 indicates that snow removal operations will commence when the maximum new fallen or wind-blown snow, accumulated on the sidewalk or walkway surface, is 5 cm in any one area. Primary sidewalks and walkways shall be cleared of snow within twenty-four (24) hours and secondary sidewalks will be responded to upon satisfactory completion of Primary Sidewalks.

While Town services often exceed these minimum standards, they are established to ensure that the Town provides safe paths of travel for residents, supports active transportation and meets accessibility requirements for residents. The Town's failure to comply with the minimum maintenance standards potentially exposes the municipality to increased liability and litigation.

Public Works Service (PWS) maintenance staff, in particular Parks and Property Services provides snow clearing, as well as ice management on sidewalk surfaces. The Town is responsible for over 365 kms of sidewalks and trails, including the Tom Taylor Trail. Sidewalk snow clearing is carried out with internal staff and resources, as well as contracted resources. There are currently 17 sidewalk routes, in addition to 1 Trail route. Approximately 60% of snow removal is performed in house while approximately 40% is performed with contracted services.

The Town experiences approximately 45 winter maintenance events each season. During an event, Town staff are dispatched to address their route, and often have to return the next day to clean up from the event. The average route will see approximately 1000 kms of travel each year, and overall the Town estimates that our sidewalk routes reach a cumulative travel distance of approximately 16,000 kms annually.

Discussion

Customer Service Calls and Costs

The Town received 117 calls for the 2020-2021 season, directly related to sod damage from winter sidewalk maintenance. During the 2020-21 winter season, the Town received the fewest number of calls in the past five years. In addition, the number of complaints regarding sod damage when compared to the number of winter snow events, has generally declined for the past 5 years.

The Town received 298 customer service calls regarding sidewalk snow clearing in the 2020-2021 season. These calls would be related to timing, service quality and also sidewalk snow clearing damage to lawns. Of the 298 calls, 117 were specifically related to sod damage from winter sidewalk maintenance.

Table 1.1 - Customer Service Tickets for Sod Damage, outlines sod damage calls over the past 5 years and how they relate to the number of events. The data indicates that the number of sod damage tickets has generally declined over the past 5 years, when compared to the number of winter events experienced. This general reduction in calls has also occurred as the number of kilometres of sidewalk has grown.

Table 1.1 – Customer Service Tickets for Sod Damage

Year	Kms of Sidewalk Maintained	Number of Winter Maintenance Events	Number of Sod Damage Tickets per Year	Avg. Number of Tickets Per Winter Event
2020/2021	365	39	117	3.0
2019/2020	352	46	153	3.3
2018/2019	350	49	135	2.8
2017/2018	349	51	224	4.4
2016/2017	287	48	276	5.8

Costs were approximately \$14,000 on sod restoration due to sidewalk snow plowing damage incurred during the 2020-2021 season. This equates to \$38 per kilometre of sidewalk serviced for the year. This number is expected to decline moving forward, as contractor serviced routes (40% of sidewalk routes) now require the contractor to restore any sod damage at their cost.

PWS staff track locations of sod damage, through information from equipment operators and through customer service heat tickets. These locations are restored in the spring through restoration by soil/seed for minor damage, and through soil/sod for more significant repairs. If an operator notices damage was inadvertently created, the operator will provide a door hanger to the residence notifying the property owner that the damage has been logged and it will be repaired in the spring.

The Town provides restoration when conditions are suitable in the spring. It is the responsibility of the property owner to water and maintain restored areas. Educational information is provided through a door hanger at the time of repair notifying the resident and providing guidance on how to manage the restoration and contact information for additional questions.

Table 1.2 – Sidewalk Sod Damage Costs, outlines the historic costs for sod restoration over the past 5 years. The cost per kilometer has generally declined over the past 5 years. This illustrates an ongoing improvement in mitigating sod damage during sidewalk snow clearing and also an overall reduction in costs.

Table 1.2 – Sidewalk Sod Damage Costs

Year	Kms of Sidewalk Maintained	Number of Winter Maintenance Events	Sod Damage Costs	Avg. Sod Damage Costs Per Event	Avg. Annual Sod Damage Costs Per Km Serviced
2020/2021	365	39	\$14,000	\$359	\$38.36
2019/2020	352	46	\$24,500	\$533	\$69.60
2018/2019	350	49	\$22,529	\$460	\$64.37
2017/2018	349	51	\$25,849	\$507	\$74.07
2016/2017	287	48	\$25,591	\$533	\$89.17

It is important to note that the current costs incurred for sod damage, relate to both Town and contracted services. A new contract has been awarded for contracted sidewalk snow clearing services starting with the 2021-2022 season. As a change, all damage created by contracted services will be repaired at the cost of the contractor. This should result in a further decline in the costs incurred by the Town.

