

WINTER STORM – DECEMBER 15 & 16, 2007

(Referred from the Committee of the Whole meeting of February 4, 2008)

Committee of the Whole, at its meeting of February 4, 2008, recommended the following:

That this matter be referred to the Committee of the Whole (Working Session) meeting of February 12, 2008.

Report of the Commissioner of Engineering and Public Works and the Commissioner of Community Services, dated February 4, 2008.

Recommendation

The Commissioner of Engineering and Public Works, and the Commissioner of Community Services, recommend that:

1. That staff identify lands in the west side of the City with a view to acquisition and use as a permanent snow dump location, and that staff report to a future Committee of the Whole on process and options for acquisition.;
2. When a situation exists that is causing, or could cause, an imminent danger to life property, or the environment, as outlined under Regulation 555/06, as amended, with respect to hours of service for commercial vehicle operators, the Commissioner of Engineering and Public Works, or designate, be authorized to formally declare when such a condition exists;
3. The Information & Technology Management Department be requested to determine the feasibility and cost of installing the necessary equipment to record all outside calls coming into front line Public Works staff, and this information be referred to the 2009 Capital Budget process for discussion and consideration;
4. Due to the success of the Public Works' experimental anti-icing program, the Roads' tanker unit No. 807, not be disposed of when its replacement arrives, but be kept for further anti-icing operations until such time as it is no longer economically feasible to do so;
5. Parks and Forestry Operations purchase 3 additional V-blade attachments to be added to equipment being used in areas with heavy snow drifts;
6. That the Fleet Services Department purchase an enclosed service vehicle that is outfitted with parts and equipment to enable them to perform minor repairs in the field; and,
7. This report be received for information.

Economic Impact

The economic impact of developing a permanent snow dump can only be determined after the site has been selected. Ultimate costs will be dependant upon the size of the property, the final design, and whether or not the site is serviced.

The feasibility and costs of installing equipment to record all outside calls coming into front line Public Works staff has yet to be determined.

The cost for installing three “V”-blades results in a total cost of \$21,000 (\$7,000 each), and the cost for the service vehicle is \$60,000, funded from vehicle reserves.

Communications Plan

The City’s levels of service with respect to winter maintenance operations are posted on the City’s web site. These service levels were reviewed by the City’s Legal Department, as well as the City’s insurers, prior to being approved by Council. In addition, during storm events, updates are posted on the web site for the public to review.

Purpose

The purpose of this report is to provide information to Council on the winter storm of December 15 & 16, 2007, and to provide recommendations for consideration in order to improve service for events of this magnitude and normal winter maintenance operations.

Background - Analysis and Options

On December 15, 2007, a winter storm started which would last from late Saturday, to approx. 9 p.m. on Sunday evening. Over this period of time, approx. 34 cm of snow fell across the City.

While the amount in itself was significant, it was the intensity of the storm that made it difficult to manage. At its peak, reports from our contracted weather service indicated that the snow was falling at a rate of 6.5 cm/hour, with wind gusts up to 59 km/hour. The intensity of the storm, combined with wind speeds, created white-out conditions and caused severe drifting in many open and rural areas.

The intensity of the storm was such that roads and sidewalks were snow covered within minutes after ploughing and salting had taken place.

1. Analysis of Operations – Public Works Department

The Public Works Department is responsible for maintaining the City’s road network of over 2,200 lane kilometers of pavement and gravel road surfaces. To do so, it uses a combination of in-house and contracted equipment and staff, including:

- 4 front end loaders
- 44 plough units
- 34 salt trucks
- 37 driveway windrow removal units
- 20 4X4 trucks with ploughs

A) Levels of Service

The City’s approved levels of service for road salting and ploughing are to:

- Apply de-icing materials on roads when snow starts accumulating on the travelled portion of the road, and is less than 5cm in depth (Note: A salt/sand mix will be applied to any rural area gravel roads)
- Commence ploughing operations on Primary roads when snow accumulations reach 5 cm, or 2 inches, and circumstances permitting, complete one pass of road ploughing of Primary roads within 4 hours
- Commence ploughing on Secondary roads when accumulations exceed 5 cm or 2 inches, but only after all Primary roads have been completed, and circumstances

permitting, complete one pass of road ploughing within 12 hours after the primary roads have been completed.

