

**CITY OF HAMILTON**

***PUBLIC WORKS DEPARTMENT  
Operations & Maintenance Division***

<b>Report to:</b> Chair and Members Public Works, Infrastructure & Environment Committee	<b>Submitted by:</b> Scott Stewart, C.E.T. General Manager Public Works Department
<b>Date:</b> October 26, 2005	<b>Prepared by:</b> Wray Oakes Extension 7646

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(PW05130) - (City Wide)**

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**RECOMMENDATION:**

That the planned improvements to the Winter Control Program as outlined in Appendix A attached to Report PW05130 be endorsed for implementation in order to increase the effectiveness, efficiency and customer satisfaction with the 2005/06 program.

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Scott Stewart, C.E.T.  
General Manager  
Public Works

**EXECUTIVE SUMMARY:**

This report assesses the performance of the City's Winter Control (WC) program and confirms improvement initiatives to further enhance the effectiveness and efficiency of the program's delivery. Achieving the approved service levels during winter storm events minimize the impact of winter related road conditions that directly affect a motorist's ability to travel in a reasonably safe fashion. The 2003/2004 WC program improvement initiatives provided improved service delivery by way of more consistent and timely snow clearing in residential areas. The 2004/2005 W.C. program continued to demonstrate an improved and increasingly consistent approach to program delivery on city streets and road classes as was reflected through increasing customer satisfaction with the program.

In December of 2004 the City of Hamilton experienced a significant snow storm arriving on the eve of the Holiday season proving to be tremendously challenging in terms of storm intensity and duration, snow and ice accumulation and the timing of the storm's

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events lasting throughout the Christmas holidays and weekend. Although the storms in 2004/2005 to date have presented various obstacles in terms of challenges, service levels were maintained except where visibility conditions warranted temporary road closures of 2 of the major escarpment crossings at a peak period until conditions improved to allow operators to safely proceed with plowing operations. A “post storm” event debriefing session confirmed that despite extreme storm conditions, program activities were generally delivered in a balanced fashion, however there were critical deficiencies in our ability to receive, investigate and resolve storm related issues during the some storm events, specifically the holiday season event. A “post WC program season” review identified the following program improvement “opportunities”:

1. “Customer Service Quality” related to “in storm” event customer service response and program information availability.
2. “Contract Management” improvements enhancing activity cost efficiency and quality assurance accountability.
3. “Snow Removal Operations” improvements enhancing efficiency and environmental sustainability.
4. “Snow Fence Installation Policy” to improve program effectiveness and cost efficiency through a confirmed service policy and delivery standards.
5. Salt Management Plan Implementation by extended use of alternative, non traditional technologies to minimize salt utilization rates.
6. Bulk Materials Inventory Control, to improve security and accountability.
7. Yard Rationalization/Consolidation, to provide appropriate program delivery facilities and minimize fixed program costs.

Program improvements initiatives addressing these issues are outlined within the report along with implementation strategies.

**BACKGROUND:**

The information/recommendations contained within this report have city wide implications.

The Winter Control Program is designed to support pedestrian and vehicular traffic safety by ensuring that the transportation network remains accessible and serviceable during winter storm events and is monitored on an ongoing basis for improvement opportunities. The WC program is delivered by the Operations and Maintenance Division serving an inventory of approximately 6,200 lane kilometres of roadway with snow plowing, de-icing-salting/sanding, anti-icing, snow removal, and the clearing of snow from sidewalks bus shelters, school board property frontages, intersections and crosswalks. These “Winter Control Program” services are provided by a combination of in-house resources and contracted external service providers in a ratio of 75.4% and 24.6% respectively.

Forces and equipment contracted through “Integrated Maintenance Operations Services” (IMOS) are assigned to plowing and spreading activities on primary and secondary roads. Heavy construction and agricultural equipment contracted through

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various other vendors are assigned to general snow clearing and snow removal operations, while contracted small equipment is utilized in the area of clearing of bus stops, sidewalks and neighbourhood pathways.

**2006 Program Improvement Initiatives**

Based on WC program feedback received from the public, members of council, contractors and staff, the following program improvement initiatives are planned for implementation during the 2005/06 program. Program improvement initiatives may potentially generate program efficiencies in program components such as fuel consumption, operating hours, material usage etc.; however, until the program achieves sustainable funding, no net savings through efficiency initiatives will be realized.

