

Item	
Meeting2017 November	06

COUNCIL REPORT

TO:

CITY MANAGER

DATE:

2017 October 31

FROM:

DIRECTOR ENGINEERING

FILE:

37500 15

DIRECTOR PARKS, RECREATION AND

CULTURAL SERVICES

SUBJECT:

PROPOSED IMPROVEMENTS TO CITY'S WINTER STORM

RESPONSE PLAN

PURPOSE:

To present Council with the proposed improvements to the City's Winter Storm

Response Plan.

RECOMMENDATION:

- 1. THAT Council approve in principle the proposed improvements to the City's Winter Storm Response Plan as outlined in Section 4.0 of this report.
- 2. THAT Council authorize the City Solicitor to bring forward amendments to the Street and Traffic Bylaw and Bylaw Notice Enforcement Bylaw as outlined in Section 5.0 of this report.
- 3. **THAT** A copy of this report be forwarded to:
 - a) Burnaby School District #41, Attention: Ms. Gina Niccoli-Moen, Superintendent of Schools.

REPORT

1.0 INTRODUCTION

During December 2016 and January 2017, the BC South Coast experienced six (6) unusually heavy snowfalls and extended periods of low temperatures. The snow storm events were rare in their intensity and durations. Burnaby's resources, not unlike those of the surrounding communities, were challenged in responding to these events. At the 2017 January 23 Council meeting, staff provided a status report on the City's response to the snow storm events.

Council was also advised that a review of the operational procedures, standards, technology use and resources would be undertaken to identify possible improvements to the City's current Winter Storm Response Plan. The purpose of this report is to present Council with the proposed improvements to the City's Winter Storm Response Plan for consideration.

Re:

From: Director Engineering

Director Parks, Recreation and Cultural Services Proposed Improvements to City's Winter Storm

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2.0 OPERATIONS REVIEW AND FINDINGS

In 2017, staff held a number of meetings with various stakeholders to review and identify issues, concerns, challenges, and areas where enhancements could be made to improve snow clearing and service delivery to residents and businesses. Public complaints conveyed to staff, Council and the business community were also reviewed as part of this process.

Stakeholders invited to the City's operations review meetings included: Burnaby School District #41, Trans Link, Coast Mountain Bus Company, RCMP, SFU, BC Ambulance (invited but did not attend), Fire Department, Risk Management & Emergency Planning Department, Parks and Engineering Departments (administration and operations).

The following key issues, concerns and challenges were raised at these meetings:

a) Issues and Concerns

- Lack of snow clearing on local and secondary collector roads;
- Lack of snow clearing in laneways to support garbage and recycling services and residents' use of the laneways;
- Lack of snow clearing of sidewalks abutting multi-family and commercial businesses by property owners;
- Lack of Coast Mountain bus service to and from SFU;
- Need for ongoing maintenance of sidewalk access to various civic facilities due to thaw and freeze hazards;
- Lack of adequate public information on snow clearing of City roads and laneways;
- Lack of public information on the role and responsibilities of the Parks Department during snow events.

b) Service Challenges

- Limited staff and equipment resources to deal with major snow clearing events;
- Tracking of snow clearing task progress and status;
- Clearing of snow piles;
- Limited salt supply (locally and regionally); and
- Post winter clean-up (clearing sand/salt on roads, repairing potholes and management of hazardous trees on public lands).

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3.0 CURRENT SNOW CLEARING OPERATIONS PLAN

The current Snow Clearing Operations Plan for Engineering and Parks is noted below:

3.1 Engineering

3.1.1 Road Inventory

The City maintains an inventory of approximately 1,656 lane km of roads that includes the following categories according to their functions:

a)	Major Road Network (MRN) roads	319 lane kms*
b)	Collector Roads	465 lane kms
c)	Bus Routes (in addition to those included in a and b)	35 lane kms
d)	Secondary collector and local roads	837 lane kms
	TOTAL	1.656 lane kms

Note: *The City has a contract with Mainroad for winter maintenance for 210 lane kms. The remaining 109 lane kms are maintained by the City.

There are 246 paved kms of laneways (not included in the above total lane kms for roads).