For rear laneways, the following are the approved service levels:

- Rear lanes are maintained only after all other roads have been completed.
- Rear lanes are maintained through the application of salt.
- Circumstances permitting, if snow and ice accumulations reach 15 cm or 6 inches, or if severe rutting occurs, snow removal will be commenced.

The above noted levels of service were approved by Council on December 18, 2001.

To ensure services are delivered as efficiently as possible, winter operations run out of 3 yards; one in the west (Langstaff Road near Pine Valley Drive) , one in the east (Dufferin Street south of Hwy 407), and one centrally located (the Joint Operations Centre at Rutherford Road and Melville Avenue).

B) Road Salting

On average, the City uses approximately 22,000 tonnes of de-icing materials per winter season. As per previous years, Public Works is using two de-icing chemicals to maintain roads in a safe condition during snow storms. Both bulk sodium chloride (common road salt), and ClearLane Enhanced De-icer products are being used this winter season.

The City's Salt Management Plan was approved in 2005, and reports are sent annually to Environment Canada. As per the approved Salt Management Plan, all of the in-house and contracted salt trucks are equipped with electronic spreader controls to ensure only the pre-set amounts of de-icing chemicals are used. In addition, each salt truck is calibrated prior to the winter season, and after any repairs to the spreader unit, to ensure the settings are maintained. All salt trucks are also equipped with GPS units as well.

The City also uses a state of the art Road Weather Information System (RWIS), that monitors pavement temperature, ambient temperature, wind speed, and road surface salinity, to help ensure that the right method of snow clearing is done at the right time, and without excess use of de-icing materials. This station was installed in 2005 on Martin Grove Road, just south of Highway 7.

In addition to the road conditions and weather information from the RWIS station, each road patrol vehicle has an infra-red pavement temperature sensor installed. These also help staff determine the best course of action to take when applying de-icing materials by comparing the air temperature to the temperature of the pavement surface. While salt loses its effectiveness as the temperature drops, often the actual pavement temperature is different than the air temperature.

During this storm, salting commenced on December 15, from approx. 7:30 p.m. to approx. 1 a.m. on the 16th, when the trucks were pulled off the road due to the snow accumulations. Spot salting started again at approx. 6:00 a.m. on the primary roads. Once the ploughing was underway on the 16th, salting operations started again on the streets that had been ploughed.

C) Anti-Icing Pilot Project

This winter, the Public Works Department is also experimenting with a new program of anti-icing, whereby liquid salt brine is applied to selected sections of dry pavement prior to a winter storm starting. This liquid brine coats the road surface, dries, and assists with quicker melting action when the storms actually starts. Mostly, the anti-icing liquid is applied to bridge decks and areas with steep hills or sharp curves. This treatment was performed early Saturday, December 15th, which assisted in maintaining these sections of road in a safe condition when the storm started.

It should be noted that this pilot project was developed in-house by Public Works staff, and uses the old Roads water tanker truck (unit 807), with a modified spray bar at the back to apply the liquid salt brine. This unit was approved and scheduled for replacement in 2003, and the new unit is expected sometime in 2008. However, due to the success to date with this new anti-icing program, it is recommended that the old tanker unit be kept for further anti-icing operations after the replacement unit has arrived.

D) Road Ploughing

As the storm continued, the ploughing of primary roads commenced at approx. 11 am on the 16th, concentrating on the primary roads only. This operation continued until approx. 3:30 p.m.. The department's goal is to keep the primary roads open for transit and emergency vehicles during a storm. Only after these roads are deemed to be clear, are snow clearing operations commenced on Secondary roads. At approx. 3:30 p.m., with snow still falling, the crews moved into ploughing the secondary roads. The ploughing operations were completed at approximately 5:30 a.m. on December 17th.

As the storm started late on the Saturday, and there was plenty of media coverage asking for people to stay off the roads, there were less cars travelling on the roads, making salting and ploughing somewhat easier than what was expected. However, there were still issues with cars parked on the streets. In one case, 12 cars were parked on a street, making it impossible to get through at the time. Given the number of vehicles, even By-law Enforcement assistance could not help in this particular case.

Cul-de-sacs often get cleared later than primary and secondary roads. Due to the large turning radius required by the plough and wing combination, the large trucks often cannot plough the circular part of the street properly. As such, a separate piece of equipment is sent in later to clean up these areas. Snow that is piled up in the centre of the cul-de-sacs is removed when it becomes a hazard to drivers and/or the public in general.

