



# City of Richmond

## Report to Committee

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**To:** Public Works and Transportation Committee      **Date:** April 17, 2023  
**From:** Suzanne Bycraft      **File:** 10-6360-13/2023-Vol  
Director, Public Works Operations      01  
**Re:** **Snow Removal from Priority Multi-Use Pathway Corridors - Summary of Pilot Initiatives**

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### Staff Recommendation

That the staff report titled “Snow Removal from Priority Multi-Use Pathway Corridors – Summary of Pilot Initiatives” dated April 17, 2023, from the Director, Public Works Operations be received for information.

Suzanne Bycraft  
Director, Public Works Operations  
(604-233-3338)

<b>REPORT CONCURRENCE</b>	
<b>CONCURRENCE OF GENERAL MANAGER</b>	
<b>SENIOR STAFF REPORT REVIEW</b>	<b>INITIALS:</b>
<b>APPROVED BY CAO</b>	

## Origin

At the November 28, 2022 Council meeting, the following resolution was adopted during consideration of the staff report entitled “Options for Snow Removal from Priority Multi-use Pathway Corridors – Referral Response”:

‘(b) Staff conduct pilot initiatives during the 2022/2023 winter season to undertake snow clearing from four kilometres of multi-use pathways along Railway Avenue and Alderbridge Way within 72 hours after the snowfall has ended for each snow event.’

This report provides information on these pilot initiatives for 2022/2023.

This report supports Council’s Strategic Plan 2022-2026 Focus Area #2 Strategic and Sustainable Community Growth:

*Strategic and sustainable growth that supports long-term community needs and a well-planned and prosperous city.*

*2.4 Enhance Richmond’s robust transportation network by balancing commercial, public, private and active transportation needs.*

This report supports Council’s Strategic Plan 2022-2026 Focus Area #3 A Safe and Prepared Community:

*Community safety and preparedness through effective planning, strategic partnerships and proactive programs.*

*3.4 Ensure civic infrastructure, assets and resources are effectively maintained and continue to meet the needs of the community as it grows.*

## Background

Council Policy 7013 “Roadways – Ice and Snow Removal” establishes the priorities for treatment of roadways on a tiered basis. First priority are major arterial routes, followed by major collector roads, with third priority given to interior collector roads. This approach provides for effective allocation of equipment and resources to areas of highest demand by the community during ice and snow events. By clearing and treating major arterial roads, best value is achieved and public safety is maximized. Similarly, this approach minimizes negative impacts to business and promotes access to community services. Transit use is also encouraged since first priority arterials include many bus routes. The City also treats bus stops and wheelchair letdowns to promote community mobility.

These priorities and actions result in all City equipment and resources capable of being used for snow response efforts being directed accordingly, given the demand is greater than available resources for the generally short duration and relatively low frequency of snow and ice events in the Lower Mainland. To address sidewalk clearing, the City’s Traffic Bylaw 5870 contains provisions requiring property owners to clear snow and ice from adjacent sidewalks. Proposed updates to this bylaw will be the subject of a separate forthcoming report to Council.

There are currently approximately 25 kilometres of multi-use pathways (MUPs). MUPs are currently not a City priority service under Policy 7013 and property owners are not required to clear them under Bylaw 5870.

### **Analysis**

*Multi-use Pathways Pilot – 2022/2023* To assess the process of snow and ice clearing on MUPs, staff implemented a pilot program this past winter as follows:

- Approximately four kilometres along the Railway Greenway and the Alderbridge Way MUPs were treated.
- An objective was established to service the pilot MUPs within 72 hours of snowfall and return the MUPs to a status of safe use for pedestrians and cyclists.
- A one-tonne truck outfitted with a brine unit and plow was allocated to the MUPs when available after treatment of first and second priority routes.

The truck completed nine passes over the pilot MUPs over four days (November 30, December 1, December 19 and December 22)

*Findings:* The nine truck passes with brining and plowing did not effectively break the ice bond that formed on the paved surface, therefore the pilot MUPs were not fully returned to safe service levels. As with arterial roads, the pilot showed that pre-treatment with brine is necessary to create the barrier needed to prevent or limit the degree to which ice adheres to the surface. There is also the need to continuously maintain treatment once started to avoid hazardous conditions such as black ice. This presents additional risks as smaller patches of ice that would not be hazardous for vehicles could easily cause pedestrians and cyclists to slip and fall.

The pilot also revealed some operational challenges. Arterial roads can be treated relatively efficiently as trucks can operate at higher speed within a space designed for motor vehicles. For the pilot MUPs, bollards and other obstacles had to be removed and replaced for each treatment and truck speeds were greatly reduced for safety and to avoid damage to the MUPs.

*Cost:*

Costs for the pilot initiative were approximately \$6,660 or \$185 per kilometre to service the MUPs based on the nine passes over the 4 kilometres serviced in the pilot. Based on this experience, additional annual funding needed to treat 25 kilometres of MUPs during average winter conditions, where an estimated 85 treatments, would cost in excess of \$400,000, plus the purchase cost of new dedicated equipment, as shown in Table 1.

**Table 1: Preliminary Estimate - Cost for Treatment of Paved Priority MUPs**

<b>Expense Type</b>	<b>Description</b>	<b>Amount</b>
<i>Capital</i>	Purchase of additional one-tonne truck with brine and plow equipment	\$175,000- \$200,000
<i>Annual Operating</i>	Vehicle	\$ 25,000
	Labour: \$185/km x 25 km x estimated 85 treatments	\$393,125
<i>Total Annual Operating Estimate</i>		<i>\$418,125</i>

A preliminary review of other cities indicated some have implemented treatment for high pedestrian use corridors at considerable expense, while others have placed the onus for clearing pathways on adjacent residents or businesses via bylaw requirements. Staff continually monitor best practices from both a policy perspective as well as advancements in available equipment technology for snow and ice clearing.

The City’s 2023 snow response budget is approximately \$1.4 million. During the 2022/2023 winter season actual costs incurred were approximately \$1.9 million due to the number, duration and intensity of events experienced, with over 96,000 kilometres of lanes serviced. Therefore, staff note that cost estimates provided can vary widely either positively or negatively based on the type, number and severity of winter conditions.

*Summary:* The approach to treat the pilot MUPs was not sufficiently effective to allow a rapid return to safe use. Adequate treatment of MUPs would require a pre-treatment approach, similar to current service levels on priority arterial routes. The current fleet complement and funding allocations are insufficient to provide this level of service. Partial treatment, as conducted in the pilot, is not a recommended option since the pilot revealed this can create a safety risk for the public. Adding priority service for 25 kilometres of MUPs would require an approximate 30% increase to the snow response budget. Even with this, it will be challenging depending on weather conditions to return the MUPs to safe levels for use in every circumstance.

Staff will continue to monitor evolving approaches for more cost-effective treatment options of high use multi-use pathways in the formulation of any future recommended service options as part of promoting active transportation year-round.

**Financial Impact**

None.

**Conclusion**

The 2022/2023 pilot initiative to clear snow and ice from multi-use pathways was not sufficiently successful to warrant continuation of the pilot level of service. The trial showed that a pre-treatment approach and continual winter maintenance similar to roadway treatment would be necessary to be effective. The current inventory of snow response fleet equipment is not

April 17, 2023

- 5 -

sufficient to provide this level of service due to priority service demands established by Policy 7013.

Staff will continue to evaluate the impacts of changing climate conditions and emerging equipment or treatment methods for snow and ice events as part of promoting increased active transportation in the community during those times.



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