3.1.2 Snow Clearing Priorities of City Roads

Current snow clearing operations for City roads are prioritized as noted below. The equipment deployed for the snow clearing is also noted:

Cl	earing Priorities	Eg	uipment	**************************************
•	Arterial roads including all MRN roads;		Nine tandem plow trucks;	
	Bus routes and collector roads;		Four 5-ton single axial plow trucks;	
	Streets bordering senior and long term care		Five small plow trucks;	
	residences;		Six backhoes;	
	Residential roads with slopes that have	-	One grader;	
	only one outlet and limited access; and		Two brine trucks; and	
	Local roads bordering elementary schools	•	Hired equipment as required*	

^{*} For the 2016/2017 winter season, hired equipment used to support the snow clearing efforts included 13 backhoes, 3 small loaders and 16 tandem trucks.

The standards of performance used by the Engineering Department or snow response operations for arterial roads generally follow the standards set for highways snow removal. These include ice patrol and pre-salting of road surfaces when below zero temperature or snowfall is predicted. Depending on the intensity and duration of the snow fall event(s), additional salt trucks are dispatched to start applying salt on the roads in accordance with the established snow clearing removal priority map, where warranted. Snow clearing on all other residential roads is undertaken when the above priorities are attended to and if there are resources available to perform the work.

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3.1.3 Other Responsibilities

The Engineering Department is also responsible for clearing snow on bridges, underpasses and overpasses, as well as for clearing snow at bus stops and wheel chair ramps along arterial roads and then collector roads.

Residents and businesses are responsible for clearing sidewalks adjacent to their properties. The Street and Traffic Bylaw requires commercial and multi-family buildings to clear their sidewalks by 10:00 am any day the premises are occupied or open to the public.

3.2 Parks and Civic Facilities

The Parks Department is responsible to undertake snow clearing and ice control in parking lots, sidewalks and pathways associated with the following City facilities:

- City Hall/RCMP Complex, Edmonds Resource Centre;
- Shadbolt Centre, Burnaby Village Museum and Ceperly Buildings;
- Burnaby Mountain, Riverway, Eagle Creek and Hart House Restaurants;
- Bob Prittie, Tommy Douglas, McGill and Cameron Libraries;
- Seniors' Centres and Community Centres;
- Ice rinks, public swimming pools, Burnaby Lake Pavilion, Burnaby Lake Sports Complex;
 and
- Urban trails and pathways through parks, and sidewalks around parks.

3.2.1 City Facilities and Parks Inventory

Parks Department maintains a total inventory of approximately:

- 125 Recreation Centres and Buildings ;
- 107 (208,000 sq. m.) parking lots;
- 10.6 km Parks Roads;
- 50 km facilities and park pathways/sidewalks.

3.2.2 <u>Current Snow Clearing Priorities - Civic Facilities and Parks</u>

Current snow clearing operations for Civic Facilities and Parks are prioritized as noted below. The equipment deployed for the snow clearing is also noted:

Clearing Priorities	Equipment
 Clear priority parking lots, major pathways and sidewalks to major civic facilities; Clear remaining parking lots, major pathways and sidewalks to major and minor civic facilities; Clear perimeter sidewalks around parks in high density neighbourhoods (e.g. Metrotown, Brentwood, and Cameron); 	 Twenty snow blowers; Two 4x4 Kubota/Cushman with snow plows and sanders; Five 2-ton trucks with snow plows and sanders; Two 5-ton trucks with snow plows and sanders; Three loaders; and

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•	Clear perimeter sidewalks around the next active level parks (e.g. Central Park and Kensington);	•	Hired equipment as required*	
■	Clear perimeter sidewalks of all remaining park sites; Clear main trails, including Urban Trails and paved sections of Trans Canada Trail thru parks.			

^{*} For the 2016/2017 winter season, hired equipment used to support the snow clearing efforts included 3 bobcat loaders, 1 excavator and 2 tandem trucks.

