CITY OF HAMILTON
PUBLIC WORKS DEPARTMENT
Operations and Waste Management Division

TO: Chair and Members
    Public Works Committee

WARD(S) AFFECTED: CITY WIDE

COMMITTEE DATE: February 7, 2011

SUBJECT/REPORT NO:
Budget Report on Follow-up to Options for Increasing Diversion and Landfill Capacity - Additional Diversion Options to Reach 65% Waste Diversion (PW07151d) - (City Wide)

SUBMITTED BY:
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Public Works Department

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SIGNATURE:

RECOMMENDATION

(a) That the award of Tender C11-97-10 for street sweeping recycling to the lowest acceptable bidder for a five year contract, resulting in a net cost of approximately $320,000 annually, be considered in the 2011 budget deliberations;

(b) That the City’s leaf and yard waste program, Green Cart Program and Central Composting Facility be optimized by implementing the following changes at a net savings of ($23,000) per year:

(i) grass be removed as an acceptable material in the City’s waste collection program as of April 1, 2011 and promoted in the 2011-12 Leaf & Yard Waste Schedule with an estimated annual savings of ($127,000) per year;

(ii) an internal programming change be implemented to allow for redirecting the two (2) containers of leaf and yard set out with green carts to the City’s Leaf and Yard Waste composting site as required, at a cost not to exceed $104,000 per year;

(iii) these changes be approved prior to the completion of the 2011 budget process so that the 2011-12 Leaf & Yard Waste Schedule can be prepared and distributed prior to the calendar start date of April 4, 2011;

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(c) That recycling of drywall not be considered at this time and be referred to the Solid Waste Management Master Plan review.

**EXECUTIVE SUMMARY**

This is a follow-up report to PW07151c, which was presented to Public Works Committee on June 14, 2010. The purpose of this report is to address 2011 budget implications for recycling of street sweepings and drywall and for optimizing the capacity at the Central Composting Facility (CCF). In doing so, staff has attempted to base the analysis and recommendation on the following principles:

- keeping waste materials out of the landfill
- managing our own waste
- minimizing impacts to the Operations & Waste Management Division Budget
- minimizing impacts on residential waste collection programs

The issues that are addressed in this report are intended to contribute to the diversion of waste materials from landfill in ways that are efficient and cost effective. This results in a preferred approach that includes the recycling of street sweepings and the removal of grass clippings from all curbside waste collection programs, but not proceeding with the recycling of drywall at this time.

Beyond the programs being recommended in this report, future programs and further review of facility capacity will be considerations as part of the waste collection review and the on-going review of the Solid Waste Management Master Plan (SWMMP). In the SWMMP review process, consideration will also need to be given to the City’s waste diversion target, future use of the Glanbrook Landfill and the potential impacts of outside influences including Extended Producer Responsibility legislation and regulations, the closing of the US border to waste export and private sector capacity to handle commercial waste generated in Hamilton.

**Alternatives for Consideration - See Page 7**

A tender was issued for the recycling of street sweepings and the implementation of this program would have a net cost of approximately $320,000. The tender has not been awarded, pending budget approval, however this program is being recommended for approval relative to the City setting a good example in accordance with Recommendation #19 of the SWMMP and reducing environmental impact of landfilling this material. Implementation will result in 4% diversion from landfill as a result of recycling 10,000 tonnes per year of street sweepings.