**1. “Customer Service Quality”,**

In order to effectively receive, investigate and resolve emergency customer complaints and provide timely program information updates during winter storm events, a WC program control centre or “snow desk” will be created Operations and Maintenance District #3. The snow desk will be operated by existing staff currently assigned in District 7 at the supervision level for the duration of the 22 week WC program and function on a city wide basis to:

- Provide “in storm” WC program status reports and updates to the contact call centre and to update the web page within the myhamilton site
- Assess emergency requests for service and dispatch to district supervisors for priority response.
- Monitor, track and report winter weather conditions to program Supervisors
- Coordinate operations and resource deployment for call-out response
- Monitor and coordinate program activities (i.e. patrols, plowing, material applications, etc.)
- Coordinate bulk materials (i.e. salt, sand, pickle mix etc) management and inventory control.

**2. “Contract Management”**

The following improvements to the Winter Control Maintenance contract (currently held by IMOS) are under consideration in order to increase service efficiency and effectiveness:

- Requirement for direct supply of bulk materials by the contractor
- Equipment type and Minimum availability requirements (i.e. equipment specifications will be reviewed to include minimum levels in terms of guaranteed coverage for high profile locations only thus reducing daily standby charges, reviewing risk management strategies).
- Service route rationalization
- Staff/Operator Training Requirements (performance stds, practices etc.) (i.e. operator/snow plow training, salt reduction strategies).

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Accordingly arrangements have been made to terminate the existing contract effective approximately April 15, 2006, weather permitting, thus enabling the tendering of a new “multi year” contract based on revised specifications reflecting the above referenced provisions to take effect in November of 2006. In order to affect this existing 5 year contract (comprised of a 3 year fixed term with two optional one year extensions) the existing contract will be terminated after the first option year as provided in the contract. The new contract specifications will also address service for the North /South Expressway (Autumn 2007).

**3. “Snow Removal Operations”**

Snow removal operations involve loading, transportation, storage and melting of potentially large quantities of snow which implies significant costs and certain environmental impacts. Operational decisions to activate snow removal activities includes the evidence of the following conditions:

- Reported difficulty in maintaining snow clearing operations due to excessive snow accumulation along streets
- Obstruction of sight lines at intersections and crosswalks which negatively impact pedestrian and vehicular traffic safety
- Obstruction of gutters and roadside by snow accumulation which negatively impacts run off and drainage patterns.

An alternative to current snow storage and melting practices is under consideration by staff and if proven viable would provide significantly environmental benefits and lower operating costs. Further information respecting this initiative will be reported to council in the near future. A confirmed time frame involving this initiative is still uncertain given the complexity of the proposed funding strategies.

**4. “Snow Fence Installation Policy”**

Snow fence installation can provide significant benefits and operational efficiencies by managing snow accumulations off roads and sidewalks in areas prone to chronic-drifting. Associated program savings in terms of operating costs are largely attributed to proposed reduced plowing frequency in problematic locations, along with environmental, driven by reduced fuel emissions. In the absence of a snow fencing policy, installations have occurred on an ad hoc basis responding to chronically problematic or environmentally sensitive areas. To achieve maximum program benefits from snow fencing, an installation policy will be developed during the 2005/06 winter season by staff for Council’s consideration in advance of the 2006/07 program. The report will include proposed program benefits, both economical and environmental. In the interim, historic snow fencing activity will be maintained, and monitored to confirm the supporting business case for the policy recommendations.

**5. Salt Management Plan**

The Salt Management Plan was approved in 2002 and included several “best practice” initiatives in material handling to minimize the amount of salt entering the environment. The Salt Management Plan also supports continuous improvement in the development of practices and procedures to improve the effectiveness of the winter control

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maintenance activities while striving to reduce the environmental effects of road salt use.

*Initiatives*

- Implementation of auto-matic computerized control systems or applicators to improve and control the application and tracking of de-icing materials to the roadway.
- Incorporate new technologies involving anti-icing and de-icing practices specific to liquid applications.
- Research and develop and implement use of new de-icing chemicals for improved program effectiveness, efficiency and environmental benefits.
- Implement strategies and procedures for proper material storage minimizing salt loss to the environment primarily caused from run off.

In 2005-06 the City's anti-icing program will be enhanced with a new source and type of liquid salt brine. Salt brine manufactured "in house" will be supplemented with a natural by-product of Sugar Beet processing which is marketed as Geo-melt 55. The Geo-melt 55 admixture reduces sodium chloride content of the brine solution, therein moderating environmental impacts while improving the performance of the de-icing agent through a lower melting temperature.

In comparison to the current or previous application method specific to the DLA (*direct liquid application*) program, not only will this new product perform more effectively, it will also be expanded into the de-icing program used in the "On Board Pre-Wetting Units". Given that the availability of the in-house product is maximized by manufacturing in-house. It will now allow for expansion to all yards replacing the purchased product currently in use (*calcium chloride*). Expanding the manufactured product into all areas will eventually reduce the overall winter control program cost and again reduce the adverse effect of sodium chloride from an environmental perspective. Program savings cannot be fully realized until a complete transition of product replacement is achieved.