Causes and Mitigation Measures

There are a number of sources and variables that contribute and affect the amount of sod damage caused during sidewalk snow clearing. Staff have identified a number of causes and have implemented a number of mitigation measures.

It is important to note that while staff work to reduce costs for sod repairs, staff are also working to minimize the impact and disruption to residents. Property owners often take pride in maintaining their properties and the Town has worked to identify the root causes and implement measures to manage them so that damage can be avoided in the first place. There are a number of factors that contribute to sod damage during the sidewalk snow clearing process.

Causes

Weather – Typically the largest factor. Sod damage is most prone to occur during early season and late season snow falls. During these times, if temperatures do not freeze the sod, any error by the driver will peel or damage the unfrozen sod. When sustained colder temperatures keep the sod frozen, often damage is minimized or eliminated as the plow blade or tires travel over the sod without damage.

Snow Fall Amounts – If there is a snow fall of approximately 10 centimetres or more, often drivers cannot see the defined edges of the sidewalk. This is of greater concern early in the season when there is no previous snow windrow from plowing to follow and

the sod may not be frozen. With climate change effecting the winter weather, this also creates issues with more frequent melting of windrows, which in turn creates a new white canvas where drivers do not have windrows to follow. Furthermore, the weight and depth of snow can affect the ability to track/drive the plow straight on the sidewalk. With increased depth and weight of snow, the resistance of the heavy wet snow can shift the tractor horizontally during the plowing process.

Sod overgrowth – In many instances’ residents may not be maintaining a clean edge on the sidewalk. Overtime, grass can grow out and over the sidewalk and as a result the blade of the plow will catch this overgrowth and cause damage.

Driver Error – While all staff are fully trained and are considered professionals, driver error is a reasonable contributing factor. All drivers are assigned a route in an effort to achieve consistency and route knowledge of challenging locations. Weekend winter events and staff vacations/illnesses effect the consistency of staff assigned to routes. This increases the risk of lawn damage. Drivers are often driving under challenging conditions, during snow, at night or even managing significant glare off the fresh snow. This is also coupled with operating large heavy equipment for long periods of time, with little margin for error. All staff are aware of the impacts of sod damage and work to minimize this on their routes. Management regularly tracks damage on the individual routes, as well as remind staff of this; particularly during snow events where potential damage is more likely.

Sidewalk Width – Regulations require the Town to clear the entire surface of the sidewalk, edge to edge. Failure to do so can impact safety on the sidewalk and expose the corporation to additional liability. This ‘edge to edge’ requirement removes the option of plowing a narrower portion of the sidewalk, and ensures that there is a fully maintained sidewalk that also meets AODA requirements, where available. Furthermore, the variations in sidewalk widths on routes, ranging from narrower/older locations to wider/newer locations, require operators to continually adjust blade widths/angles throughout the plowing process.

Mitigation Measures

Staff have implemented several mitigation measures over time and have also advanced the type of equipment used to improve sidewalk snow clearing. Staff continue to explore industry advancements and innovative equipment, such as autonomous snow plows as potential pilot projects for the future.

The Town has focused on a number of opportunities to manage sod damage by implementing mitigation measures over the past few years. These efforts have resulted in a reduction in sod damage; however, staff continue to look towards improving driver training, piloting new equipment and monitoring innovation within the industry. These efforts and advancements in mitigation are listed below.

Driver training

1. Training has become a key focus. Staff are trained and their skills are often developed gradually with more experience. This includes having more complicated routes assigned to more senior and full-time staff and easier routes assigned to newer casual/seasonal staff. Furthermore, staff work to maintain assigned routes in an effort to allow drivers to better master the route they are servicing. PWS staff and contractors attend third party training before each winter begins in an effort to make equipment operators as competent and safe for this type of work.
2. Drivers also complete dry runs of their route, prior to snow fall. This allows them to identify challenging locations and also to record any concerns on the routes. These locations are noted on maps and if obstacles are noted, residents are informed. While staff have assigned routes, in instances of absences, staff are shifted and may not be quite as familiar with the route.
3. Management staff do monitor the amount of damage caused on individual routes and by contractors. As needed, actions are taken to react to trends or anomalies and manage the quality of work by individual staff as well as contracted services.

Equipment Improvements

4. Over the years, the fleet servicing our sidewalk routes has been upgraded from the traditional straight blades to articulating multi-positioning blades, known as 5-way blades. These blades have provided on demand control of the blade -- its width, direction and configuration for drivers. This has helped reduce damage and improve the overall quality of the service.
5. Articulating equipment (tractors that bend in the centre) has helped reduce damage on tight curves and sharp corners. The town has replaced some farm-style tractors with articulating equipment over the past few years; however, this comes at a cost premium as articulating equipment costs almost double what a traditional tractor cost.
6. Staff have also modified all sidewalk plow blades. Blades often arrive with a straight edge that often catch sod or overgrown edges. Staff have angled/curved the edges of the blade to further help with mitigating sod damage. This has become a key practice throughout municipalities.

