

NO: R164

COUNCIL DATE: September 14, 2009

REGULAR COUNCIL

TO: **Mayor & Council**

DATE: **September 9, 2009**

FROM: **General Manager, Engineering**

FILE: **5400-45**

SUBJECT: **Review of Snow and Ice Control Services**

RECOMMENDATION

The Engineering Department recommends that Council:

1. Receive this report as information; and
2. Approve the improvements and refinements to the City's snow and ice removal services as documented in this report.

INTENT

The purpose of this report is to provide Council with information about a review that has been undertaken of the City's snow removal experience during this past winter's significant snow event as well as to provide information about recommended enhancements to the City's practices and procedures in relation to snow and ice control services.

BACKGROUND

In mid-January 2009 Corporate Report No. R006; 2009 (attached as Appendix I) was considered by City Council immediately following a record snow event that extended from mid-December 2008 to the early part of January 2009. That report discussed the challenges associated with the unusually high snowfall and long duration of the event. These challenges included, among other things, issues related to around-the-clock deployment of the City's snow clearing equipment on priority routes (arterial, collector and transit routes) in accordance with the City's existing Snow and Ice Control Policy. The report also noted that while snow and ice operations on priority routes were well managed, there was dissatisfaction by residents in some areas of the City regarding the lack of snow removal service on local residential streets. The report concluded that we would review our current City Policies and Procedures and report back to Council.

Resident Complaints

The City's Snow and Ice Control Policy (the "Policy") was established to reflect the fact that snow-covered and/or icy road conditions occur very intermittently in the lower mainland and generally for relatively short durations during winter months. To this end, the City's Policy focuses resources mainly on addressing snow and ice conditions on high volume roadways and on roadways with steep grades.

Snow removal on local roads (other than those with steep grades) is given a low priority since snow and ice on these types of roads cause temporary public inconvenience as opposed to significant public safety concerns. A local road will be given priority for snow clearing or ice control on an interim basis in instances where it is determined that a resident has an immediate need for medical care and where a request is received from emergency services for assistance.

Residents generally cope reasonably well with the short-duration snow accumulations that are typical for this region. However, last year's December/January snow event was for an extended period of time (4 to 5 weeks), which caused residents to become less tolerant. As a result, particularly during the latter part of the storm event, the City received a high number of complaints from residents related to snow clearing and accessibility issues on local streets and cul-de-sacs. The snow event had also impacted the ability of waste collection vehicles to travel on many local roads. This resulted in a significant number of complaints related to delays in waste collection services.

Under City by-laws, every property owner is required to clear accumulations of snow from the sidewalk abutting the frontage of their property. Most residents on local streets cleared snow from their driveways and sidewalks onto the adjacent local roadway, which compounded the access problems along their street. In most cases local streets were reduced to one travel lane as a result of the heavy snow. These factors were the main contributors to the complaints from residents.

It is noted that in addition to complaints, the City also received a significant number of letters of appreciation from residents who indicated that they were very satisfied with the City's performance considering the severity of the snowfall event.

The Surrey Fire Services advised that while snow in some areas impeded their response time, it did not compromise their objective of supplying emergency services to the residents in all areas of Surrey.

DISCUSSION

Review of Snow and Ice Policies and Procedures

Corporate Report Roo6; 2009 identified several areas where the City's snow and ice control practices and policies would be reviewed with a view to introducing improvements. These are listed and discussed in more detail in the following sections:

General Communications:

It has been Engineering Department practice to proactively communicate with the City's residents about:

- the City's policies with respect to snow and ice control;
- the residents' responsibilities in relation snow and ice control; and
- steps that residents can take to minimize the impacts that snow and ice cause.

These communications occur by way of "advisories" placed in Surrey's local newspapers as well as on the City's website over the course of the fall and winter. Information is also provided on

resources that residents should keep on hand to deal with winter conditions (i.e. snow shovels, salt and de-icers, etc.) as well as their responsibilities with respect to the clearing of sidewalks.