4.0 PROPOSED IMPROVEMENTS TO CITY'S WINTER STORM RESPONSE PLAN

The City's current Winter Storm Response Plan has generally worked well. However, based on the operations review and findings undertaken in 2017, it is noted that enhancements are needed in certain areas to be responsive to the issues, concerns and challenges noted during the recent winter snow clearing activities.

A summary of proposed improvements to the City's Winter Storm Response Plan is noted below. Details of proposed improvements can be found in *Attachment #1*. For Council's information, separate staff report(s) relating to the long term planning will be brought to Council as part of the budget process.

Pro	posed Improvements	Proposed Implementation Schedule
1.	Snow plowing on residential streets – advance clearing of all residential streets along with priority 3 roads clearing using hired equipment (backhoes and small plow trucks). Use automatic vehicle location and fleet tracking software on City fleet to create service efficiencies and provide updated information to the residents on snow clearing activities.	2017-2018
2.	Snow plowing on laneways - advance clearing of all residential laneways along with Priority 3 roads clearing using hired equipment (backhoes and small plow trucks).	2017-2018
3.	Sidewalks, wheel chair ramps and bus stop clearing – commence clearing for all events regardless of accumulation amount; prioritize clearing of sidewalks abutting City vacant lots; amend Street and Traffic Bylaw and Bylaw Notice Enforcement Bylaw to increase fines for owners not clearing sidewalks adjacent to commercial buildings within specified times, and initiate early sidewalk inspections.	2017-2018
4.	Salt inventory improvements – increase salt stockpiles from current 2,500 tonnes to 5,500 tonnes.	2017-2018

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5.	Salt brining/anti-ice treatment – maintain existing service level for priority 1 and 2 roads.	Underway
6.	Snow removal and off-site disposal – advance commencement of snow removal activities on priority basis when side casting is no longer feasible.	2017-2018
7.	Mainroad winter service contract – maintain existing service levels.	Underway
8.	Major and Minor Civic Buildings – continue to appropriately allocate staff and equipment during prolonged heavy snow events to ensure that all locations are cleared in a timely manner and to alleviate staff fatigue when working long hours.	Ongoing
9.	Parks – Capture locations of curbs and catch basins to help prevent damage to curbs and speed bumps as well as better facilitate snow melt drainage by creating accurate maps.	2017-2019
	Parks (Secondary) – continue staff training thru orientation when working with equipment to expose curbs, 'fingers' and catch basins for improved operator sightlines.	Ē
	Parks (Remaining) – identify better and safer places for snow piles to allow for better sight lines and to lessen the freeze thaw impacts.	
	Main trails including Urban Trails and paved section of Trans Canada Trails thru parks – maintain existing service levels.	Ongoing
11.	Public Communication – rebrand all public information, expand Tips & Reminders social media posts; develop infographics for public to better understand their roles and responsibilities; provide information using social networking apps such as WhatsApp, WeChat etc.); include relevant print material in local ads and mail delivery (Business License Renewal Notices and Annual Garbage and Recycling Calendar).	Underway

5.0 PROPOSED AMENDMENTS TO THE STREET AND TRAFFIC BYLAW AND BYLAW NOTICE ENFORCEMENT BYLAW

Based on the operational review, staff note that there is an ongoing concerns regarding property owners not taking timely action to clear snow from sidewalks abutting their properties, particularly owners of commercial properties. The current fine for not clearing snow from sidewalks prior to 10:00 am is \$80 and does not appear to be a significant deterrent.

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Given this, it is proposed that Council authorize the City Solicitor to amend the Street and Traffic Bylaw, and Bylaw Notice Enforcement Bylaw to increase the fines from \$80 to \$400 for Industrial, Commercial and Institutions; \$250 for multi-family properties and \$100 for residential properties. Staff would activate early inspections for sidewalk snow clearing and ticket non-compliant sites.

6.0 PROPOSED IMPROVEMENTS BY OTHERS

6.1 Coast Mountain Bus Company

According to staff's understanding, Coast Mountain Bus Company has established a Snowy Weather Action Plan which, in part, improves transit service to and from SFU during inclement winter weather conditions. Coast Mountain proposes to switch bus servicing SFU from 60' to 40' buses as available in anticipation of worsening conditions (Level 2 – Moderate to High Conditions, and Level 3 – Severe Conditions). In addition, Coast Mountain proposes to use traction devices such as "AutoSock" with cable chains as back-up on 40' buses on trial basis. For Council's information, "AutoSock" is a special textile fabric cover that goes on the outer driving wheel to help vehicles get traction on snow and ice, and has been used in some parts of Europe with success.