Although it was determined that the recycling of drywall at the Kenora Community Recycling Centre (CRC) could be handled by the City’s contractor, the net cost of implementation for 3,700 tonnes or 1.5% diversion of material at $297,000 is considered to be cost prohibitive. As such, this program is not being recommended at this time. Future consideration can be given to the recycling of drywall as markets become more competitive.
The Central Composting Facility has reached capacity and is seasonally challenged by the amount of leaf and yard waste that is received from the City’s green cart program. The options for optimizing the capacity at the CCF range from ending contracts (with other municipalities) and the resulting loss of revenue, to changes to the green cart and leaf and yard waste programs. Consideration was given to minimizing the impact on residents. The removal of grass from curbside collection programs improves collection efficiency and frees capacity at the CCF, resulting in annual savings in processing costs. Grass is a relatively easy material to manage on residential properties. Grasscycling saves time and energy (raking and bagging) and money (yard waste bags, less fertilizer). Alternatives include composting in a backyard composter, mulching in gardens and including it in the free drop off of LYW at the Community Recycling Centres (CRCs). The savings are offset by the cost of redirecting the two (2) additional leaf and yard waste bags that are currently set out with green carts during peak times, most likely in the fall. These two changes together are expected to achieve the balance of minimizing impacts to residents, minimizing cost impacts in 2011 and improving operations and will have a net savings of ($23,000) per year.

It is imperative that the program change to remove grass from the curbside collection program be approved prior to the completion of the budget process as the content for the 2011-12 Leaf & Yard Waste Schedule (waste collection calendar) must be finalized by the end of February.

From a resident’s perspective, there are no changes in collection frequencies or schedule. Leaf and yard waste can be set out in unlimited quantities every two weeks from April to mid-July and mid-September to mid-December. Two bags of leaf and yard waste can continue to be set out with the green cart every week. Residents are being asked to refrain from putting grass clippings out for collection. If required, clippings can be taken at no charge to the CRCs. This change in practice is in keeping with other municipal programs, is more cost effective and overall has a positive impact on the environment.

The net budget implications of the recommendations are a cost of $297,000 per year. These costs would equate to a future cost avoidance currently valued at $800,000 per year in landfill space as a result of the street sweeping recycling, and the ability to retain $940,000 in revenues in 2011 from other municipalities for processing organic waste at the CCF.

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<thead>
<tr>
<th>FINANCIAL / STAFFING / LEGAL IMPLICATIONS</th>
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<td><strong>Financial:</strong> The financial impact for each of the options is specified below:</td>
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<td><strong>Total</strong></td>
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**Staffing:** The proposed program changes generally represent shifts in the way that materials are managed and changes to the collection of the two (2) containers of leaf and yard waste the cost of which is included in the financial analysis. There are no implications to current staffing levels to administer the recommendations proposed.

**Legal:** There are no legal implications to the proposed program changes. The tender for the street sweeping recycling followed the purchasing policy. Collection changes in the B zones can be implemented in the current contract with National Waste Services Inc.

**HISTORICAL BACKGROUND**

Following the 2001 approval of the Solid Waste Management Master Plan, a number of initiatives have been undertaken towards the achievement of 65% diversion of waste from landfill. The residential diversion rate in 2009 was 47% and the overall diversion rate was 41% (includes all waste materials managed by the City including commercial and schools). The increased diversion contributes to the extended capacity of the Glanbrook Landfill which is currently estimated to be 25 to 30 years.

In addition to the curbside programs for blue box and green cart, a number of other initiatives have been pursued to increase diversion. Report PW07151c was presented to the Public Works Committee on June 14, 2010 and was subsequently approved on June 23, 2010. The report recommended the following:

(a) That Report PW07151c respecting Status of Solid Waste Management Master Plan, Options for Increasing Diversion and Landfill Capacity – Follow-up Report on Additional Diversion Options to Reach 65% Waste Diversion, be received;

(b) That a competitive process for the recycling of street sweepings be undertaken as soon as possible, and that the results of the process be referred to the 2011 budget process for deliberation;

(c) That a competitive process for the recycling of drywall be undertaken as soon as possible, and that the results of the process be referred to the 2011 budget process for deliberation;

(d) That the implementation of the Commercial Green Cart Program, at an estimated net operating cost of $450,000, be identified as a budget
pressure for 2012 and referred to the 2012 budget process for deliberation;

(e) That staff continue to work with internal and external agencies to collaborate on education and the possibility of incentives for the use of cloth diapers.

(f) That staff be directed to initiate discussions with the publicly-funded school boards on the possible implementation of the Green Cart program.”