Staff has contacted the Western Canada Tire Dealer Association to determine if there was any additional means to work with tire sales outlets in Surrey to promote the use of winter tires. While the Association is happy to participate with advertising the benefits of snow tire use in winter conditions, they stated that sales events are controlled by individual tire retail outlets and doubted that a discounted tire price would be accepted within Surrey beyond what already occurs in the market. This is due in large part to the fact that many motorists delay consideration for such an expenditure until the need arises. Accordingly, the high demand for snow tires ensures fast movement of inventory for retailers. Subsequent discussions with a sample of Surrey tire retail outlets confirmed this position.

A draft public advisory has been prepared to remind Surrey residents to install snow tires in advance of winter conditions setting in and will be placed in local newspapers and on the City website during October. Additionally, in an effort to improve pedestrian passage on City sidewalks during snow accumulations, additional information will be prepared and distributed through advertisements and other City distribution methods reminding residents of their responsibility to clear snow from sidewalks fronting their homes as required under City By-laws.

Responding to Inquiries and Service Requests:

One of the problems that arose during the severe snow event of last winter was the capacity of the City's staff and telephone system to handle calls from the public during peak periods. In response, the telephone system capacity has been expanded with more lines to reflect the demand that was evident at peak periods last year. In addition, the Engineering Department will dedicate additional resources during winter storm events to receive telephone calls and answer questions regarding snow removal services.

Schools and Long-Term Care Facilities

Staff has been in contact with School District maintenance staff and has clarified and agreed upon the roads for which snow removal services are to be prioritized for each school in Surrey. The City has also reviewed private schools to ensure the same level of service is provided to private schools as is provided to public schools. It is noted that this may generate some level of demand for the same service from residents of adjacent local roads.

The Priority 2 routes identified in the Policy will also be adjusted to reflect access to long-term care facilities. An inventory of all such facilities within Surrey has been compiled accordingly.

Contractors List:

Staff is compiling a list of contractors that are available for hire by residents on a direct pay-for-service basis for snow clearing from private driveways, sidewalks, parking areas, etc. The contractors will be listed on the City web site through a "bulletin board" type of list. They will be screened before being added to the list to ensure that they can viably provide this service. The success of this program will be dependent on the interest of private contractors with sufficient resources and equipment and the demand of the public for this type of service.

Additional Equipment:

In early 2009 the City took delivery of three (3) salt brine units, which allow crews to apply a water/salt brine solution to the surfaces of major arterial roads in advance of forecasted snow/ice conditions. The brine application dries on the road with the residual salt taking effect immediately when snow begins to fall or when freezing temperatures occur (i.e., activated by the moisture). This approach effectively reduces the accumulation of snow and ice on treated pavement surfaces. By using this technology City crews have an increased window of time to effectively mobilize regular snow and ice services and provide enhanced coverage when snow events occur. This process has proven to be very effective, in most cases; however, its application is dependent on dry weather conditions preceding a snow/cold weather event. The application of the brine solution on wet pavement causes it to become ineffective due to dilution that occurs.

Based on the success of this technology during last winter, the City has purchased three (3) additional brine units for deployment in 2010. This will double the City's capacity to apply brine to City streets. The six units combined have the capacity to apply brine to 1200 lane-kilometers in an 8-hour period, which is almost equivalent to the full length of the City's Priority 1 road network.

Engineering Operations has also purchased six (6) additional one-tonne sanders and plows, which will further increase the City's ability to respond quickly to snow events within the current priority routes. Faster service on priority routes will also result in enhanced capabilities to address other problem areas after priority routes are cleared.

The City will have a total of 44 pieces of snow clearing equipment available for the 2009/2010 winter season. The referenced additional equipment represents a 33% increase in the number of pieces of snow and ice control equipment available for use in comparison to last year. In the past 4 years, the City has more than doubled its overall snow and ice control equipment capacity by increasing the snow clearing fleet from 20 vehicles to 44 vehicles.

