



ADMINISTRATIVE REPORT

Report Date: June 27, 2017
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Meeting Date: July 26, 2017

TO: Standing Committee on Policy and Strategic Priorities

FROM: General Manager of Engineering Services

SUBJECT: Engineering Snow Event Response and Readiness: Response to 2016-2017 Snow Season and Readiness Improvements for Future Snow Events

RECOMMENDATION

- A. THAT Council direct staff to amend the City's Snow Clearing Plan to include proposed readiness improvements for communication, procedures, equipment and by-law enforcement to increase the service level to respond to future snow events.
- B. THAT Council approve the varying of borrowing authority of \$1,286,000 in the 2015-2018 Capital Plan from "Public Safety and Public Works/Street and Bridge Infrastructure" to "Community and Civic Facilities/Civic Facilities and Infrastructure".

The variation of debt financing requires two-thirds affirmative votes of all Council members, per *Vancouver Charter* S. 245(3).

- C. THAT Council, subject to approval of Recommendation B, approve a multi-year capital project budget for Snow Readiness Capital Improvements of \$4,302,000; source of funding to be:
 - \$2,516,000 for vehicle and equipment snow readiness additions and upgrades, funded from the Plant and Equipment Reserve, to be added to the 2015-2018 Capital Plan (Equipment and Technology);
 - \$1,286,000 for service yard upgrades and salt storage expansion, funded from the 2015-2018 Capital Plan (Civic Facilities); and
 - \$500,000 for traffic monitoring CCTV cameras on major road networks, funded from Translink OMR Reserve (Non-Pavement Rehabilitation), to be added to the 2015-2018 Capital Plan (Equipment and Technology).

Expenditures for 2017 for the vehicle and equipment snow readiness additions and upgrades to be managed within the current overall Annual Capital Expenditure Budget for 2015-2018 Vehicle and Equipment Replacement and Additions Program. Expenditures for 2017 for the service yard upgrades and installation of traffic monitoring CCTV camera to be transferred from the Annual Capital Expenditure Budget for Landfill Phase 3 Southeast Closure.

- D. THAT Council approve an increase of \$840,000 to the 2018 annual snow clearing operating budget from \$780,000 to \$1,620,000. Funding for 2018 will be brought forward as part of the 2018 operating budget process as either increased expenditure budget funded by additional revenues, or offset by a reduction in expenditure budget in another area.
- E. THAT Council direct staff to bring back for review and approval amendments to the Street and Traffic By-law No.2849 to improve enforcement and to add a provision to fine drivers that are on the road in snow conditions without winter tires.

REPORT SUMMARY

This report summarizes the Engineering Department's response to the 2016-2017 winter season and also outlines recommendations for improvements to the City's Snow Clearing Plan.

In light of the effects of climate change, expanding city infrastructure, and increasing expectations of people travelling using all modes, it is recommended that the City increase the service level to respond to more intensive snow events. Currently the Engineering Department addresses snow events in two stages:

- **Readiness** - includes the advance preparation for the winter season. These measures are outlined in the Snow Clearing Plan and the current annual snow clearing operating budget of \$0.78 million is allocated to cover readiness costs;
- **Response** - includes the efforts during a snow event. Expenses to cover the costs to respond during a snow event, such as additional staffing¹, materials, and follow-up repairs, are paid for from existing operating budgets when available or contingency funding. In 2017, funding was reallocated from the General Revenue Stabilization Reserve. The required amount depends on the magnitude of the event and response required.

The 2016-2017 Snow Season - The length of the 2016/2017 cold snap in Vancouver and the Lower Mainland was something the City generally experiences only once every 30 years². This past winter season is most notable for the number of consecutive days with average temperatures below five degrees (42 days) and the higher volume of snowfall. These more extreme weather events may become more frequent in light of

¹ Additional staff is secured through repurposing existing staff, or by increasing overtime work.