The purpose of this report is to address the recommendations in the context of the 2011 budget process. In doing so staff explored options and combinations of options that could:

- continue to move forward on increasing waste diversion
- be communicated to residents relatively easily
- minimize divisional cost impacts

Increased waste diversion not only extends the life of the Glanbrook Landfill, but avoids the need to contemplate the siting process for another landfill site. The current replacement value for landfill space is in the order of $80 per tonne. Although this figure cannot be used for budgeting purposes, it is a good comparator in assessing the cost of diversion programs. Extending the life of the landfill also has the benefit of time to consider alternative processing technologies to further extend the landfill life. This will be explored in the Solid Waste Management Master Plan review that was initiated in 2010 and proposed to be completed by the end of 2011.

Currently, residents can set out leaf and yard waste in unlimited quantities every two weeks from April to mid-July and mid-September to mid-December. In addition, two bags of leaf and yard waste can be set out with the green cart every week.

**POLICY IMPLICATIONS**

The recommendations in this report are guided by the Corporate Strategic Plan, the Public Works Business Plan ‘Innovate Now!’; the Solid Waste Management Master Plan (SWMMP) and the Purchasing Policy.

The recommendations of this report will further the Desired End Results within a number of the Focus Areas such as:

**Innovate Now! - Public Works Business Plan**

As the Public Works Department strives to be recognized as the centre of environmental and innovative excellence in Canada, the vision drivers and actions of the Public Works Strategic Plan that are affected by the recommendations in this report include:
• Communities: Services our communities connect with and trust
Waste management program improvements contribute to the Public Works Department’s leadership on “greening” and stewardship providing residents with appropriate services and contributing to a reduction in greenhouse gasses.

• Finances: Providing financial management for the long haul
The implementation of programs that consider long term/future needs represent sound and efficient financial management.

• Processes: Business processes are defined and aligned
Waste diversion programs that improve cost effectiveness align with the Business Plan.

Solid Waste Management Master Plan (SWMMP)
Recommendation #2 is the guiding principle that “The Glanbrook landfill is a valuable resource, and the City of Hamilton must optimize the use of its disposal capacity to ensure that there is a disposal site for Hamilton’s residual materials that cannot be otherwise diverted.” Continuing to implement the recommendations proposed in this report supports this principle.

Recommendation #6, “The City of Hamilton should adopt a three-stream waste collection system (recyclables, organics and residual garbage), commencing with a pilot test in 2002 to identify and resolve operational and implementation considerations” would be supported by the potential to implement the Green Cart program at eligible commercial properties throughout the City.

Purchasing Policy
The tender for the street sweeping recycling has followed the appropriate practice under this corporate policy.

RELEVANT CONSULTATION
This report has been prepared in consultation with the Finance and Administration and Purchasing Sections of the Corporate Services Department. All participating departments and divisions are in support of the approach to and results of this analysis.

Staff also had discussions with National Waste Services Inc., the City’s waste collection contractor in the B zones regarding the proposed collection changes and are supportive of the recommended changes.
Staff has been contacted by Halton Region who is expressing an interest in continuing to send organic waste to the CCF on a longer term basis.

ANALYSIS / RATIONALE FOR RECOMMENDATION
The following table is a summary of the options being recommended by staff. A decision on proceeding with the option to remove grass from the acceptable items in
curbside waste collection programs is required in advance of the completion of the budget process to facilitate the preparation of the Leaf & Yard Waste Schedule related to the removal of grass as an acceptable material in waste collection programs.

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<tr>
<td>Street Sweeping Program</td>
<td>10,000</td>
<td>4.03%</td>
<td>$320,000</td>
<td>$800,000</td>
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<tr>
<td>Changes to LYW program, Green Cart Program and CCF Operation</td>
<td>4,400</td>
<td>0%</td>
<td>($23,000)</td>
<td>$0</td>
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<tr>
<td>Total</td>
<td>14,400</td>
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The program changes for street sweepings and collection of the two (2) containers of leaf and yard waste in the green cart program would result in the need for a budget enhancement for the Operations and Waste Management Division and therefore is recommended for consideration in the 2011 budget deliberations.