Additional Drivers and Operators:

The addition of equipment over the past several years has created a need for more trained drivers and operators. In this regard, eight (8) new drivers have been trained since the 2008/2009 winter season and training of an additional fifteen (15) drivers is currently being completed in advance of 2009/2010 winter season. This will bring the City's total complement to 63 drivers, equipment operators and mechanics that will allow the operation of the 26 pieces of large equipment on a 24-hour a day basis for a few consecutive days when responding to major snow events. With the addition of the aforementioned six (6) one-tonne sanders plus additional hired graders, the City will have up to a total of 44 pieces of equipment at its disposal for snow and ice control operations as detailed in Appendix II.

The Engineering Department is also hiring auxiliary drivers who would be called in to operate City equipment in the event of longer lasting snow events such as the one that occurred last winter.

Increased Level of Service

Based on a review of all lower mainland cities and municipalities, it was determined that the City of Surrey currently provides a comparatively high level of municipal snow and ice removal service

and is ahead of other municipalities in the types of roads that are included as priority roads during snow clearing operations. With a view to determining whether snow clearing services should be extended to all local roads and cul-de-sacs, staff has conducted a review of this type of service and estimated the related costs.

The following is a breakdown of the current Surrey road network:

Priority 1:	Arterial roads, major collectors, bus routes, roads with steep grades and school access roads	1,332 lane kms
Priority 2:	Secondary roads in residential areas and access roads to long term care facilities	918 lane kms
Priority 3:	All other local roads	1,570 lane kms
	Total Road Network	3,820 lane kms

Priority 1 roads are cleared of snow before Priority 2 roads. Priority 3 roads generally do not get snow cleared, except for medical emergency service. Based on the lane-kms of the Priority 1 and 2 roads, the City currently snow clears 59% of the lane kms in the City.

Snow Clearing of Local Residential Streets

Due to the relatively continuous snowfall during the first three weeks of last year's major event, City crews were fully occupied clearing the arterial and collector roads. Once the snowfall abated, most residents had cleared their driveways (many had pushed snow onto the adjacent road) and the temperatures increased so that the snow became wet and heavy. If clearing of local roads had occurred under those conditions, the clearing equipment would have simply pushed the heavy wet snow back across the adjacent driveways where it would have frozen and blocked access to the driveways. This would have inevitably aggravated residents and also acted to block catchbasins along the streets, which would have resulted in localized flooding and related problems. In any case, most local roads were passable to one lane of traffic.

Snow clearing on local streets is also complicated due to the on-street parking that typically occurs along these streets. In Surrey, on-street parking on both sides of the street is permitted on the majority of local streets. For the purpose of snow removal, this severely restricts the operation of snow plows and the reasonable depositing of plowed snow along the street. In many cities in the colder parts of Canada where local roads are plowed, cities limit parking to one side of the street during the winter season. This allows for more efficient snow clearing and for the depositing of plowed snow on the side of the street where parking is not permitted. Restricting parking to only one side of the street in many areas of the City would cause a significant disruption to the residents who rely on street parking for their vehicles.

Snow plows can be operated at 50 km/hr on most Priority 1 and 2 roads. Plowing on local residential roads would require, for reasons of public safety and inherent narrowness, a reduced operating speed for the truck snow plows of less than 20 km/hr and the use of loaders to clear cul-de-sacs. Based on the combination of reduced speeds and inefficiencies caused by dead ends, it is estimated that servicing local roads would be 4 times more time-consuming and costly per lane km than the higher priority roads. On this basis, the total cost for snow clearing service for the 2008/09 winter season would have increased from the \$3,800,000 to an estimated cost of at least \$9 million for the same level of service on local roads as was provided on the Priority 2 roads. This estimate does not include any provision for clearing of residential driveways where plowed snow is deposited.