² This statistic was reported by CBC meteorologist Johanna Wagstaffe on CBC News item posted January 6, 2017.

climate change. Despite the exceptional winter season, the City's Snow Clearing Plan was largely implemented and achieved. The 2016/2017 snow clearing program cost \$13.7 million with \$3.1 million funded from existing operating budgets in December 2016 and \$10.6 million transferred from the General Revenue Stabilization Reserve and Solid Waste Capital Reserve in 2017. In addition, some of the extensive infrastructure damage from this past winter will be addressed through the regular maintenance program budgets over the next two years. Appendix A compares the City's response to an average ten-year winter season with the 2016-2017 winter season and Appendix B outlines the statistics associated with the infrastructure damage caused this past winter.

Recommended Readiness and Response Improvements - In response to Council's motion passed on January 25, 2017, a cost estimate was developed to provide full side street snow removal. To meet this service level in the future, readiness improvements would require a five-fold increase in the annual snow readiness and clearing budget (up to \$3.5 million instead of \$0.78 million) and up to a \$10.0 million one-time investment in infrastructure, equipment and vehicles. While the City is already prepared to address average snow seasons, staff recommend another optimal level of service option that improves the City's readiness and response to more intensive snow events that exceeds most peer cities' levels of service³ (Appendix C). The annual cost of the proposed level of service doubles the current snow clearing budget (\$1.62 million instead of \$0.78 million) and requires a one-time capital investment of \$4.3 million. Appendix D provides an overview of the recommended level of service improvements including the types of routes and service levels, and provides a comparison between the City's current and recommended service levels.

The recommended Readiness and Response Upgrades include:

One of the key recommended changes is to provide defined timelines for responding to route clearing priorities for larger (atypical) storm events.

Readiness improvements would also provide the capacity to clear additional routes, which would include preventative salting or brining of priority garbage pick-up routes depending on the severity and length of the storm. Staff are currently identifying the additional priority routes, which will be completed in the form of a map this fall. The additional routes will include:

- Collector streets (streets with medium traffic volumes that generally have traffic flows that travel in each direction with a marked centre line) and priority pedestrian pathways.

City crews usually clear arterials, bridges, and other priority routes within three hours following the end of a snow storm for typical Vancouver snowfalls of less than 5 cm of accumulation. This service level remains the same in the proposed recommendation as outlined in Appendix D.

³ The recommended level of service exceeds peer cities primarily in areas associated with pedestrian access and safety, priority sidewalks, and priority hills and narrow roadways.

Other key readiness improvements include the following:

- An expanded three stage Snow and Ice Communications Plan;
- Updated material contracts to secure guaranteed and expanded quotas of salt with one or more salt vendors;
- Updated procedures and additional training activities for staff;
- targeted support for sanitation to support garbage collection during extended events;
- Expanded vehicle/equipment inventory and salt storage capacity; and
- Streamlined by-law enforcement through amendments to the ticketing process and to fine ill-equipped drivers blocking traffic during snow events.

BACKGROUND

In light of the effects of climate change, expanding city infrastructure, and increasing expectations for people travelling using all modes, it is recommended that the City increase the service level to respond to more intensive snow events. Currently, the Engineering Department addresses snow events in two stages:

- **Readiness** - includes the advance preparation for snow events. These measures are outlined in the Snow Clearing Plan and the current annual snow clearing operating budget of \$0.78 million is allocated to cover readiness costs. These costs include: annual staff equipment training, equipment outfitting (attaching snow plows and brine units) and storage capacity for a base level of material (salt, sand and brine).
- **Response** - includes the efforts during a snow event. Expenses to cover the costs to respond during a snow event, such as additional staffing⁴, materials, and follow-up repairs, are paid for from existing operating budgets when available or contingency funding. In 2017, funding was reallocated from the General Revenue Stabilization Reserve. The required amount depends on the magnitude of the event and response required.