6.2 Burnaby School District #41

Based on staff discussions with Burnaby School District #41 officials, the District has activated its Snow Plan on October 1. The District maintenance staff are ready to be deployed 24/7 to salt and or plow at 54 school and administration sites when required. The School District custodial staff is also engaged to salt and shovel school and abutting City sidewalks as required. In addition, the District has engaged contractors to assist in snow clearing, where required. The District maintains 40 tonnes of salt for School District deployment.

7.0 CONCLUSION

During the months of 2016 December and January 2017, BC South Coast experienced six (6) unusually heavy snowfalls and extended periods of low temperatures. The snow storm events were unique in their intensity and durations. Burnaby's resources, not unlike those of the surrounding communities, were challenged in responding to these events.

In 2017, staff held a number of meetings with various stakeholders to review and identify issues, concerns, challenges, and areas where enhancements could be made to improve snow clearing and service delivery to residents and businesses. Public complaints conveyed to staff, Council and the business community were also reviewed as part of this process.

Based on the operational review and findings, it is noted that while the City's current Snow Response Operational Plan generally worked well. However, improvements in certain areas are needed to be responsive to the issues, concerns and challenges noted during the recent winter snow clearing activities.

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Staff has proposed improvements to the City's Winter Storm Response Plan for Council's consideration. In addition, staff has proposed amending the Street and Traffic Bylaw and Bylaw Notice Enforcement Bylaw to increase fines to non-compliant property owners for not clearing snow on sidewalks abutting properties, particular commercial properties. In addition, staff has proposed to undertake early inspections relating to sidewalks to address ongoing concerns raised by the public.

on A. Yous, P. Eng., MBA DIRECTOR ENGINEERING

Dave Ellenwood DIRECTOR PARKS, RECREATIONS AND CULTURAL **SERVICES**

DD/cp/ac

Attachment

Copied to:

