CITY OF HAMILTON

PUBLIC WORKS DEPARTMENT
Operations Division

TO: Chair and Members
Public Works Committee

WARD(S) AFFECTED: CITY WIDE

COMMITTEE DATE: December 2, 2013

SUBJECT/REPORT NO:
Winter Control Program Snow Plow Tracking System (Web) - (PW13096) - (City Wide)
(Outstanding Business List)

SUBMITTED BY:
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SIGNATURE:

RECOMMENDATION

(a) That staff continue to monitor the use of live web site reporting of winter storm event response activities (i.e. snow plow tracking) across Canadian jurisdictions and maintain a current business case for its future implementation;

(b) That staff pursue the provision of static Winter Control event response updates on the City of Hamilton Web site in collaboration with the Web Strategy Group;

(c) That that item relating to “Plow Tracking Program” be removed from the Public Works Outstanding Business List.

EXECUTIVE SUMMARY

At the Public Works Committee meeting of March 18, 2013 staff was directed to report back to the Public Works Committee “respecting the feasibility of creating a ‘snow plow tracking program’ to allow citizens to monitor the City’s public and private snow removal services (i.e. contracted) during a storm event”.

The Winter Control Program (WCP) provides services to the City’s roadway network achieving provincially legislated Regulation 239/02 requirements and program service levels through activities including snow plowing and the application of anti-icing and de-icing materials. The WCP employs a total of 516 pieces of equipment available for
activation in 73 materials application events and 10 plowing activation events per average winter season (localized or city wide).

WCP event response is supervised by front line management staff using activation plans, operator reports, direct observation & inspection, and stakeholder/customer feedback to confirm service delivery compliance. In addition, salter/sander plow equipment (city and area service contractor owned – 31% of the total complement) is equipped with AVL/GPS technology supporting field documentation on activation events. The AVL/GPS tracking system aids in the monitoring and supervision of winter control routes to help determine compliance with the approved service levels. GPS tracking records are also referred to as supporting information with respect to claims and litigation against the City of Hamilton.

A scan of 16 Canadian jurisdictions (mostly municipalities) reveals two (2) as having implemented web site live reporting of WCP equipment activity; while several do provide static on line event response status updates. The implementation of live reporting for Hamilton’s WCP would require further resources as noted within the financial implications section of the report to overcome system wide coverage issues and enhanced vehicle data monitoring capabilities. In addition, current customer response staff resources would likely be insufficient to respond to anticipated levels of inquiries generated by the availability of the locational information and the interpretation of equipment movements and projected route completion times. For these reasons, continued monitoring of the evolution and use of live WCP within the industry is recommended, along with further assessment of the benefits and value of its use as a means of informing the public of response status to winter and other storm events.

Alternatives for Consideration - See Page 4

### FINANCIAL / STAFFING / LEGAL IMPLICATIONS

**Financial:** The current software supplier of AVL plow tracking has estimated the cost of administering an additional 357 vehicles to be approximately $150K annually. On-going charges for regular maintenance of the added vehicles would total approximately $22K annually. In addition, the supply and installation of GPS tracking devices in vendor service vehicles that are not currently covered by the City’s system is estimated to be $152K. Vendors providing contract plow services will also be required to maintain the systems in working order for the life of the contract which will likely add additional costs to future bid pricing.

**Staffing:** The implementation and subsequent operation of a live snow plow tracking system program will require further staff resources to responsibly support anticipated customer interaction.

**Legal:** Not applicable.
HISTORICAL BACKGROUND

The City of Hamilton currently utilizes a web-based, GPS (global positioning system) system for work monitoring purposes in City of Hamilton. The City’s winter operations fleet consists of 110 vehicles that are fitted with web-based reporting devices that indicate; the location of the vehicle, the application of materials, and the status of the plow (i.e., whether the plow active or inactive). There are an additional 49 trucks contracted to the City for large area winter control maintenance that are similarly fitted with web-based tracking systems and another 357 vehicles contracted to the City in the Hired Equipment (small area) contract that do not have any AVL/GPS tracking systems in place. This equates to a gap in AVL/GPS service reporting in approximately 70% of the available fleet required.

POLICY IMPLICATIONS/LEGISLATED REQUIREMENTS

N/A

RELEVANT CONSULTATION

The following City of Hamilton Sections was consulted on the feasibility of a web-based winter plow tracking system that is accessible to the public.

- Web Redevelopment Team
- Corporate Assets and Strategic Planning Division

Staff reviewed current City of Hamilton processes against processes from 16 other municipalities, including major Canadian cities with the highest annual snowfall (as per Statistics Canada). Appendix A attached to Report PW13096 illustrates what these cities provide residents for snow plow tracking and route completions.

ANALYSIS / RATIONALE FOR RECOMMENDATION

Staff have determined through a municipal scan of winter control practices in other municipalities that of the 16 Cities studied, only Calgary, Alberta and St. Johns, Newfoundland have full GPS coverage for their service fleet. Other Cities including Oakville, Vaughan and Edmonton provide online updates relating to snow removal services; however, this service requires extensive staffing and is recognized by staff as being ineffective at providing residents with the information they are seeking.

