

SUBJECT: Winter Operations Service Standards Review
PREPARED BY: Morgan Jones, Manager - Roads Operations

RECOMMENDATION:

- 1) That the staff report titled “Winter Operations Service Standards Review” be received; and,
- 2) That Operations be authorized to increase the number of hired tandem units from 19 to 20, effective November 16, 2013, to meet service standards for road inventory increases related to growth for a total estimated annual cost of \$73,150, inclusive of HST; and,
- 3) That Operations be authorized to increase the number of hired sidewalk plowing units from 24 to 26, effective December 1, 2013, to meet service standards for sidewalk inventory increases related to growth for a total estimated annual cost of \$90,933, inclusive of HST; and,
- 4) That Operations be authorized to increase the number of hired loader units from 28 to 35, effective December 1, 2013, to increase service levels for rear lane snow clearing for a total estimated annual cost of \$81,879, inclusive of HST; and,
- 5) That the 2014 Operating Budget for hired tandems, loaders and sidewalk plowing be increased by \$245,963, inclusive of HST to cover both standby and operating costs for additional units identified above and the 2013 Operating Budget will be impacted by \$62,203, inclusive of HST; and,
- 6) That Operations staff continue to offer the City’s existing “Windrow Removal Program” to pre-qualified residents; and,
- 7) That Operations staff engage York Region Operations staff to improve coordination of road and sidewalk winter maintenance activities on Regional roads throughout the City; and,
- 8) That Operations staff continue work with Canada Post to improve winter maintenance activities at Canada Post super mailboxes located within the City’s rights of way; and,
- 9) That Operations, Information Technology Services and the Corporate Communications and Community Engagement staff expand the current mobile application and web information to include information for residents and businesses about the City’s service standards, storm status updates and related storm information, and,

- 10) That the Operations and Corporate Communications and Community Engagement Departments commence work on an enhanced awareness and education campaign as soon as possible; and,
- 11) That the Contact Centre enhance its current services during severe winter storm events to better serve City residents and businesses; and,
- 12) That Operations, Development Services and Financial Services collaborate in sourcing emerging technologies for consideration of a future pilot project to be located in City's expanding intensified development locations and report back to Council on options and costs associated with implementation of a pilot project in a to be determined high-density new development area; and further,
- 13) That staff be authorized and directed to do all things necessary to give effect to this resolution.

EXECUTIVE SUMMARY:

The Operations Department presented a "Winter Operations Service Standards Review" to Markham General Committee of Council on June 10, 2013 (see Attachment 'A'). This presentation was to address concerns raised by residents following the two severe winter storms the City observed on February 8 and 27, 2013.

Council further directed Operations staff to review current service levels and have discussion with Council on specific winter operations services including rear lane service standards, sidewalk snow clearing/coordination with York Region, and windrow removal service and communication/public education improvement relative to winter maintenance activities.

The total annual cost for the additional winter maintenance equipment recommended in this report is \$245,963, inclusive of HST and will be part of the 2014 Operating Budget and the cost impact of \$62,203, inclusive of HST will be included as part of the 2013 year-end projected budget impact from contracting out the additional equipments beginning November 2013.

PURPOSE:

The report has been prepared to seek Council endorsement for implementation of key recommendations related to Winter Maintenance service level changes and the related financial impacts of both service level improvements and growth the City recognized within the last year.

BACKGROUND:

The winter weather conditions experienced by the City on February 8 and 27, 2013 were extreme. The City observed excessive snow fall over a short period of time on February 8 and a mixed combination of wet/heavy snowfall on February 27.

Environment Canada's records at Markham-Buttonville Airport reflected on February 8/13 a depth of snow of 41cm was recognized by the City of Markham and on February 27/13 a wet/rain snow mix of 14.6cm.

