

**TO:** MAYOR & COUNCIL  
**FROM:** GENERAL MANAGER ENGINEERING  
**SUBJECT:** **REVIEW OF SNOW AND ICE CONTROL PROGRAM**  
**PURPOSE:** To provide Council with information about a review that has been undertaken of the City's snow and ice control for 2022-23.

## **RECOMMENDATIONS**

**THAT** the "Review of Snow and Ice Control Program" report dated June 19, 2023 be received, and

**THAT** the levels of service and priorities for snow and ice control as documented in this report be confirmed.

## **CHIEF ADMINISTRATIVE OFFICER'S COMMENTS**

I concur with the recommendation of the General Manager Engineering.

## **EXECUTIVE SUMMARY**

The intent of this report is to provide an overview of the weather impacts from the 2022-23 winter season and discuss the City's performance and approach to dealing with snow and ice events in general, including consideration of areas for improvement.

### **1.0 POLICY SECTION**

Not applicable.

### **2.0 BACKGROUND**

This past winter season created some challenges for Lower Mainland municipalities with respect to snow and ice clearing operations. An intensive storm event occurred on November 29th during peak traffic volumes resulting in transportation problems throughout the region including closures and disruptions to some of the major highway bridge crossings.

The second significant storm occurred between December 18th and December 23rd with approximately 41 cm of accumulation snow recorded and freezing temperatures resulting in transportation problems throughout the region again. The third significant storm event occurred on February 26th with 35 cm of snow accumulation. For most of the second half of winter, from January to March, the Lower Mainland experienced lighter and infrequent events that were well managed.

### **3.0 GENERAL INFORMATION**

Overall, the City's road network was very well maintained during this winter operational period which was evident from news coverage, and feedback from road users across

the region, surrounding municipalities and our residents. The City of Burnaby is one of the only municipalities that performs snow and ice control on its Major Road Network (MRN) roads in-house which provides a higher level of service which can have significant impact on the regional road network that traverses through Burnaby. Few, if any jurisdictions, have bus stops and crosswalk let-down ramps included as part of their priorities for clearing.

Due to high demand for salt throughout December 2022, local suppliers of municipal road salt had depleted most of their inventory and reserves by the end of December. Fortunately, suppliers were able to restock their inventory in early January 2023 to meet our requirements. The city used approximately 7,900 tonnes of road salt this winter. The City's salt storage facility has a capacity of 4,500 tonnes of road salt. Additional storage capacity is required to safeguard the City against intermittent harsh winters and the lack of availability from suppliers locally. The City is investigating potential sites to construct another salt storage facility.

In addition to snow and ice control activities, pre-emptive efforts were undertaken to minimize the potential for flooding associated with snow melt and significant precipitation during the transition to warmer weather.

### **3.1. Snow and Ice Control Priorities - Engineering**

The Engineering Department maintains a total road inventory of approximately 1656 lane kilometers (km) of roads that includes 319 km of arterial, 465 km of collectors and 872 km of secondary collector and local residential roads. There are 246 paved km of laneways (not included in the above total lane km for roads).

Snow and ice control operations for city road network are prioritized as follows:

1. Arterial roads; these are key routes for emergency vehicles, public transportation and the majority of road traffic (e.g. Kingsway).
2. Bus Routes and Collector roads (e.g. Moscrop Street).
3. Roads bordering senior and long-term care facilities.
4. Residential roads with slopes that have only one outlet and limited access.
5. Local roads bordering elementary schools.

Snow and ice accumulations on all other residential roads are cleared only when the above priorities have been attended to and there are available resources to perform the work. While every effort is made to clear roads in accordance with the above schedule, it must be noted that during periods of heavy and/or continued snowfall, staff are on occasion unable to progress beyond the first and second priorities.

In Burnaby, sidewalks on roads are not cleared by engineering staff, except on bridges, pedestrian underpasses and overpasses. Residents are responsible for clearing sidewalks adjacent to their property as soon as possible.

Commercial and multi-family properties must clear sidewalks by 10:00 am on any day the premises are occupied or open to the public. Engineering staff clears bus stops and wheelchair ramps along arterial and collector roads.

The Street and Traffic bylaw requires the removal of snow and ice within commercial, industrial and multi-family districts by 10:00 am in the morning any day the premises are occupied or open to the public. The city inspects sidewalks in the commercial, industrial and multi-family areas to determine whether properties have complied with the requirements of the bylaw. Inspectors first issue a warning and then follow up to ensure the work is completed. In the event of non-compliance, staff could issue violation tickets.