It is also noted that the implementation of the green cart program may proceed in a small number of schools with the Hamilton Wentworth Catholic District School Board early in 2011. There is no collection impact as the 30 schools will be serviced with the standard green carts and are on existing collection routes in A zones that are served by public forces. Similar to the recycling program, it is proposed that the school board would pay for the processing cost of the green cart material. As such there is no budget impact from proceeding with these schools.

Expansion of the green cart program for the eligible commercial properties will continue to be a budget pressure of approximately $250,000 for 2012 and a capacity challenge at the CCF. Staff will consider ways to minimize the impact during the 2012 budget process while optimizing the use of the CCF.

The following provides options for consideration for street sweepings, drywall, and optimizing capacity at the Central Composting Facility to facilitate the organics program for schools and eligible commercial properties in 2011 and 2012.

Details of the financial analysis are protected by the privacy clauses in the contracts with the service providers and could only be provided to Committee in camera.

1. **Street Sweeping Recycling Program**

Pursuant to the recommendation in Report PW07151c, Contract C11-97-10, to employ the services of a contractor to pick up and dispose of non-hazardous street sweepings, was issued in October 2010. The scope of the work included labour, management supervision, tools, material, equipment, and transportation required to handle, manifest, transport, dispose and document the recycling/disposal of approximately 10,000 tonnes of non-hazardous street sweeping debris.
As the tender has yet to be awarded, the successful bidder will remain undisclosed at this time.

The net cost of the program is $320,000 which includes the contracted costs and the savings in handling costs at the landfill. This represents a net cost of $32 per tonne.

The program is expected to divert 10,000 tonnes of material from landfill, which is about 4% diversion. The tonnage represents about $800,000 in replacement value for landfill.

The recycling of street sweepings is a cost effective approach to managing a material that has typically gone to landfill but through a treatment process can be diverted. This program would also contribute to SWMMP recommendation 19 related to the City’s corporate waste diversion initiatives. It is recommended that this program be implemented.

2. **Drywall Diversion**

Public Works Report PW07151c recommended that a competitive process for the recycling of drywall be undertaken as soon as possible, and that the results of the process be referred to the 2011 budget process for deliberation.

Further investigation revealed that there is only one known company that accepts gypsum (drywall) for processing and remanufacturing. New West Gypsum’s processing plant is located in Oakville. A survey of Ontario municipalities confirmed that New West Gypsum is the only known gypsum processor/recycler in the area. Staff spoke to a local collector of drywall, who also indicated that they send their material to New West Gypsum for processing. Staff consulted with the Corporate Services Department, Purchasing Section which suggested that a competitive process was not necessary given that New West Gypsum is the sole known source of gypsum processing.

Consequently, staff initiated discussion with the City’s contractor of the transfer stations and Community Recycling Centres. Contract C11-40-08 facilitates the expansion of the acceptable items list for collection and transportation to recycling processors subject to appropriate cost adjustments. This provides the City with the flexibility to add and delete items for collection at our transfer stations/CRCs. Drywall could be accepted at the Kenora Transfer Station only as there are space limitations at Dundas and Mountain Transfer Stations.

The net cost of the program is $297,000 which includes the contracted costs and the savings in handling costs at the landfill. This represents a net cost of $80 per tonne.

The program is expected to divert 3,700 tonnes of material from landfill, which is about 1.5% diversion. The tonnage would represent about $296,000 in replacement value for landfill.

The recycling of drywall is not considered to be cost effective at this time and is not being recommended.
3. **Optimizing Capacity at the Central Composting Facility (CCF)**

The ability to service eligible commercial properties and schools is contingent on available capacity at the CCF. The current contracts with other municipalities for the merchant capacity cannot be concluded before the end of 2012. Staff is recommending changes at the CCF in any case to be more cost effective and to achieve operational benefits.