The City of Markham budgets for one(1) storm between 7.5 and 12cms and four (4) storms greater than 12cms each winter season for local road plowing. This service is supported by the local road plowing and loader contracts. The local road plowing contract plows the street while the loader contract cleans wide corners, cul de sacs and rear lanes.

The tandem combination contract primarily services the City's arterial and major collector streets and also salts the local streets after the plowing is completed. Lastly, the sidewalk contract plows maintain sidewalks throughout the City. The 2013 budget by equipment contract is as follows:

Equipment	2013 Stand By Budget	% of Total	Operating Budget	% of Total	Total Budget
Local Plows	\$ 932,773.00	62%	\$ 565,544.00	38%	\$ 1,498,317.00
Loaders	\$ 327,525.00	54%	\$ 274,582.00	46%	\$ 602,107.00
Tandems	\$ 508,596.00	33%	\$ 1,025,573.00	67%	\$ 1,534,169.00
Sidewalks	\$ 334,912.00	20%	\$ 1,366,154.00	80%	\$ 1,701,066.00
Total	\$ 2,103,806.00	39%	\$ 3,231,853.00	61%	\$ 5,335,659.00

The two storms the City received in February of 2013 are atypical and often become problematic for all agencies required to provide winter maintenance. These storms require more equipment hours to clean up post storm, provide reduced or eliminated snow storage areas, impact residents required to access super mailboxes, restrict drainage during thaw cycles and most importantly, increase equipment breakdowns due to stresses on the machines not specified for these types of storms.

OPTIONS/ DISCUSSION:

As a result of input received from Council related to Winter Maintenance this report will outline service level changes to improve conditions in specific areas such as rear lanes and transit locations, improve regional/local coordination and will make recommendations to enhance the communications and customer service with our residents during storm events.

1. Additional Equipment Requirements for 2013/2014 Winter Season

Growth Related Changes: Contracted Tandem Combination (plowing/salting) Units

The Operations Department currently deploys 25 tandem trucks (6 in-house and 19 contracted) to maintain the City's inventory of arterial, primary and secondary roads. Each unit is capable of maintaining an estimated 40 lane kms of road. The growth in our road inventory over the past two years now exceeds our ability to meet service standard thresholds utilizing our current inventory of in-house and contracted units. As a result, the Operations Department requires an additional tandem combination (plowing/salting) unit to continue to meet service standards in new development areas.

Contracted Sidewalk Plowing/Sanding Units

The Operations Department currently deploys 33 contracted sidewalk units (9 in-house and 24 contracted) to maintain the City's inventory of primary and secondary sidewalks, including all sidewalks located on Regional roads. The growth in our sidewalk inventory over the past two years exceeds our ability to meet service standard thresholds for both primary and secondary sidewalk clearing. As a result, the Operations Department requires two (2) additional sidewalk units to continue to meet service standards in new development areas.

The sidewalk maintenance contract is split equally between two hired contractors with each providing 12 sidewalk units as well as 4 flatbed trucks. The trucks are loaded with material at our Miller Yard and coordinate material requirements with each of their assigned sidewalk units to ensure sidewalk plows are able to stay within their assigned area routes. This coordinated effort eliminates need for individual sidewalk units to return to Miller Yard for material, thereby increasing productivity throughout winter storm events.

Recommended Service Level Change:

Operations staff recommends that Council authorize staff to negotiate for 1 additional hired tandem truck and 2 additional sidewalk maintenance units (1 additional sidewalk maintenance unit per contractor) at current contract prices with our existing contractors. With each contractor providing only one additional unit, there will be no requirement to increase the total number of flatbed trucks supporting each contractor's sidewalk units.

2. Changes to Service Level for Rear Lanes

The Operations Department currently utilizes 28 contracted loaders to clear rear lanes throughout the city. Snow clearing in rear lanes commences when snowfall accumulations reach or exceed 7.5 cm. Removal of snow after an initial storm in the 7.5 to 15 cm total accumulation generally takes approximately 16 hours to complete, compared to current 12 hour service standard for clearing local roads under similar conditions. As storage areas are depleted (i.e. greater accumulations, multiple storms),

the effort required to complete rear lane snow clearing increases to between 24 and 48 hours (depending on volume).