Even though the magnitude of the storm was great, the road ploughing operations were completed within the approved levels of service.

E) Snow Removal

Public Works loads and hauls away snow only after all ploughing operations have ceased. This snow removal is done in cul-de-sacs when the pile of snow in the middle of the "bulb" becomes a hazard to drivers and/or the public in general. There are over 550 cul-de-sacs across the City. Depending on the amount of snow, removal from all areas can take 3 or more weeks to complete, and should it snow again during the removal process, the timeline is lengthened. As soon as the clean-up from the storm was completed, both in-house and contracted crews started snow removal on December 19th, and carried on throughout the corporate shut-down (excluding holidays), and continued into the second week of January.

Snow removal is also performed in rear laneways, as they are narrower than regular roads, and they often have garage entrances on both sides of the lane. As such, ploughing is not always an option. Salting and/or snow clearing are the only ways to deal with large volumes of snow. As such, they receive a different level of service. This level of service has been approved by Council, and this is reflected in the fact that the City requires all developers to place "Warning Clauses" in all sub-division agreements to advise purchasers that snow clearing, ploughing and sanding operations for public laneways will occur only after all City streets have been cleared, and either 15 cm or more of snow has fallen or severe rutting has occurred. These warning clauses are included in all offers of purchase and sale for the property. Notwithstanding the above, when situations warrant, crews remove the snow from the lanes by loading it into trucks

and hauling it away. This is not an advertised level of service, but is done to prevent snow from being pushed up against garage doors, as would happen if the lanes were simply ploughed.

Snow removal is also performed in the Woodbridge and Kleinburg business districts to facilitate on-street parking for the businesses. Again, this operation was started within only a few days of the storm ending.

One of the issues with snow removal operations is the ongoing need for a designated snow dump. With the McCleary Court property no longer available for use, the only site where snow can be hauled to is the Dufferin Yard location. When performing snow removal, over 30 tri-axle dump truck loads of snow are hauled into this site per day. To help reduce travel time from the west end of the City and expedite the clean-up, snow was also hauled to a piece of City-owned property located on Langstaff Road, west of Hwy 27. A separate report will be provided to a future Committee of the Whole meeting regarding these lands.

Suitable available property may be increasingly difficult to locate with future development and build-out of the City. Therefore, it is recommended that staff identify lands in the west side of the City with a view to acquisition and use as a permanent snow dump location and that staff report to a future Committee of the Whole on process and options for acquisition. Together with the Dufferin site, this second location will help to provide the City with snow storage to service both sides of the City.

E) Managing Expectations

During a snow storm, it is difficult to manage the expectations of the public when it comes to service levels. Often the expectations are unrealistic, and the requests are contrary to efficiently running the operation.

Road Salting and Ploughing Operations

As was noted earlier, the City has a Salt Management Plan (SMP), whereby updates are submitted to Environment Canada annually. As a result of the SMP, Public Works has taken a number of pro-active steps to properly manage road salt usage in snow storms. A common complaint is that the salt truck has not gone down a particular street. As part of the salt management plan, the City has designated spread rates for its de-icing materials. While the residents many not see the immediate effects of the salt i.e. bare pavement right away, the amount of salt used at any time is appropriate, given the type and intensity of the storm being dealt with. As noted previously, all of the salters have GPS units that assist supervisory staff in identifying the streets that have been salted.

In terms of road ploughing, residents all seem to want their street ploughed first, and at a time that is convenient to them. In reality, the timing of the ploughing operations start-up is dictated by one factor alone; the weather itself. Once the appropriate time to start ploughing has been determined through monitoring the weather reports and condition reports from the road patrol staff, ploughing operations begin.

The approved levels of service for snow ploughing have been noted earlier, and give crews a total of 16 hours after the snowfall ceases to complete ploughing the entire City, when circumstances permit. Here is a short comparison of Vaughan's 16 hour time frame to other nearby municipalities, as determined from their web sites:

Toronto: *"Once the main roads are clear, then our crews can get to the side streets. Ploughing on side streets will usually be completed within 15-25 hours after the snow stops falling. An additional 24 hours is often required to plough difficult areas where snow has not been completely cleared.*

Markham: *“Normal ploughing operations along local and rural roads takes a minimum of 16 to 18 hours from the time the snowfall ceases. Generally the level of service for maintenance activities along arterial, primary and secondary routes will be in progress before operations commence along local and rural streets or roads.”*

Richmond Hill: *“Every effort is made to have all sidewalks, major and local roads cleared within 12 hours after the end of a typical winter storm. Dead ends, wide bends and cul-de-sacs present a unique problem for snow clearing and generally require a second piece of equipment. These road sections are cleared within 24 hours.”*

Given the size and population of Vaughan, and the 16 hour time frame, Vaughan's level of service is one of the best in the GTA.