### **3.2. Snow and Ice Control Priorities – Parks and Recreation**

The Parks and Recreation Department maintains a total inventory of 125 Recreation Facilities and Buildings, 107 (208,000 sq. m.) of parking lots, 10.6 km of Park roads and 50 km of facilities and park pathways/sidewalks.

The Parks and Recreation Department undertake snow and ice control in parking lots, sidewalks and pathways associated with all Community and Recreation Services Facilities based on the types of programming and opening hours.

Snow and ice control operations for Civic Facilities and Parks are prioritized as follows:

1. Clear priority parking lots, major pathways and sidewalks to major civic facilities.
2. Clear remaining parking lots, major pathways and sidewalks to major and minor civic facilities.
3. Clear perimeter sidewalks around parks in high density neighbourhoods and where the pathways serve key neighbourhood connections.
4. Clear paved trails, including urban trails and Trans Canada Trail.

### **3.3. Readiness and Response Improvements**

Our ability to respond well to the snow and ice events was based on several improvements that were introduced subsequent to the previous significant snow season of 2016/17 when record snowfall events caused challenges throughout the region.

The key improvements that were made to our snow and ice control operation that have helped to enhance our response to winter storms include:

1. New road salt storage facility at Norland Works Yard;
2. New road brining facility and increased storage capacity at Norland Works Yard;
3. Use of AVL telematics (GPS) on City fleet to ensure efficient and effective movement of resources and fleet, and to provide real-time information to users and customers;

4. Addition of two (2) slide-in brine tanks to cover more road network;
5. Targeted snow and ice control service for solid waste and recycling collection for laneways and residential roads;
6. Commencement of clearing for all events regardless of accumulation amounts on sidewalks, parking lots and residential roads; and
7. Customer Communication Enhancements.

In addition to the above improvements, in 2020 the city decided to bring in-house the previously contracted winter maintenance for 210 lane km of the MRN roads. These 210 lane km roads were contracted out for the past 20 years. Council approved the procurement of six additional tandem snow plow trucks to service the 210 lane km roads which has resulted in enhanced service levels on our priority one and two roads allowing other trucks to be deployed to lower priority roads sooner.

### **3.4. Snow and Ice Control Budget**

The Engineering Department's 2022 Winter Maintenance Budget was \$1.15 million and Parks, Recreation & Culture's budget was \$0.3 million. Given that this budget is based on a calendar year, it is too early to project year-end expenditures for 2023. If seasonal temperatures remain with us for the winter months of late 2023, we will likely fall within our allocated budget again for 2023.

The winter maintenance budget also includes an Emergency Fund reserve \$6.8 million that can be drawn upon to supplement the regular snow clearing budget in years when above average snowfall occurs.

### **3.5. Creation of Winter Bike Routes with Priority Clearance**

There are currently no Council-approved levels of service specifically for winter maintenance of cycling facilities. Some on-street cycling facilities are salted and plowed only as crews clear some roadways.

Although there are cycling facilities on arterial roads, we are experiencing a significant increase in our cycling network in the form of separated cycle tracks through development projects.

The level of service for winter maintenance on an arterial road is to achieve a bare pavement condition following salting and plowing. It is difficult to achieve a bare pavement level of service on a cycling facility solely through salting and plowing. The achievement of bare pavement on a separated cycle track of sufficient width can be enhanced through the removal of the windrow created by the snow plow. However, there are logistical challenges associated with the physical removal of snow in separated cycle tracks. In the town centers, it is difficult to coordinate the removal of parked cars that is required to facilitate snow removal on the arterial roads where the majority of cycle tracks are located and the plowing of snow is restricted by the adjacent infrastructure or parked cars.

Based on anticipated demands, Transportation Division will identify key north-south and east-west cycling corridors to be prioritized as part of the winter cycling routes.

Staff will establish and maintain a priority bike network during the winter period through a combination of more aggressive salting, plowing and snow removal through service contractors. Given the range of bicycle infrastructure throughout Burnaby, there is no 'one size fits all' solution. Pilot projects may be undertaken to find the most suitable approach for unique locations.

#### **4.0 COMMUNICATION AND COMMUNITY ENGAGEMENT**

Seasonal snow and ice control is a City service drawing much public attention. Opportunities for community feedback and requests are always open through the social media, emails and phone calls, just to name a few. The City's Marketing and Communications Department proactively provides information to the public and updates them frequently during the season.

#### **5.0 FINANCIAL CONSIDERATIONS**

There are no financial considerations related to this report. If Council changes the level of service requirements, staff will review and assess the financial implications in preparation for the 2024-2028 Financial Plan process.

Respectfully submitted,

Jozsef Dioszeghy, P. Eng., General Manager Engineering

#### **REPORT CONTRIBUTORS**

This report was prepared by Brian Carter, Director Public Works, Roads and Utilities.