Director Public Safety and Community Services

Director Finance City Solicitor City Clerk

PROPOSED IMPROVEMENTS TO CITY'S SNOW RESPONSE OPERATIONS PLAN

ACTIVITY	CURRENT SERVICE LEVELS	CURRENT SERVICE CHALLENGES	PROPOSED IMPROVEMENTS	LONG TERM PLANNING (Subject to separate approval by council)
Engineering				
1. Snow Plowing on Residential Streets	\bullet treated following the completion of clearing priority routes 1 and 2	 compact snow and ice creates clearing difficulties parked / abondoned vehicles restrict access for clearing snow 	 advance clearing of all residential streets along with priority 3 roads clearing using hired equipment (backhoes and smaller plow trucks) 	build internal capacity by considering purchase of multi-use smaller trucks
		 additional snowfall events compound delay in treatment Tandem trucks can be too large for local roads 10' plow blades used on priority routes too wide for servicing residential streets 	 use AVL and Telematics on City Fleet to ensure efficient and effective movement of resouces and fleet, and to provide most updated information to callers 	 provide a second 8' plow to large trucks, so drivers can switch blades to better service residential streets
2. Snow Plowing on Laneways	 treated following clearing of residential streets 	 compact snow and ice creates challenge for clearing 	 advance clearing of all residential lanes along with priority 3 roads clearing using hired equipment (backhoes and smaller plow trucks) 	build internal capacity by considering purchase of multi-use smaller trucks
	 supplemented by hired equipment backhoes 	• there is reduced ability to side cast snow due to lane width		
		 snow piled at ends of laneways can obstuct access and line of sight 		
3. Sidewalks, Wheel Chair Ramps and Bus Stops Clearing	 commence clearing when accumulation is greater than 4 cm 	 clearing of accumulated snowfalls become labour intensive for handwork 	 commence clearing for all events, regardless of accumulation amount; prioritize based on usage 	 consider use of additional backhoes and skid-steer loaders for sidewalk clearing
			Prioritize to clear snow on sidewalks abutting city vacant lots	
	• smaller events are cleared manually with backhoes/loaders assisting for larger events	 low fines for violation to the Traffic Bylaw do not drive corrective actions 	• amend the Traffic Bylaw and the Bylaw Notice Enforcement Bylaw to increase fines from \$80 to \$250 for not clearing	
	deploy snow blowers where applicable		sidewalks (adjacent to commercial facilities) within defined times	
			 activate early inspections for sidewalk snow clearing and ticket non-compliant sites 	
4. Salt Inventory Improvements	• there is 2,500 tonnes availible between Laurel Street Works	stockpile can be insufficent in larger snow events	stockpile of additional 3,000 tonne will be in place due to	new Laurel Street Works Yard salt shed will have the capacity
	Yard and Parks Nursery	'• dependant on the supplier stockpiles and availability	construction of salt shed at Norland Transfer site, bringing the total availability to 5,500 tonnes of salt	to store 3,000 tonne of salt. This, in addition to the salt storage locations at Norland Transfer and Parks Nursery sites could increase the salt stockpile amount to 7,200 tonnes
		 salt is produced out of province and requires it to be transported to the region 		
5. Salt Brining / Anti-ice Treatment	• Currently, the City has two 10,000 I capacity trucks brine Prioity 1 and 2 routes	brine is purchased from Mainroad and supply can be restricted	maintain existing servicing level	recommend the new Laurel Street Works Yard to include brine plant
		City does not have a brine production plant		acquire 6 additional slide-in 10,000l tanks for tandems to allow for the entire road network servicing
6. Snow Removal and Off-site Disposal	 removal undertaken only after significant snowfall using hired equipment (13 backhoes and 16 tandems) after side casting was no longer feasible 	 signifcant additional cost and effort compared to plowing mainly in trucking round trips and loaders 	Advance commencement of snow pile removal activities when side casting is no longer feasible as follows:	
		increased area required to load trucks and as a result, lane closures and traffic control are required	 Passenger drop-off and access areas surrounding hospitals. Sight obstructions at intersections. Drop-off areas surrounding public and private elementary schools. Passenger drop-off areas surrounding senior extended care facilities and medical care facilities. 	