Windrow Clearing

The biggest source of complaints about the road ploughing operations come as a result of the residential driveway windrow clearing operations. The complaints include driveways being missed; the clearing not being done properly; and, the timing of the clearing after the plough went by. The December 16/17 storm saw all of these types of complaints.

Council first approved a City-wide residential driveway clearing service in 1999. At that time, the staff report indicated that the purpose of the program was to provide a means of access from the private property to the public road. It was never intended to completely eliminate the homeowners' necessity to clear snow from their driveway entrance after a ploughing event.

Notwithstanding that, a number of residents believe that this service should provide a perfectly clear driveway entrance after a snow storm, that it be cleared to 100% of its entire width, that even the windrow from the sidewalk ploughs be cleared, and, some expect that the entire boulevard driveway area be cleared of snow as well. These are not feasible expectations and reflect the need for improved communications to the residents as to what to expect from the City when the streets are ploughed. As such, staff will undertake to provide additional information in the next edition of the waste collection schedule, and will update the information on the City's web site.

Council previously approved that a driveway be considered “clear”, when approximately 80% of its width is cleared. However, on numerous occasions, staff were requested to go back and fully open up driveways where vehicular access is not a problem. Similarly, Council approved that the windrow crews not be sent back to clear driveways that were blocked or inaccessible. Again, this is not what is happening during snow clearing operations and an extensive amount of time is being spent investigating these types of “complaints”.

As was noted in the 1999 report to Council, there are two types of windrow clearing operations available: the first uses a gate on the end of the grader plough blade to block the snow coming off the blade at each driveway; and, the second option uses separate vehicles to clear the snow from the driveway entrance after the main plough has gone by. The City currently uses the latter method. Due to the difference in the two operations (ploughing and windrow clearing), a lag develops between the two units.

As the contracts for all winter services expire at the end of this winter season, staff will be including a section in the new contracts to determine if there are any companies that can provide windrow clearing services at the same time as the ploughing operation through the use of gates on the plough blades. If the City is able to obtain a contractor who can perform this operation at the same time as they plough the roads, it would eliminate the complaints with respect to timing, and all but eliminate the complaints of missed driveways,

It is important to note that in almost every other city and town across the province and country, residents must shovel out their driveway entrances by themselves. Those who cannot perform the work themselves must either contract with a private ploughing contractor or hire local students to clear the driveway of the windrow left by the plough. Again, Vaughan's level of service for windrow clearing is superior to anyone in the province.

Handling of Residents' Calls/Complaints

As a result of the storm, a total of approximately 265 complaints were received by Public Works staff that required staff to investigate and/or take action. These included complaints about windrows, and street conditions in general. It is important to note that the City has approximately 70,650 residential dwelling units. Based on the number of complaints received, compared to the potential for service complaints, only 0.375% of the households called to register a complaint about the City's road maintenance services. In other words, 99.625% of the residents to which winter road maintenance services are provided to, did not complain, and in fact, many congratulated the City on its efforts to quickly restore the roads to safe, drivable conditions.

Notwithstanding the excellent complaint rates, there has been some criticism of City staff in terms of how residents' calls/complaints were handled. It should be noted that not all calls are handled by Public Works. Access Vaughan staff also respond to general inquiries and issues regarding snow. Residents often described staff as being "rude" and "not helpful", especially if they did not get the answer that they want to hear. While all City staff strive to provide "Service Excellence", the unrealistic expectations of some members of the public can lead to a frustrating experience.

In order to help verify and address complaints about staff's handling of phone calls, a fully recorded phone system, whereby all outside calls coming into Public Works' front line staff would be recorded, should be installed. This would allow managers/supervisors the opportunity to review phone conversations after the fact to determine if there was any basis for the complaint. It is understood that Access Vaughan has requested a similar program in the 2008 Capital Budget submissions. As such, it is recommended that the Information & Technology Management Department be requested to determine the feasibility and cost of installing the necessary equipment to record all outside calls coming into Public Works' front line staff, and consideration be given to implementing this technology through the 2009 Capital Budget process.