THE 2016-2017 SNOW SEASON

Vancouver and the Lower Mainland have a major snow event on average every one in ten years. The length of the 2016/2017 cold snap was something the City generally experiences only once every 30 years⁵. This past winter season is most notable for the number of consecutive days with average temperatures below 5 degrees (42 days) and the higher volume of snowfall. These more extreme weather events may become more frequent in light of climate change. The City's response in terms of 3-1-1 calls, salt used, and tickets issued was between double and five times that of a 10 year event. The existing Snow Clearing Plan was largely implemented and achieved during the 2016-2017 winter season, with a strong mobilization of Engineering Services' crews, activation of the Departmental Operations Centre (DOC), and leveraging of the City's

⁴ Additional staffing is secured through repurposing existing staff or by increasing overtime work.

⁵ This statistic was reported by CBC meteorologist Johanna Wagstaffe on a CBC News item posted January 6, 2017.

infrastructure including traffic cameras, 3-1-1, and VanConnect in a novel way, in order to identify and map areas of priority and adjust response levels in real-time. Appendix A compares the City's response for an average ten-year winter season with the 2016-2017 winter season.

On January 25, 2017, Council passed the motion "THAT Council be provided with a copy of the final staff review of the 2016-2017 winter snow response".

The December 2016 snow response costs were approximately \$3.1 million which includes \$2.7 million for City Engineering staff, equipment and materials, including salt, \$0.35 million for contracted services at Civic Facilities and approximately \$0.05 million allocated towards warming centres. These costs were absorbed within the 2016 Operating Budget through redirecting of a number of staff and equipment from other budgeted activities and under budget expenditures in other areas.

On February 8, 2017, Council passed a motion to increase the City's 2017 budget up to \$9.4 million as required to fund snow response and related costs, and up to \$1.2 million to fund costs related to missed collections due to snow, with funding from the City's General Revenue Stabilization and Solid Waste Capital reserves. The estimated financial cost for 2017 snow response remains approximately \$10.6 million which includes \$4.0 million for engineering snow response staff and equipment, \$1.2 million for salt, \$1.7 million for staff and equipment to address missed collections and sand clean up, \$2.7 million to address infrastructure and equipment repair, \$0.6 million for snow and ice removal at Civic sites, \$0.4 million for snow and ice related costs at City parks and community centres, and \$30,000 for warming centres.

The majority of these repairs have been completed. Appendix B provides a summary of the repairs undertaken to date. In addition, some of the damage from this past winter will be addressed through the regular maintenance program budget over the next two years.

READINESS - RECOMMENDED IMPROVEMENTS TO THE SNOW CLEARING PLAN

Appendix C provides a comparison of snow readiness plans from other peer cities. Vancouver's current Snow Clearing Plan is consistent with other peer cities apart from Seattle and Portland – these cities identify defined response times for their snow clearing priorities. Vancouver is one of only two cities to clear snow from key emergency and school routes and the only city to clear priority bike lanes.

Readiness improvements have been explored in response to the Council motion passed on January 25, 2017 with the direction "THAT staff report back with an estimate of the cost and resources needed to provide full side-street snow removal in Vancouver." To meet a service level to clear snow from all side streets within 7 days of a snow event similar to that experienced this past winter, the annual snow clearing budget would need to be increased by \$2.72 million from \$0.78 million to approximately \$3.5 million, in addition to up to a \$10.0 million one-time investment in infrastructure, equipment and vehicles.

While the City is already prepared to address average snow seasons, staff recommends another option to increase snow event readiness for more intensive snow events with

reduced resource impacts. This recommendation does not provide for the clearance of all side streets, but would include preventative salting or brining of priority garbage pick-up routes depending on the severity and length of the storm. These recommended changes would require an annual snow clearing budget increase of \$0.84 million (from \$0.78 million to \$1.62 million), and a one-time capital investment of \$4.3 million⁶. See section 4 for an overview of the proposed investment, and Appendix D for an overview of the recommended level of service improvements.