In order to improve rear lane snow clearing service to align with local road plowing service standards, the Operations Department requires an additional 7 hired front end loaders. Considering the same effort is required to clear all rear lanes, the total number of operating hours for snow clearing operations will not be impacted, however additional funds will be required to cover daily standby fees for the additional units.

Recommended Service Level Changes:

Operations staff recommends that Council authorize staff to negotiate for 7 additional hired front end loaders at current contract prices with our existing contractors in order to meet increased service level demands for new development areas (rear lanes) for the upcoming 2013/2014 winter season.

Estimated costs for the additional tandem truck, sidewalk units and hired loaders are included in the Financial Considerations section of this report.

Staff are working with Development Services Commission on ensuring that snow storage is considered in new development plans.

3. Windrow Removal Program Options

Existing Windrow Clearing Program

Our current windrow clearing program is designed to provide assistance to seniors and residents that are not able to clear their windrows due to medical reasons. To qualify for this program all individuals residing in the household must be 60 years or older (proof of age is required) or younger than 12 years of age. If any members of the household are between the ages of 12 years and 60 years, a current and valid doctor's certificate confirming they are physically unable to clear snow must be provided.

The Operations Department utilizes 8 contracted units to clear approximately 2200 driveways throughout the City. The service standard requires the contractor to clear at least one car width of the windrow and our target service standard is to clear the windrows within 8 hours of completion of the road plowing. The current budget for windrow clearing is approximately \$153,000 annually which equates to approximately \$70 per household for those residents that qualify for the service.

The service is challenging for contractors to manage due to efforts needed to coordinate timing for 8 driveway clearing units with 43 road plowing units. Driveways are spread out throughout assigned areas therefore a great deal of time is spent driving from location to location through the windrow clearing efforts. In addition, the customer expectations (full width of driveway cleared, sidewalk windrow cleared, windrow cleared immediately following road plowing, etc.) exceed our ability to meet demands. Options were discussed at the Council workshop in June as outlined below.

Option 1: City-wide Windrow Removal Program

In order to provide windrow clearing service for all residential properties across the City, the Operations Department would require one windrow clearing unit to be assigned to each of our current fleet of 43 local road plowing units. Additional windrow clearing units would be required to clear driveways on our arterial, primary and secondary roads as well as those private residential properties located on the Regional road network.

In discussion with other municipalities that have implemented full windrow clearing programs, they report an increase in complaints as residents want to see their windrow cleared immediately following the plowing of the road in front of their home and want the full windrow cleared not just one car lane. We have been advised that municipalities with windrow clearing programs tend to have higher resident calls and complaints than those without any windrow programs. When municipalities align their city-wide windrow service with road plowing it compromises/slows down the productivity of each plow. The service level decreases due to the fact that the road plow must slow down to keep pace with the windrow clearing unit. In order for the City to sustain the current service standard for local road plowing, Operations would have to increase both the number of local road plowing units (and windrow units) over and above our current complement of 43 units.

As well, City staff report numerous locations where the resident either by contractor or themselves has already removed the windrow prior to the City contractor arriving within the service standard of 8 hours.

The estimated cost to provide city-wide windrow clearing would be in the range of \$2.5M to \$4.0M annually.

Option 2: Windrow Subsidy Program

The option to subsidize residents for managing their own windrow clearing was first discussed during the Operations Department presentation on Winter Maintenance Service Standard Review at General Committee in June of this year.