G) Hours of Service – Commercial Vehicle Operators

Effective January 1, 2007, Regulation 555/06 as amended to adopt new federal hours of service rules into the provincial regulations. One of the components was to ensure that all commercial vehicle drivers, both long and short haul, have a mandatory off-duty period for rest. These requirements had four components:

- Daily requirements
- Mandatory time off
- Cycle requirements
- Record keeping

In July 2007, Regulation 555/06 was further amended to provide two exceptions to deal with significant or impending situations. Events such as winter storms, windstorms, flooding, water main breaks etc. are potential situations where this would come into effect. The exemptions are as follows:

"4. A vehicle engaged in providing relief in an emergency, being a situation or impending situation that constitutes a danger of major proportions to life, property or the environment, whether caused by forces of nature, an accident, an intentional act or otherwise.

4.1 A vehicle operated by or on behalf of a municipality, road authority or public utility while responding to a situation or impending situation that constitutes an imminent danger, though not one of major proportions, to life, property or the environment, whether caused by forces of nature, an accident, an intentional act or otherwise.”

Under normal circumstances, a driver of a commercial vehicle can only drive for 13 hours in a day, and can only be “on-duty”, for 14 hours in a day. The regulation also requires 10 ours off-duty time in a day, 8 of which must be consecutive.

Municipalities can determine when to decide that a situation or impending situation exists, when the situation has ended, and when normal operations can resume. In the case of an extended snow storm, it is possible that the situation would warrant City drivers of the larger commercial vehicles (road ploughs and salters), to work beyond the daily hours of service limits in order to deal with an emergent situation.

The storm of December 16/17/18 was managed without the need for extended hours of driving. However, if there were staff shortage issues due to sickness or holidays, extended hours would have been necessary.

As there needs to be some formal documentation regarding an exemption to the Regulation, it is recommended that the Commissioner of Engineering and Public Works, the Director of Public Works, or their respective designates, be authorized to determine and declare when situations warrant such use of extended hours of service under Regulation 555/06, as amended.

H) Winter Maintenance Contract Status

The contracts for providing winter road maintenance were awarded in September 2000. The City is divided into two parts for winter maintenance, with Dale Farren and Son Trenching Limited providing road ploughing and salting services to the area east of Weston Road, and Gazzola Paving Limited providing the same services to the area west of Weston Road.

For bidding purposes, windrow clearing is also tendered with two parts, with similar geographic boundaries as the road ploughing and salting operations. The contractor with the lowest bid price services both portions of the City, and this is D. Crupi & Sons Limited.

At the end of this winter season (April 15, 2008), all of the winter maintenance contracts for ploughing, salting, and windrow clearing expire, and tenders will be issued for these services.

2. Analysis and Operations – Parks & Forestry Operations

The City of Vaughan approved standards for clearing sidewalks indicate that once snow has accumulated to 5 cm. ploughing shall commence. The primary sidewalks are cleared first, followed by secondary. The level of service as defined in the Sidewalk Snow Clearing Standard states that one complete pass of primary sidewalk routes will be done when snow accumulation has reached 5 cm. or more and that secondary routes will be done only after all primary routes are completed.

On Sunday December 16th, 2007, the on-call Supervisor commenced the sidewalk and facility snow clearing operation at 5:30 a.m. Staff and contractors were called in to start ploughing City of Vaughan entranceways, fire routes, parking lots at the facilities and sidewalks. The on-call supervisor in consultation with the Director prioritized the locations utilizing the available staff and equipment. The accumulation of snow was significant and occurred in a short period of time. The snow fell at a rate of 6.5 cm/hour, with wind gusts up to 59 km/hour. The intensity of the storm, combined with wind speeds resulted in the roads and sidewalks being covered with snow within minutes after ploughing and salting had taken place. In fact, as areas that were completed before noon had to be ploughed again in the afternoon.

The City of Vaughan fire stations and the fire routes at City Facilities were completed before 10 a.m. Contractors and staff continued to remove snow that had accumulated throughout the day.

In addition, there was on-going communication between Recreation, Building and Facilities and Parks as it was necessary to plough parking lots at community centres based on the permits issued and scheduled programs that could not be cancelled. As a result of events taking place, staff and contractors returned to locations mid-afternoon, and ploughed these parking lots again to accommodate the events. The remaining parking lots were ploughed after 11 p.m. and completed by 7 a.m. the following morning.