1. Mandated Timeframes for Response, Tiered Priority Routes, Expanded Coverage

Currently, City crews usually clear all arterials and bridges, as well as priority emergency routes, hills and transit routes, within three hours following the end of a snow storm for typical Vancouver snowfalls of less than 5 cm of accumulation. This service level remains the same in the proposed recommendation. One of the key recommended improvements is to provide defined timelines to respond to route clearing priorities for larger storm events. Appendix D outlines the timeline and routes included for each response priority. This appendix also provides a comparison between the City's current and recommended service levels.

Defined response times will provide clarity to the public on what to expect during a snow event, as well as a clear measure of the City's success in meeting the Snow Clearing Plan. In addition to the defined timelines, readiness improvements would provide the capacity to clear additional routes. If changes to the snow plan are approved, staff will modify existing routing maps with the additional priorities this fall. Some highlights of proposed additional snow clearing services include:

- Priority 1 - Clearance in <12 hours:
 - Priority 1 emergency routes; and
 - Pedestrian paths associated with Priority 1 bike lanes;
- Priority 2 - Clearance in <48 hours:
 - School routes, collector streets, and Priority 2 hills and transit routes; and
 - Pedestrian paths associated with Priority 2 bike lanes;
- Priority 3 - Clearance in up to 7 days:
 - Remaining emergency routes, mini park pathways, and arterial sidewalks at bus stops and corner ramps; and
 - Priority 3 bike lanes and associated pedestrian paths.

The types of readiness improvements needed to meet this service level include:

- An expanded three stage Snow and Ice Communications Plan;
- Updated material contracts to secure guaranteed and expanded quotas of salt at a lower price with one or more salt vendors.
- Updated procedures for annual staff equipment training Expanded vehicle/equipment inventory and salt storage capacity; and

⁶ Of the \$4.3 million in capital investment, \$2.5 million will be paid back to the equipment/facility loan accounts through the annual operating budget allocation.

- Streamlined by-law enforcement through amendments to the ticketing process and to fine ill-equipped drivers blocking traffic during snow conditions.

2. Communications

As the 2016-2017 snow season extended into January and February, the Snow and Ice Communications Plan was expanded to include a formalized three-stage rollout built on the existing pre-season preparation. The stages include pre-snow (once snow is forecast), during snowfall, and once snowfall is complete. Some of the key actions in the updated plan include:

- Ongoing reports to internal staff with updates and options on how to most effectively inform and update the public;
- Daily morning and afternoon (pre-commute) updates on snow removal activities, garbage-green bin pick-up schedules, and progress via social media platforms;
- Creating and sharing a route clearing map on the City's snow webpage (vancouver.ca/snow). The website will communicate what level of response the City is in (i.e. typical or atypical snowfall), and a countdown timer for residents to track the City's response time for each snow response priority;
- Using VanConnect and VanCollect apps to provide updates regarding garbage collection and to attract Snow Angel volunteers;
- Updating the webpage including a Yellow Banner "alert" message;
- Providing media availability as needed;
- Providing outreach to community associations with messaging about sidewalk clearing responsibilities, helping out neighbours, and the Snow Angels program along with an email "hot-line" to report neighbourhood issues; and
- Following-up after the snow event to thank snow angels, remove notifications from media platforms, and refocus messaging on repairs.

3. Procedures

Training -Additional training for supplemental staff was identified this past winter season as a measure that would improve readiness. Having more staff trained to assume different roles when needed will allow for faster redeployment.

Salt Contracts -The City did not run out of salt this past season, but the cost to secure additional salt over the quota outlined in the current contract was at a higher price. To secure guaranteed and expanded quotas of salt at a lower price, updated contracts will be secured with one or more salt vendors.

311/VanConnect - To increase response efficiency during snow events, 3-1-1 cases will be mapped to identify high priority areas. One snow clearing crew or by-law officer can then be dispatched to address multiple cases in one area instead of dispatching several crews/officers to the same area to address individual cases.