Innovation and Advancements

7. Staff have piloted a narrower innovative piece of equipment (Holder) which undertook a pilot project during the 2019/2020 winter maintenance season. The intent was to experiment with this newly introduced equipment on smaller sized sidewalks. This was successful and resulted in a purchase for the 2020/2021 winter season. Currently the Holder machine completes approximately a 14 km route of sidewalks that are between 1.0-1.2 metres (40-48 inches) mostly in the historic/older part of downtown Newmarket. While this narrower equipment does

help with reducing some sod damage, there are limitations and its application is limited. There are limitations with the top speed for road travel from its home base and clearing curb face sidewalks or sidewalks near roads, due to its reduced plowing power. Staff continue to monitor its performance, maintenance requirements and its overall effectiveness.

8. In the summer of 2020, Town of Newmarket PWS staff hosted an outdoor demonstration of an automated snow clearing machine. The robotics company, located in Ontario, is currently undertaking some pilot projects within the province. The equipment accuracy related to sidewalk snow clearing as well as sod damage, continues to be an area requiring ongoing development and innovation. Staff continue to monitor the progress of this technology closely and the associated pilot projects being undertaken during the 2021-2022 winter season, particularly among municipalities.

Communication

PWS, Corporate Communications and Customer Service have worked collaboratively over the years to evolve and enhance communications around sidewalk snow clearing and sod damage. Many aspects of winter sidewalk maintenance are communicated before the winter season begins, throughout the season and at key points of concern/risk, such as a significant winter event.

In addition to various communication pieces such as dry run inspections, potential delays in service and general education, staff also communicate high risk times for sod damage. This includes messaging about possible lawn damage due to warmer weather, during forecasted events. These communications often provide education on the situation and messaging on how to contact the Town and how to report sod damage. Further communication is provided in the spring around restoration, repairs and care for the restored sod/grass.

The Town has provided communications regarding sidewalk snow clearing and sod damage, in various forms of effective media. They include website information, videos, print, door hangers, social media platforms and written notices. Staff continue to monitor resident feedback and adjust our approach as necessary.

Sidewalk Markers Pilot Project

PWS will be undertaking a pilot program for the 2021-2022 season, which will provide sidewalk markers to property owners in an effort to mitigate sod damage and to provide residents with another level of protection from potential sod damage.

For the 2021-2022 season, PWS will be embarking on a pilot project that will provide sidewalk markers for residents. The purpose of the pilot project is to provide residents with sidewalk markers for sidewalks fronting or flanking their properties. The support of

the Town to provide the markers combined with resident's effort in installing them, should help minimize damage and resident frustration.

The pilot project will allow residents to pick up a limited number of markers for a sidewalk adjacent to their property. The installation of those markers and storage of them, will be the responsibility of the property owner. The Town will provide these free of charge, as we are hopeful the costs of sod repair will be mitigated. Staff will limit the number of these markers per property and will also limit the number of markers handed out for the overall pilot (approximately 250 homes). These markers will also be a non-traditional colour (Example: Blue) compared to other markers readily available, to ensure use is more likely to remain for sidewalks, as intended. A communication plan is being prepared for this and a roll out managed appropriately. The roll out of this pilot project is set to occur in November.

Staff will monitor the resident take up, costs and overall success of the project. If successful, staff will look to implement this on a more extensive and permanent basis.

Conclusion

The Town provides snow clearing and ice management services to all Town owned sidewalks. The service provides a safe and accessible path of travel for residents in a timely manner. While damage to sod does occur, the Town's ongoing efforts have resulted in a steady decline in Customer Service tickets and repair costs. While it is reasonable to suggest that sod damage cannot be completely eliminated, Town staff continue to provide their best effort to improve the situation. Staff continue to monitor innovation within the industry and the roll out of pilot projects such as the sidewalk markers will likely continue the positive improvements made over the several years.

Business Plan and Strategic Plan Linkages

Fiscal Sustainability, Service Efficiency, Customer Service Excellence

Consultation

Town staff have been consulting with other municipalities in regards to their experiences and methods to help mitigate sod damage due to winter sidewalk snow clearing. The experiences of those municipalities are similar to what the Town is currently experiencing. In addition to monitoring other municipalities and innovation within the industry, staff have also worked internally with our Communications, Customer Service, Engineering, Risk and Legal departments.

Human Resource Considerations

None at this time.

Budget Impact

At this time there is no impact on the PWS operating budget. The costs incurred as a result of the pilot project for sidewalk markers can be managed within the 2021 and 2022 PWS operating budget.

Attachments

None

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Approval

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