Generally, it appears that most Cities provide snow removal information online in a static form. Priority levels and parking bans are explained to provide a general overview of how the City responds to snow events. Similarly, the City of Hamilton provides this information to residents using a full-page spread of the city showing the priority levels on streets and explaining the priority levels on the website. Roads staff will work with the Web Redevelopment Team to ensure this information is presented on the website in a
way that meets all legislative requirements such as the Accessibility for Ontarians with Disabilities Act.

Discussions with other municipalities and anecdotal feedback from residents indicate that the location of the sand/salting snow plowing unit is not the information they are interested in. Residents are looking to find out when their own street will be cleared providing safe usage. Therefore there are two barriers to providing this service to residents:

1. The City of Hamilton does not have GPS units installed in the contracted fleet responsible for residential roads. Therefore, it is not currently feasible to provide this information to residents as it will require a large capital investment to outfit all vehicles with the required technology as explained in the Financial Implications section on page 2.

2. The available technology only provides location data of vehicles performing various snow removal duties. The technology does not have the capacity to estimate timeframes for when certain streets will be cleared. Therefore, even if this technology is installed in all contracted fleet vehicles, the information we would compile would not meet the needs of residents.

**ALTERNATIVES FOR CONSIDERATION**

As an alternative to a live tracking system, a static web site event response status update may be feasible and may provide useful information to residents confirming the type of activation underway and the status of its implementation. If proven beneficial to residents, the static event response reporting initiative may be expanded to include non-winter weather event response activities (i.e. major wind or rain storms) relative to impacts to city services.

**ALIGNMENT TO THE 2012 - 2015 STRATEGIC PLAN**

**Strategic Priority #1**  
A Prosperous & Healthy Community

*WE enhance our image, economy and well-being by demonstrating that Hamilton is a great place to live, work, play and learn.*

**Strategic Priority #2**  
Valued & Sustainable Services

*WE deliver high quality services that meet citizen needs and expectations, in a cost effective and responsible manner.*

**Strategic Objective**

2.1 Implement processes to improve services, leverage technology and validate cost effectiveness and efficiencies across the Corporation.
2.2 Improve the City’s approach to engaging and informing citizens and stakeholders.
2.3 Enhance customer service satisfaction.

**Strategic Priority #3**
Leadership & Governance

*WE work together to ensure we are a government that is respectful towards each other and that the community has confidence and trust in.*

3.4 Enhance opportunities for administrative and operational efficiencies.

**APPENDICES / SCHEDULES**

Appendix A  GPS Snow Plow Tracking Live Website Reporting Survey
## GPS Snow Plow Tracking Live Website Reporting Survey

<table>
<thead>
<tr>
<th>Municipality (or City)</th>
<th>Residential Use Tracking System</th>
<th>Information Reported</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrie</td>
<td>No Tracking System</td>
<td>N/A</td>
<td>Uses a concise webpage which discusses resident responsibilities during snow events and explains priority levels for snow removal.</td>
</tr>
<tr>
<td>Oakville</td>
<td>City’s GIS system</td>
<td>Route completion</td>
<td>Staff manually updates the online map and website. Operators have to call in route completions. Staff indicated that all roads are typically completed when they can dedicate staff time to updating the map.</td>
</tr>
<tr>
<td>Burlington</td>
<td>No tracking system</td>
<td>N/A</td>
<td>Uses online FAQ which answers questions about plowing priorities. Also has a Winter Control Review Advisory Committee composed of Councillors, union and non-union staff.</td>
</tr>
<tr>
<td>Greater Sudbury</td>
<td>No tracking system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vaughan</td>
<td>Where is my snow plow – GPS system</td>
<td>Location of vehicles</td>
<td>Displayed on a live map.</td>
</tr>
<tr>
<td>Windsor</td>
<td>No tracking system</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Toronto</td>
<td>No tracking system</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>London</td>
<td>No tracking system</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Ottawa</td>
<td>No tracking system</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Winnipeg</td>
<td>No tracking system</td>
<td>N/A</td>
<td>Has an online search database that allows residents to search for their street to find out the plowing priority. Also allows residents to sign up for email notifications advising of parking bans.</td>
</tr>
<tr>
<td>Calgary, Alberta</td>
<td>In-house GPS tracking system</td>
<td>Salting, sanding, plowing and road completions.</td>
<td>Displayed on a live map.</td>
</tr>
<tr>
<td>Halifax, Nova Scotia</td>
<td>No tracking system</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>St John’s, Newfoundland</td>
<td>AVL tracking system</td>
<td>Location of loaders, salters and graders.</td>
<td>Displayed on a map.</td>
</tr>
<tr>
<td>Charlottetown, PEI</td>
<td>No tracking system</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Fredericton, New Brunswick</td>
<td>No tracking system</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Edmonton, Alberta</td>
<td>Online map interface.</td>
<td>Route completions and blading schedules.</td>
<td>This information is based on their priority levels, not actual timelines based on GPS data. Completions are updated manually.</td>
</tr>
</tbody>
</table>

Note: This only states whether the municipality has an online tracking system that residents may use. Municipalities may have AVL systems that are used internally.