**6. Bulk Materials Inventory Control**

As a result of new technologies involving anti-icing and de-icing practices, computerized material applications, AVL and written inventory control procedures, staff will continue to demonstrate improved practises and procedures involving material handling, storage and application specific to the Winter Control Program.

**Procedure for Year End Physical Inventory Count**

In 2005 staff under took a comprehensive audit and review of the handling and usage of bulk materials and inventory including winter control materials i.e. salt and salt/sand mixtures. To address inventory handling, tracking and recording counts a written procedure has been prepared and is under final review planned for implementation at the end of the third quarter in 2005. The written procedures will address operational and administrative processes and procedures applying checks and balances to confirm physical inventory counts, and the MMS inventory system used to track material usage.

## **7. Yard Rationalization/Consolidation**

Yard rationalization efforts to consolidate and relocate operations in east Flamborough will be implemented prior to the first of November. Staff have identified long range operational benefits and an opportunity to reduce the number of operating facilities by transferring all operations currently stationed out of the Millgrove Yard location (5<sup>th</sup> conc.) to the Brock rd Yard location (4<sup>th</sup> conc.) The property at the Millgrove site is no longer suitable for the needs of the road operations and maintenance section and therefore will be declared surplus in 2006. With respect to the overall "Yard Rationalization Study" further review will extend into 2006 to report in the 3<sup>rd</sup> quarter.

### **Harmonized Sidewalk Snow Clearing Program**

The recently approved Harmonized Sidewalk Snow Clearing Policy is currently under review and continues to raise the question of appropriate service levels. In January and Feb of 2005 requests for consideration to provide snow clearing services to priority 1 urban centre roadways in specific locations where limited or minimum snow storage is available (*1m > boulevards*) was submitted and acknowledged as problematic in some of the winter events. Current standards will continue to be delivered while the resolution for area rating this service remains an option to all wards.

### **Possible Compassionate Hardship Program**

A report to address and speak to the consideration for a Compassionate Hardship Fund for snow clearing of sidewalks is planned to come forward to the "Social and Public Health Services Committee" in the future.

### **ANALYSIS/RATIONALE:**

Alternatively, the program could be implemented without proposed improvements to the previous years plan; however, this would result in no further enhancements to the program's operation year to year.

### **ALTERNATIVES FOR CONSIDERATION:**

Maintain the current program delivery methods.

### **FINANCIAL/STAFFING/LEGAL IMPLICATIONS:**

The program initiatives identified in this report will be implemented into the WC with no impact to the current program operating budget.

### **POLICIES AFFECTING PROPOSAL:**

There are no policies affected by the recommendations contained within this report.

### **RELEVANT CONSULTATION:**

N/A

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**CITY STRATEGIC COMMITMENT:**

By evaluating the “**Triple Bottom Line**”, (community, environment, economic implications) we can make choices that create value across all three bottom lines, moving us closer to our vision for a sustainable community, and Provincial interests.

**Community Well-Being is enhanced.**  **Yes**  **No**

Public services and programs are delivered in an equitable manner, coordinated, efficient, effective and easily accessible to all citizens.

**Environmental Well-Being is enhanced.**  **Yes**  **No**

Human health and safety are protected.

Air quality and water quality and quantity are protected.

A sustainable transportation network provides many options for people and goods movement; vehicle-dependency is reduced.

Continuous improvement initiatives continue to support the City’s “Salt Management Plan”

**Economic Well-Being is enhanced.**  **Yes**  **No**

Hamilton's high-quality environmental amenities are maintained and enhanced.

Program efficiencies provide improved quality of service delivery to the citizens of Hamilton

**Does the option you are recommending create value across all three bottom lines?**

**Yes**  **No**

Continuous improvements to the current service delivery models will allow staff to work toward providing services in an efficient and economical manner, focusing on driver and pedestrian safety, reducing the environmental impacts of program services and raising public awareness. This will also provide staff with the necessary tools to have effective plans to identify, and respond to risk issues, customer satisfaction and program effectiveness.

**Do the options you are recommending make Hamilton a City of choice for high performance public servants?**  **Yes**  **No**

**WINTER CONTROL PLANNED PROGRAM IMPROVEMENT OPPORTUNITIES**

1. “Customer Service Quality” related to “in storm” event customer service response and program information availability.
2. “Contract Management” improvements enhancing activity cost efficiency and quality assurance accountability.
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