The sidewalk operation began at 7:00 a.m. and continued throughout the day until 6:00 p.m. The focus on sidewalk operation on December 16th, 2007 was to ensure that the primary sidewalks were addressed, with initial priority given to churches and high traffic and shopping areas. In some areas the primary sidewalks were re-ploughed because the snow continued to accumulate throughout the day. In additions, sidewalks were also covered by road crews ploughing or drifting that had occurred because of the heavy winds. Staff returned the following morning at 3:00 a.m. to continue the operation and started the secondary sidewalks.

Notwithstanding the snow accumulation being at a high level to plough, other factors contributed to the difficulties in dealing with the large snowfall. Issues such as; landscapers piling snow on sidewalks and road ploughs leaving high windrows on sidewalks and corners, equipment failures, staff and equipment availability contributed to the challenges of clearing snow off sidewalks within our established standards.

The sidewalk equipment and staff availability for clearing sidewalks was not sufficient to meet our standards when dealing with the excessive snowfall. Twenty units were dispatched to deal with thirty sidewalk routes. The units that were not available to Parks were being repaired from the last storm as some parts were on backorder. In addition to the fewer units, not all staff who are assigned to clear snow were available. Thirty-nine staff members were contacted and asked to work and only twenty-four were available to work.

There were many equipment breakdowns/failures caused mainly by staff attempting to plough through heavy snow, especially in locations where the road ploughs have added windrowed snow to the sidewalk. Although the unprecedented heavy snow was the main cause of equipment breaking down, it was also apparent that additional training was also needed to address the proper handling of the equipment. The Fleet Services Department assisted by providing staff and working extra hours. They also engaged external mechanics to assist with equipment repairs; however, units were continuing to break down, reducing the availability of operational equipment. Staff was assigned to work overtime from December 17th, 2007 to December 20th, 2007, to re-plough some of the primary sidewalks, and to complete the secondary sidewalks.

The department has put measures into place to reduce the number of breakdowns, make faster repairs and reduce downtime. The following procedures were implemented to address the issues identified from the review:

- The allocation of heavier equipment and blower attachments to sidewalk machines to remove heavy or packed snow
- Stock more parts for common and frequent breakdowns
- Develop procedures for dealing with heavy snow accumulation on sidewalks
- Increased communications with York Region and our City's Public Works Department to address issues
- Supervisors are recording obstructions and notifying By-law when illegal dumping of snow or encroachment issues
- Staff were re-trained on the correct techniques to be used when operating sidewalk equipment in heavy snow
- Hazards along the routes were marked to provide the operation with clear visibility of obstructions

- Ongoing discussion with the Union, in an effort to increase staff availability for overtime.

The department is also recommending the following:

- The purchase of V-blade attachments for the sidewalk machines
- The purchase of an enclosed service vehicle to handle repairs in the field.

The V-Blade attachments are specifically designed to plough through excessive snow in areas with heavy snow drifts and would be very efficient in dealing with the continual dumping of snow on sidewalks from the road ploughs. In addition, the department recognizes that in some instances, staff encounter breakdowns that do not completely disable the sidewalk machine. The requested mobile service vehicle would allow City mechanics to efficiently handle repairs in the field, rather than transporting the equipment to the fleet shop.

Relationship to Vaughan Vision 2020

The recommendations in this report related to Public Works activities include developing a site for a permanent snow dump, and acquiring additional telephone recording equipment. The necessary resources have not been allocated for these items.

Specifically, the recommendations tie into the following Vaughan Vision objectives:

- A-1 Pursue Excellence in Service Delivery
- A-2 Enhance and Ensure Community Safety, Health & Wellness
- B-1 Value and Encourage a Highly Motivated Workforce
- C-2 Enhance Productivity, Cost Effectiveness and Innovation

Similarly for Parks Operations, the necessary resources have not been allocated for the additional equipment and service vehicle.

Regional Implications

Notwithstanding that the Region's operations impact the City's residents, the recommendations contained within this report do not impact the Region or its winter maintenance operations.

Conclusion

The storm of December 15 and 16, 2007, had a greater intensity than the average storm, and left above average accumulations of snow. Taking that into consideration, the roads of the City were restored to safe drivable conditions within the approved timeframe.

The recommendations contained in this report will assist both Public Works and Parks in dealing with future snow storms in a more efficient manner.

Attachments

N/A

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