Program Details

- The Operations Department would no longer provide windrow clearing service to those residents that qualify for the program.
- Qualified residents would be required to manage their individual snow clearing requirements (windrow, driveway, walkways, etc.) through contracted services independent of the City.
- The City would offer a rebate of up to \$70 per household to those homeowners that have hired a contractor to provide the service.
- To receive the subsidy, individual homeowners must provide current, official documentation that shows total amount invoiced for winter snow removal for their primary residence, by May 31st of each year.
- In order to qualify for the program, residents must meet the City's current criteria for windrow clearing assistance.

Recommended Actions:

Operations staff recommends that the City continue to offer the existing “Windrow Removal Program” to pre-qualified residents for the upcoming 2013/2014 winter season.

Staff further recommends that Operations and Financial Services staff further explore the option to introduce a subsidy program for residents and report back to Council prior to June 2014.

4. Coordination of Effort with York Region

The City and the Region of York currently experience challenges in coordination of winter service provision specific to road, sidewalk and transit stop schedules and sequencing on Regional roads.

While each authority provides road maintenance activities, responsibility is blurred as the City is required to provide sidewalk maintenance on Regional roads while the Region provides both road and transit stop maintenance on their road network.

Often sidewalk design and construction on Region roads creates situations where sidewalk is constructed adjacent to the road curb thereby creating conflict for snow storage for both road and sidewalk maintenance. In many locations the City has to return to these sites to remove snow accumulations in order to reinstate the sidewalk network.

The City and the Region have met and will continue to meet on a regular basis to map out strategies to ensure a more coordinated approach to winter maintenance. The City provided a detailed map to the Region identifying locations which are problematic for achieving service standards on Regional roads. The map identifies sidewalks and transit shelters that are not operational post storm for an extended period of time. Proposed improvements will include greater duty of care by Regional equipment operators to mitigate impacts of road clearing operations on previously cleared sidewalks. In addition, both Region and City staff have committed to improving communication and coordination efforts to better align road and sidewalk clearing operations on Region roads.

There will be greater pressure on winter operations activities approaching due to increased urbanization, new Viva transit corridors, increased volume of pedestrians and boulevards filled with streetscapes which will require full snow removals post storm.

Recommendation:

Operations staff recommends they continue to work with York Region Operations staff to improve communication and coordination of road and sidewalk winter maintenance activities on Regional roads throughout the City to better address timing and routing of conflicting winter maintenance equipment. Operations staff will report back to

Council in 2014 on the results of efforts this season including evaluating the communication and coordination improvements.

5. Canada Post Super Mailbox Maintenance Ownership/Education

Super mailboxes located within the City are the responsibility of Canada Post for year round maintenance activities. They are purposely located to provide a short walk for residents who don't receive front door delivery.

All Super mailboxes are fully accessible for pedestrian use during winter months. Where a mailbox faces the sidewalk, the sidewalk snow clearing operation ensures the mailbox is fully accessible within 24 hours of the end of the storm. Where there are no sidewalks present, the Super mailbox is installed adjacent to the curb facing the road. It is Canada Post's responsibility to clear the windrows left behind in order to provide barrier free pedestrian access.

Recommendation:

Operations staff will increase efforts to communicate and coordinate snow clearing operations with Canada Post to ensure windrow removal is completed in a timely fashion where required.

6. Mobile Application

Upon conclusion of the June 10th presentation "Winter Operations Service Standards Review", the Operations and Information Technology Services Departments immediately undertook meetings to begin development of a new interactive mobile application. The new application will provide links to the roads winter maintenance mapping tool, the road and sidewalk classifications system and associated winter service standards and winter operations updates during storm events.

The winter roads mobile application is currently being considered as part of Phase 2 of the overall Markham Mobile App project, headed by the Markham Portal Steering Committee. The requirements and scope of the winter roads mobile application, along with the mobile app initiatives of other business areas, will be finalized by mid October, 2013 with the goal of making it available for our residents before the end of 2013. The mobile app costs will be funded through the portal project.

7. Improved Communication of Winter Service Standards

The Contact Centre, Operations Department staff, Council and Councillor's Assistants often receive calls from residents who aren't fully aware of the Council approved service standards for various winter maintenance activities.