4. Equipment and Materials

Additional equipment will improve snow readiness and response efficiency. Some of the following upgrades were tested last winter.

Winter Tires/Chains - A portion of the City fleet vehicles are equipped with winter tires (3-peaked mountain and snowflake designation) and/or a set of chains. The following upgrades are proposed:

- Increase deployment of winter tires to all non-commercial vehicles (those with a Gross Vehicle Weight [GVW] less than 5,000 kgs). Emergency vehicles in this category are already equipped; and
- Equip all commercial vehicles (GVW over 5,000 kgs) with chains to be used as required by the conditions.

Traffic Monitoring Cameras - There are currently 65 traffic cameras throughout Vancouver, and these cameras have provided essential support to the snow response teams. Additional traffic cameras will be required in priority snow-response routes and locations (e.g. selected intersections on steep hills), to improve monitoring of real time conditions and deployment of road clearing crews to the most affected locations on the major road network.

Vehicles/Attachments - Expand the City's fleet to include vehicles that are adaptable for use in all seasons, and can be reallocated for response during snow events. The following pieces of equipment are proposed:

- Ten small dump trucks replacements upgraded with 4x4 capability and attachments to improve snow clearing, salting, and salt brining;
- Four municipal utility vehicles with attachments for snow clearing, salting, and brining on pedestrian and bike paths; and
- Six sidewalk snow blowers to expand the snow clearing capacity on pathways in mini parks and sidewalks cleared by Engineering.

Salt and Brine Material Storage and Deployment - In addition to securing a revised salt contract, the following measures are proposed and will be accommodated within existing City works yards:

- Increase the brine storage tank capacity from 11,000 to 30,000 gallons;
- Upgrade salt storage facilities with loading equipment (salter racks) to reduce loading and deployment time during a snow event; and
- Increase the City's salt inventory from 2,700 to 8,000 tonnes.

5. By-law Amendments and Enforcement

- **Ticketing** - The Street and Traffic By-law No. 2849, Section 76 was updated following the 2008 snow event to require all residential property owner/occupiers to clear snow and ice from the full width of the sidewalks adjacent to their properties no later than 10:00 am every day to enable safe

passage. The enforcement of Section 76 this past winter was resource intensive due to the volume of infractions. The current process includes:

- Issuance of two “soft” notices for non-complaint properties. The initial soft notice was successful in achieving 80-85% compliance of the over 4,000 service requests made this winter;
- Issuance of a final notice in-person to the owner and completion of a ticketing checklist including photo evidence and documentation. This is a labor intensive process requiring multiple return trips for residents that were either not home or did not respond. The inspector team was supplemented by up to 50 staff at the peak of the winter season to help with the ticketing process; and
- Referral of cases not ticketed for review by the City Prosecutor. There are over 500 prosecution files this season, which is the highest in Vancouver history.

Staff will review the current by-law and the existing enforcement mechanisms and will report back to Council in the fall with recommendations on improving the By-law and streamlining the enforcement mechanisms used to enforce the By-law.

Public Driving Responsibilities - Some of the obstacles to snow clearing included people driving ill-equipped private vehicles that blocked traffic and snow clearing equipment. In addition to providing clear messaging about travel during snow events, the following is recommended:

- Amendment of the by-law to fine drivers that are on the road in snow conditions without winter tires;
- Installation of signage at entry points to the city to reinforce that vehicles need to be properly equipped to drive in the city during snow events; and
- Inclusion of information about public responsibilities for winter driving readiness in the City of Vancouver with City tax receipt mail outs.

FINANCIAL IMPLICATIONS

Existing annual operating budgets when available or contingency funding would continue to be used for the response expenses sustained during snow events. The response costs of the 2016-2017 snow season is a total of \$13.7 million. This cost includes \$3.1 million spent in December 2016 and \$10.6 million in 2017. Some of the damage resulting from the 2016-2017 winter season will be addressed through the regular maintenance budget over the next two years.