On November 3, 2008, Report PW08126 was presented to the Public Works Committee to discuss operational problems that were being caused by the leaf and yard waste component, and particularly the grass component in the Green Cart program. Both collection and processing difficulties had been identified. Staff’s recommendation to discontinue the two (2) additional leaf and yard containers in the Green Cart program was not viewed favourably and the report was referred back to staff for further investigation of additional options that take into consideration the comments raised by the members of the Public Works Committee at the November 3, 2008 meeting.

As a result, Report PW08126a was presented to the Public Works Committee on January 19, 2009 to provide further information related to retention of the two (2) containers of leaf and yard waste in the Green Cart program, the promotion of “grasscycling” to ease the collection issues and some improvements to the CCF to try and overcome the operating concerns. The following recommendations were approved by the Committee:

Recommendations:

“(a) That the City continue the weekly collection of the two additional containers of Leaf and Yard Waste with the green cart;

(b) That the City continue to provide separate bi-weekly collection of unlimited Leaf and Yard Waste during peak periods in the spring and fall;

(c) That the practice of “Grasscycling” and leaving grass clippings on the lawn be actively promoted as a way to save time and reduce impacts on the environment including reducing waste, saving water and energy and reducing greenhouse gas emissions;

(d) That the City’s waste management communications for 2009 include the promotion of the practice of “Grasscycling”;

(e) That staff be authorized to negotiate with the Central Composting Facility operator, Maple Reinders Constructors Ltd., to make capital improvements at the facility to better process Leaf and Yard Waste and that Maple Reinders Constructors Ltd., be authorized to execute those improvements at a cost not to exceed $700,000 to be funded from Capital account #5120294115;

(f) That the City continue to process Source Separated Organics from the County of Simcoe resulting in a projected revenue of $290,000 for 2009 to offset operating and capital expenditures for a net reduction of $5,000 to the 2009 Waste Management Division Operating Budget.”
Report 09-002 of the Public Works Committee was approved by Council on January 28, 2009.

Since that time, the improvements have been made to the CCF, in the form of a pre-processing grinder and return conveyor. However grass has continued to be problematic in both the collection and processing activities. It continues to stick to the Green Carts and occasionally provides excess nitrogen content at the CCF.

In addition, the capacity at the CCF is being exceeded which has resulted in processing backlogs during peak times in spring and fall.

To attempt to alleviate the collection and capacity issues in the interim staff has investigated three (3) options for consideration and the results are below. In the longer term, staff will review CCF capacity, consider long term use of the capacity within the SWMMP review, and discuss future processing requirements with municipal clients.

(a) **Remove Grass as an Acceptable Material in Curbside Waste Collection Programs**

The inclusion of grass in the green cart program has been problematic for the collection operators since the program began in 2006. Grass is very sticky and requires that the carts be banged several times to empty all material. This repetitive action impacts on the integrity of the green carts resulting in broken carts, which the City replaces if considered to be related to collection. It is also time consuming for the collection operators.

Grass is a relatively easy material to manage on residential properties. Many municipalities have removed grass from leaf and yard waste and green cart programs in favour of promoting grasscycling where residents mow and leave the clippings on the yard. Both Halton and London have eliminated grass in waste collection programs, while Burlington and Windsor do not accept grass from June to September. Peel Region and Waterloo promote grasscycling however allow grass in the LYW program but not in the green carts.

Grass is about 80% water so it breaks down quickly on lawns. Grass boosts soil fertility by producing nitrogen, potassium and phosphorus in the decomposition process. It helps soil to retain moisture so less watering is required. Grasscycling saves time and energy (raking and bagging) and money (yard waste bags, less fertilizer). Alternatives include composting in a backyard composter, mulching in gardens and including it in the free drop off of LYW at the Community Recycling Centres (CRCs).