This increased level of service would also significantly increase expectations and dissatisfaction regarding the City's ability to provide timely service to the residential road network, specifically in relation to plowed-in vehicles and driveways and the reduction in on-street parking from piled snow and snow removal activities.

Given the high costs associated with this approach and in consideration of the relatively low frequency of long duration winter storm events in this region, it is recommended that the City's Policy with respect to snow clearing of Priority 3 roads not be changed.

Funding Requirements

Costs related to snow and ice control operations continue to increase due to inflation in costs of sand and salt, increased quantities of sand and salt being used as the City's road system expands, increased fleet size and increased street cleaning costs in the spring (sweeping and flushing of sand accumulations on City streets). On this basis, the Snow and Ice Removal budget will need to be increased as part of the 2010 budget approval process from \$1,500,000 to \$2,600,000 to maintain the current level of service for an average snowfall year.

The City has an Emergency Fund that is drawn upon to supplement the regular snow clearing budget in years when above average snowfall occurs. In years, when the annual snow clearing budget is not full expended, some of the residual funds are deposited in the Emergency Fund to ensure that the Fund remains viable over time.

Summary of Snow and Ice Control Changes

In summary this report recommends an increase in public awareness through additional advertising and improvements to the City's website. Examples of these improvements are the benefits of using snow tires, preparing for the winter driving season, a listing of snow removal contractors for sidewalks and driveways, etc. In addition the Engineering Department will reallocate clerical resources to better handle the increase in number of telephone calls received during snowfall events. This will greatly enhance the dissemination of current policy and levels of service to the public. This will also allow the City to better receive special requests for service.

The City is also able to add 3 additional brine tank units to the existing 3 units brought into service in December 2008. Furthermore, an additional 6 one tonne trucks will be outfitted with plows and sanders by November 1, 2009.

CONCLUSION

As a result of the severe snow conditions that the City experienced last year, Council requested that the Engineering Department carry out a review of the City's snow and ice removal services. The significant snow event of the 2008/2009 winter season was anomalous for the South Coast. Based on this review, staff is recommending several improvements and refinements to the City's current practices and procedures with respect to snow and ice control as documented in this report. Staff is not recommending any changes to the approach taken to the clearing of snow on local roads (Priority 3 roads in the Snow and Ice Control Policy).

Vincent Lalonde, P.Eng.
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VL/GMc/RAC/RK:ajs/brb

Appendix I - Corporate Report Roo6
Appendix II - 2008/2009 List Of Equipment

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APPENDIX II

2008/2009 LIST OF EQUIPMENT

<u>FLEET</u>	NO.	PLOW	SANDER	BRINE
Dedicated Sanders/Plows	6	Yes	Yes	
Tandem Dump Trucks	14	All Yes	Yes	3 In Trial Late January
Flat Deck Truck	1	Yes	Yes	
Grader – City	2	Yes		
Grader – Hired	1	Yes		
<u>AREA CREWS</u>				
One Ton Trucks (small)	9	Yes		
TOTAL	33	33	30	3(Late Season)

2009/2010 LIST OF EQUIPMENT

<u>FLEET</u>	NO.	PLOW	SANDER	BRINE
Dedicated Sanders/Plows	5	Yes	Yes	
Tandem Dump Trucks	17	Yes	Yes	6**
Flat Deck Truck	1	Yes	Yes	
Grader – City	2	Yes	No	
Grader – Hired	3*	Yes	No	
<u>AREA CREWS</u>				
One Ton Trucks (small)	15	Yes	Yes	
Single Axle Trucks	3	Yes	Yes	
TOTAL	44	44	39	6

* The City is in the process of hiring additional contract graders for 2009/2010 season. In the past several years, with heavy construction demands, the City has only been able to hire one grader.

** The brine system is mounted on existing trucks which reduces the number of sanders available at the beginning of a snow storm.