In order to increase awareness amongst residents, the Operations Department will work with Corporate Communications and Community Engagement to develop a comprehensive communication plan to educate and inform residents outlining Markham's service standards for winter operations, with no additional cost impact to the budget.

The communication plan will provide residents with resources that explain:

- Responsibilities of various levels of government relative to snow removal, (Municipal, Regional, Provincial, etc.)
- Graphic display that clearly define to residents the following:
 - What does 7.5cm of snow look like?
 - What is a windrow?
 - What does snow packed condition on local road look like?
- Service standards for the City's various road and sidewalk classifications (primary, local, lanes, etc.)
- Service standards for snow removal in both residential and high volume commercial areas.
- Where to access up to date information on winter operations status during storm events.

Elements of the communication plan will include the following;

- Portal – updates on winter operations status during storm events
- On line mapping tool – provides link to individual street including respective service standard for winter operations
- Councillors websites and newsletters – winter maintenance educational materials to be provided for inclusion in Councillors newsletters. Provide links to Portal information through Councillors websites.
- Markham Life magazine – include educational materials and notices in fall and winter publications.
- City page in local newspaper - include educational articles and notices commencing November 1 and repeated periodically throughout the winter season.
- Social media – Facebook, Twitter, PSA's etc. – leverage technology to develop mobile application to provide timely updates on winter operations activities.
- Electronic Information Boards and Poster campaigns – Civic Centre, Libraries, Community Centres, etc.
- Creative Outdoor Advertising Bins – Use for messaging on where to obtain information related to winter maintenance activities.

8. Customer Service during Winter Storm Events; Contact Centre

Daily service hours offered by the Contact Centre providing Operator assistance are Monday to Friday from 8:00 a.m. to 5:00 p.m. (excluding statutory holidays). During winter storm events calls are logged and work orders generated and forwarded to appropriate Operations staff for investigation and action as required. When the City is experiencing extreme winter storms, the Contact Centre assigns staff to retrieve messages after 9:00 p.m. on weekdays and after 5:00 p.m. on weekends. Again the information is logged and forwarded to the Operations Standby Supervisor for action as required. Current Contact Centre procedures allow for Contact Centre Staff to be on call through snow storms after hours and weekends and to respond from home to both emails and voicemails from customers and contact Operations Staff as needed for status of Winter

clearing. Staff are instructed to return all phone calls and emails to customers up to 9:30 pm with a status update, alert Operations staff of any issues, and change voice mail messages to identify status updates from Operations. If phone lines are to be open for and manned by Contact Centre Staff the technology should be made available to allow for staff to answer phone calls from their home base and not be requested to travel through storm conditions to access the phone lines.

The City's Information Markham Desk offers extended hours of service from 5:00 p.m. to 9:00 p.m. Monday to Friday, and from 9:00 a.m. to 5:00 p.m. on Saturdays, Sundays and Statutory Holidays. During all other hours of the day, calls to the Civic Centre are picked up by Fire and Emergency Services Dispatch. Both Information Markham and Fire Dispatch record caller information and relay concerns to the Operations Standby Supervisor for action as required.

Fire Dispatch will not answer calls to the City's general inquiries line when engaged in Fire emergency response activities leading to frustration on the residents' part attempting to access live Operator service after the Information Markham Desk closes. As a result, residents often resort to contacting members of Council to convey their concerns with respect to winter maintenance operations. During severe storm events, the number of calls received by individual Council members can become overwhelming.

Recommendation:

The City will create and advertise a dedicated weather event Information Line (with corresponding email box) to provide 24 hour recorded information about Markham's operational response and to allow residents to leave a message. The Contact Centre's current process will be further enhanced to provide additional staff coverage on an as needed basis.