The recommended readiness improvements to the Snow Clearing Plan would require an annual snow clearing budget increase from \$0.84 million to \$1.62 million. The increase in operating costs for 2017 will be managed within the 2017 annual operating budget. Ongoing funding for 2018 will be brought forward as part of the 2018 operating budget process as either increased expenditure budget funded by additional revenues, or offset by a reduction in expenditure budget in another area.

The recommendations will also require a multi-year capital budget of \$4.3 million for Snow Readiness Capital Improvements. The sources of funding are proposed to be:

- \$2,516,000 for vehicle and equipment snow readiness additions and upgrades, funded from the Plant and Equipment Reserve and to be added to the 2015-2018 Capital Plan (Equipment and Technology);
- \$1,286,000 for service yard upgrades and salt storage expansion, funded from the 2015-2018 Capital Plan (Civic Facilities); and
- \$500,000 for traffic monitoring CCTV cameras on major road networks, funded from Translink OMR Reserve (Non-Pavement Rehabilitation) and to be added to the 2015-2018 Capital Plan (Equipment and Technology).

The 2017 expenditures will be managed within the current overall Annual Capital Expenditure Budget for Engineering Services.

The one-time salt delivery of 5,300 tonnes into the City's salt inventory is estimated to cost \$0.75 million, to be funded from the snow response funding source at the time salt is used.

CONCLUSION

Costs to respond to snow events are funded by existing operating budgets when available or contingency funding. In 2017 funding was reallocated from the General Revenue Stabilization Reserve. The cost to respond to snow events this past winter season was \$13.7 million, which was used to fund additional equipment, materials, staff time, and associated infrastructure repairs.

Recommendations for readiness improvements to the Snow Clearing Plan include an expanded communications plan, updated procedures, additional equipment, and by-law amendments. In addition to the defined timelines, streamlined processes, and greater clarity for the public on what to expect during a snow event, readiness improvements would provide the capacity to clear additional routes. These readiness improvements require an annual snow clearing budget increase from \$0.84 million to \$1.62 million and a one-time capital investment of \$4.3 million⁷. Active snow/ice management response costs will vary annually depending on the severity of weather conditions and will continue to be funded from the annual operating budget when available or contingency.

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⁷ Of the \$4.3 million in capital investment, \$2.5 million will be paid back to the equipment/facility loan accounts through the annual operating budget allocation.

APPENDIX A - 2016-2017 WINTER SEASON: RESPONSE STATS

Items (Measured seasonally from October to March)		10-year Average	This Winter (2016-2017)	Per Cent Difference
Weather Stats	Snow Days	6.5	18	276%
	Snowfall (mm)	30	69.6	232%
	Days -0°C	35.8	56	156%
Engineering Response	Salt Disbursed (tonnes)	3,165	15,000	474%
	311 Calls (from October to March)	8,800 ⁸	19,500	221%
	Tickets Issued	2,249 ⁹	9,266	412%
	Snow Angels Requests Completed	0 ¹⁰	515	n/a
	Sand Clean-Up Costs (\$)	0	\$458,000	n/a
	Total Response Spend, Engineering Services (\$)	\$1,090,775 ¹¹	\$11,642,453 ¹²	1,000+%

APPENDIX B - 2016-2017 WINTER SEASON: INFRASTRUCTURE DAMAGE AND REPAIRS SUMMARY

Items	# Completed as of April 30, 2017	# Remaining
Potholes	22,043	6,000
Road Heaving	80	90
Street lights	3,848	0

APPENDIX C - SNOW RESPONSE: CROSS-JURISDICTIONAL COMPARISON (Excludes snow-clearing for emergency vehicles)