There are additional benefits of removing grass from the green cart program. These are operational in nature as it is more cost effective to leave the capacity for food waste processing.

It is estimated that the removal of grass would reduce the amount of waste collected by about 6,600 tonnes of material, however it is estimated that about one third of that will remain in the leaf and yard waste dropped off at the CRCs. As such, approximately 4,400 tonnes would be removed from the waste stream. This would not facilitate the
inclusion of all schools and eligible commercial properties in the green cart program, but would improve processing efficiencies in peak seasonal periods.

The cost impacts include the savings associated with not processing the material and one time costs associated with additional community outreach and education of the program change.

The net savings would be about ($127,000).

(b) Waste Collection Changes to Optimize Collection and Processing Efficiencies

The following alternative would not be a program change for residents, just an operational change.

The issues related to the two (2) additional containers of leaf and yard waste that are permitted to be set out for collection with the green cart concern both collection and processing. The collection issue is that the organic side of the truck fills up faster than the garbage side, requiring two trips to the CCF and one trip to a transfer station. This is time consuming and inefficient. The processing issue is that larger pieces of woody material do not break down in the CCF’s 21 day composting process necessitating a second trip through the process, which is not efficient use of the CCF or its capacity.

A waste collection change could be made that would include the redirection of the two (2) containers of LYW from the green cart program into the leaf and yard waste program by collecting the material separately from the green cart in the weeks where the CCF is at or over capacity, likely in the fall. The material would be redirected to the windrow composting site at the Glanbrook landfill. An additional benefit is that the processing cost is significantly lower than the CCF. Provision has been made to redirect up to four (4) weeks per year.

National Waste Services Inc. (NWSI) has advised that they would be able to provide this service in the B zones at their compensation rate for leaf and yard waste. The collection in the A zones would be done through the shifting of resources with existing spare vehicles.

It is expected that approximately 1,800 tonnes would be redirected.

It is estimated that the net cost would be $104,000. There would not be an impact on diversion as the material would remain in the system, just collected and processed differently.

(c) Combination of (a) and (b)

Combining options (a) and (b) would result in a net savings of ($23,000). The impact on waste diversion would be the removal of a good portion of the grass content from the waste management system to improve collection and processing efficiencies.

There would be no impact on the $942,000 in revenues received at the CCF.
(d) **Terminate Contracts at CCF**

The contracts with other municipalities do not end until 2012 and require advance notice of termination. The termination of the contracts would result in lost revenues ranging from $312,000 to $630,000, a total of $942,000. This would result in corresponding budget pressures and is not being recommended at this time.

(e) **Changes to Collection Schedules**

Several alternatives involving changes to collection schedules related to LYW were explored and were considered to be more difficult to communicate to residents, resulting in overall dissatisfaction. In some instances there would also be cost implications. Staff recommends that collection changes be considered as part of the Waste Collection Review. New collection contracts being issued later in 2011 for implementation in 2013 will review options.

Through the SWMMP review taking place this year, consideration can be given to the long term capacity of the CCF.

Staff recommends items 1 and 3(c) because it has the potential to maximize the avoided landfill replacement costs by diverting almost 10,000 tonnes from landfill. Furthermore, it could create the capacity necessary to expand the green cart program to eligible commercial properties by optimizing the processing of LYW during peak season.

4. **Recommended Waste Management Changes Relative to 2011 Budget**

The following table is a summary of the options being recommended by staff.

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Further discussion on the basis for this recommendation is included in the Analysis/Rationale section of this report.

### CORPORATE STRATEGIC PLAN


**Skilled, Innovative & Respectful Organization**

* The recommendations reflect staff’s desire for more innovation, greater teamwork, and a better client focus.
Financial Sustainability

- This report contributes to the delivery of municipal services and management of capital assets/liabilities in a sustainable, innovative and cost effective manner.

Environmental Stewardship

- There is value to diverting waste from landfills so that the City’s natural resources are protected and enhanced and impacts on the environment are reduced.

APPENDICES / SCHEDULES

None