9. New Technologies For Heating Sidewalks And Roads

Staff advise this technology is recognized to be in its infancy considering they are able to identify one municipality in Canada, Richmond BC, that is experimenting with this technology and one city in the United States, Minneapolis. Oslo Norway appears to be the leader in this technology.

There are three types of heating systems for consideration of heating roads and sidewalks to melt snow. Radiant, hydronic and geothermal all have been implemented in limited or test locations throughout the world. Radiant heating is delivered through a series of electric cables placed beneath a road or sidewalk to in order to keep the network snow and or ice free powered by electricity.

Hydronic systems consist of plastic tubing installed beneath a road or sidewalk. Hot water is heated using a boiler which is powered by oil, natural gas, propane or electricity. Geothermal heating involves the extraction of ground source heat from the earth's core via a heat pumping system transferring energy to a series of cables beneath the road or sidewalk network.

Four factors impacting consideration of a heating system are;

- Can the source energy be considered “Green”? The City of Minneapolis taps into heat generated from excess cooling waters from a local coal refining plant. Water is then pumped through a network of tubes beneath the surface to melt snow.
- Does the system impact carbon footprint? Three test systems employed at universities in the United States generate heat by using condensate water that is left over from steam used to heat the university. Due to the size of these systems, which require a small amount of additional energy, this does add to the carbon footprint of the university.
- What are the costs associated with each system? Discussion with City of Richmond representatives indicate the system was supported by donated material and the area was so small, +/- 50 square feet, they have not conducted a cost benefit analysis report at this time.
- Are there potential locations the City of Markham could consider for piloting a project for heating sidewalks and/or roads? High-density development represents the most logical location for consideration due to increased hard surface streetscapes but also potential regeneration of heat sourced in underground parking supporting high rise development.

Recommendation:

Operations department will work with Sustainability Office, Development Services and Financial Services to further research sidewalk and road heating systems and report back to Council on options and costs associated with implementation of a pilot project in a to be determined location in a high-density new development area.

FINANCIAL CONSIDERATIONS AND TEMPLATE:

Below is a table listing the budget impact of the additional equipment requested as part of this report:

Equipment	Stand By Costs				Operating Costs				Total Impact
	Units	Rate	Days	Total	Units	Rate	Hours	Total	
Tandem Combination Unit	1	\$178	136	\$24,219	1	\$156	313	\$48,931	\$73,150
Sidewalk Machine- VTA	1	\$81	121	\$9,851	1	\$122	280	\$34,191	\$44,041
Sidewalk Machine- Deferarri	1	\$81	121	\$9,851	1	\$132	280	\$37,041	\$46,892
Loaders	7	\$97	121	\$81,880	0	0	0	0	\$81,880
Total				\$125,800				\$120,163	\$245,963

Staff recommend the total cost of \$245,963, inclusive of HST will be part of the 2014 Operating Budget and the cost impact of \$62,203, inclusive of HST be included as part of the 2013 year-end projected budget impact from contracting out the additional equipments beginning November 2013.

ALIGNMENT WITH STRATEGIC PRIORITIES:

Municipal Services: Optimizing service delivery for stakeholders and residents

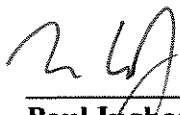
Growth Management: Effective regulation and administration of new development

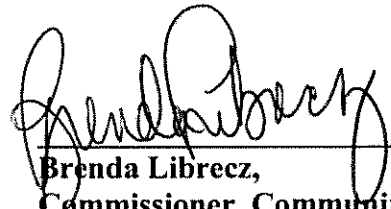
BUSINESS UNITS CONSULTED AND AFFECTED:

Financial Services, Communications and Community Engagement, Legislative Services (Contact Centre) and Information Technology Departments have been consulted in the preparation of this report.

RECOMMENDED

BY:


MORGAN JONES
Paul Ingham,
Director, Operations


Brenda Librecz
Brenda Librecz,
Commissioner, Community
& Fire Services

ATTACHMENTS:

[Insert attachment titles here]