Service Level	Vancouver		Surrey	New Westminster	Seattle	Portland
	Current	Recommended				
Mandated Response Time					¹³	¹⁴
Priority Routes	Arterials, bridges, viaducts					
	Collectors				¹⁵	
	Emergency routes and schools	¹⁶				
	Priority bike lanes					
	Pedestrian Pathways					
	Residential Streets				¹⁷	
	Laneways		¹⁸			
Sidewalks	Bus stops					
	Arterial corner ramps					
	Residential and business					
	Parks and facilities					

⁸ Six-year average

⁹ Nine-year average

¹⁰ Program started in 2014

¹¹ Four-year average (due to data aggregation/availability)

¹² As at March 31, 2017, includes Engineering services only

¹³ All routes bare and wet within 12 hours when significant lull in storm

¹⁴ Level A = 16 hours; Level B= 24 hours; Level C= 24-72 hours

¹⁵ Only streets that are important for general traffic, buses and hospitals

¹⁶ School routes, not all emergency routes

¹⁷ Done once primary routes under control, or immediate safety issue

¹⁸ Priority hills and narrow roadways; facilitate missed garbage collection

APPENDIX D - SERVICE LEVEL IMPROVEMENTS

When Snow Depth <5cm	Current	Recommended
Arterials, bridges, priority routes/hills/transit routes	<3 hours	<3 hours
All other priority routes and paths	Ongoing/asap	<12 hours

When Snow Depth ≥5cm		Current	Recommended	
Readiness	Snow tires and chains ¹⁹	Partial	Expanded	
	GPS and telematics equipment deployment ²⁰	Partial (377 vehicles)	Expanded (1,077 vehicles)	
	Traffic monitoring upgrades	Partial	Expanded	
	Salt storage capacity	Limited (2,700 tonnes)	Expanded (8,000 tonnes)	
	Brine storage capacity	Limited (11,000 gallons)	Expanded (30,000 gallons)	
	Salt and brine deployment capacity	Limited	Expanded	
	Other vehicle and equipment capacity	Limited	Expanded	
Snow Response (starts at end of snowfall)	Response Time	None specified	Up to 12 hours	
	Priority Routes			
	Priority 1²¹	Arterials and bridges	✓	✓ ²²
		Priority emergency routes	Partial	✓
		Priority 1 hills	✓	✓
		Priority 1 transit routes	✓	✓
		Priority 1 bike lanes and associated pedestrian pathways	Bike lanes only	✓
		Response Time	None specified	Up to 48 hours
	Priority 2	School routes	Partial	✓
		Collectors (i.e. secondary roads)	Partial	✓
		Priority 2 hills	x	✓
		Priority 2 transit routes	x	✓
		Priority 2 bike lanes and associated pedestrian pathways	Bike lanes only	✓
	Response Time	None specified	Up to 7 days	
	Priority 3	Priority residential streets	x	- Hills and narrow roadways ²³
		Priority laneways ²⁴	x	- Facilitate missed garbage collection
		Priority 3 bike lanes and associated pedestrian pathways	x	✓
		Mini parks	x	✓
		All emergency routes	x	✓
		Sidewalks		
Arterial bus stops		x	✓	
Arterial corner ramps		x	✓	
Parks and city facilities perimeter		x	x	
Excluded				
Non-priority residential ²⁵	x	x		
Non-priority laneways	x	x		
Residential and business	x	x		
Pathways within parks	x	x		

¹⁹ Winter tires on all non-commercial vehicles (i.e. GVW less than 5,000 kg). Emergency vehicles in this category are already equipped. Commercial vehicles will continue to utilize chains as required by the conditions.

²⁰ Increase deployment from 377 vehicles (223 - Phase 1 and 154 - Legacy) to 1,077 non-emergency vehicles. Emergency vehicles are already equipped.

²¹ Priority lists and infographics will be made available on the City website and updated as needed

²² Clear for vehicle use

²³ Based on elevation and grade

²⁴ Prioritized by garbage pick-up zone

²⁵ Except as required by BCAS (British Columbia Ambulance Services)