ACTIVITY	CURRENT SERVICE LEVELS	CURRENT SERVICE CHALLENGES	PROPOSED IMPROVEMENTS	LONG TERM PLANNING (Subject to separate approval by council)
			5. Passenger drop-off areas surrounding secondary schools.6. Facilitate solid waste collection.	
7. Mainroad Winter Services Contract	contract mirrors MOTH service levels and does allow for accumulations in the travelled lanes to set depths and	 expectation is that contractor should work to achieve bare and wet conditions at all times 	maintain existing service levels	revise contract specifications and service levels
	durations	• MOTH has priorities, HWY 1 takes precidence over COB		'• consider increased specification for clearing roads leading to SFU
		 extra truck provided by Mainroad at hourly rate when it is available 		
City Facilities & Parks				
8. Major and Minor civic buildings	 clear priority parking lots, major pathways and sidewalks to major civic buildings. 	 continuous Snow Events make it difficult for City Staff to work on City Facilities & Parks priorities beyond level 1 and 2 priorities. City Staff are only able serve level 3 priorities and 	 increased staffing and equipment during prolonged heavy snow events to ensure that all locations are cleared in a timely manner and to alleviate staff fatigue when working long hours. 	 review options to optimize other program elements to redirect crews and equipment to assist in snow clearing.
	 clear remaining parking lots, pakor pathways and sidewalks to minor civic buildings 	beyond only with prolonged breaks in the snow events. Stranded vehicles provide obstructions leading to delays.		
9. Parks	clear perimeter sidewalks around Parks in high denisty neighbourhoods (e.g. Metrotown, Brentwood, Cameron)	• heavy Snow Load on Trees result in an overhead hazard. Ice build up creates delays and unseen hazards.	• initiate GPS of curbs and catch basis to help prevent damage to curbs & speed bumps as well as better facilitate snow melt drainage by creating accurate maps.	undertake continual assessment of areas for potential problematic snow load damage.
				 continue with annual tree pruning program. Deploy salt crews to pre ice during extended events of extended cold.
Parks (Secondary)	• clear perimeter sidewalks around the next active level parks (e.g. Central Park and Kensington)	• snow-covered speed bumps and curbs that are not clearly visible are often damaged by machine operators.	• increase staff training thru orientation when working with equipment to expose curbs, 'fingers' and catch basins for improved operator sight lines.	 where appropriate, enhance staff training and orientation when working with equipment to expose curbs, fingers and catch basins for improved operator sight lines.
				 GPS Curbs and c/b's to help prevent damage to curbs and to better facilitate snow melt drainage by creating accurate maps.
Parks (Remaining)	• clear perimeter sidewalks of all remaining Park sites	• snow Piles left on site for too long result in freeze-thaw situations, which create a potential hazards.	• identify better & safer places to stock snow piles to allow for better sight lines and to lessen the freeze thaw impact.	• GPS Stock Snow Piles to help facilitate in the preplanning process.
		 snow pile build up on perimeter sidewalks from continuous road clearing. 		
10. Main trails including Urban Trails and paved sections of Trans Canada Trail through	 clear main trails, including urban trails and paved sections of Trans Canada Trail thru parks 	heavily worn sections covered in ice.	Maintain current service levels	• improve equipment inventory by upgrading of additional Kubota 4x4 utility vehicles. Acquire additional 4x4 two tons
Parks			• replace two expired 2x2 utility truckster's with 4x4 Kubota's out fitted with plow and sanders providing the ability to reallocate resources in required areas.	c/w plows and sanders.
11. Park's Snow Clearing Level of Service	 web page is updated. Service requests received and directed to City Crews. 	Burnaby does not clear non-paved surfaces, sports courts, sports fields.	•improve communication with the public as to what sites the City maintains for snow clearing for Parks.	

ACTIVITY	CURRENT SERVICE LEVELS	CURRENT SERVICE CHALLENGES	PROPOSED IMPROVEMENTS	LONG TERM PLANNING (Subject to separate approval by council)
Corporate				
12. Public Communictions	• snow & Ice Control info on burnaby.ca available year-round	 received unprecedented number of service requests from the public via Twitter, Facebook and Burnaby.ca feedback forms 	• rebrand all public information as "Be Snow Smart"	paid promotions on Facebook to increase / specifically target information reach
	• "What's Your SnowIQ?" features added to burnaby.ca Home Page in November	 content of requests demonstrated public was not personally well prepared for duration of winter conditions, impacts to their commutes, their roles & responsibilities to clear sidewalks, 	• expanded Tips & Reminders social media posts to send early November paired with strong visuals	• interactive map on burnaby.ca for snow removal priority routes
	 sitewide Notification container on burnaby.ca used for Environment Canada weather warnings and related City operations key messages 	where to pile snow, where to place garbage, recycling bins	• consolidate existing Snow & Ice Control web pages into a single Be Snow Smart page	interactive map on Burnaby Map what areas the City clears of snow.
	snow clearing updates sent via City Twitter & Facebook	 after-hours monitoring of social media was required during evenings, weekends and stat holidays in December and through 	 develop infographics for the public to better understand their roles and responsibilities 	 GPS Areas that the City Clears of Snow and make this information available to the public.
	 garbage and recycling updates sent via MyWaste mobile app, City Twitter & Facebook 	early January for developing issues to report to dispatch, keep up on service requests to forward to departments for attention	• update print materials to match	
	 liase with Engineering and other departments as needed to source replies to mentions and interactions on Twitter and Facebook 		• upgrade of social media management tool, Hootsuite, from Pro to Enterprise version	
			• develop publishing calendar as a starting point in order of revelance to the weather. Example: heavy snow coming - message to be prepared then another message about roles & responsibilities	
			• local ads, mail delivery with business license renewal and Annual Garbage & Recycling calendar	
			• work closely with Engineering group to reply to messages and possibility of training individuals to reply directly within Hootsuite	