TO: Chair and Members
Public Works Committee

WARD(S) AFFECTED: CITY WIDE

COMMITTEE DATE: November 21, 2011

SUBJECT/REPORT NO:
Waste Collection and Recycling Processing Procurement Processes for 2013 - 2020 - Waste Collection System Refinements (PW11030c) - (City Wide)
(Outingstanding Business List Item)

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RECOMMENDATION


(b) That item (b) respecting the Waste Collection and Recycling Processing Procurement Processes for 2013-2020 (PW11030(a)) (City Wide) be removed from the Outstanding Business List.

EXECUTIVE SUMMARY

On July 7, Council approved Item 3 of General Issues Committee Report 11-024 approved the following recommendation (b):

“That staff be directed to review and report back on the following further refinements to curbside waste collection practices:

(1) Alternatives for recycling collection to reduce escaped waste;
(2) Options for considering the implementation of a tag system as a potential contribution to reducing illegal dumping;
(3) Options for container limits for bi-weekly garbage collection;
(4) Review options for smaller green carts.”

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The recommendation was approved by Council on July 7 and the following recommendation was also included relative to the status quo waste collection system:

“(a) (iii) (5) That staff be directed to investigate the feasibility of adding one bag to the current one bag limit.”

This report provides a detailed review of these collection system refinements. A number of these issues were included in the Request for Proposals (RFP) C11-30-11 for the waste collection system as additional work that could be selected based on the pricing received for that work. For example, in addition to the capital cost of a lid for the blue box, any additional costs associated with the collection of that blue box would be known. The report on the award of waste collection contracts will be presented to the Public Works Committee in January of 2012. Therefore it is recommended that the information in this report be received for consideration in the upcoming report on waste collection and recycling processing services for 2013 to 2020.

Alternatives for Consideration - See Page 5

**FINANCIAL / STAFFING / LEGAL IMPLICATIONS**

**Financial:** Further information regarding the real financial implications will be identified in costing analysis associated with the Waste Collection System RFP.

**Staffing:** Potential impacts on staffing will depend on which other consideration options are recommended through the costing analysis associated with the Waste Collection System RFP.

**Legal:** There are no legal implications associated with this report.

**HISTORICAL BACKGROUND**

The Operations and Waste Management Division initiated the waste collection system review in 2010 to consider service delivery requirements scheduled to start April 2013. Existing contracts will expire at the end of March 2013. The collection system review includes an assessment of various options including service delivery method, labour and equipment resource requirements, and collection day alternatives.

Information Report PW11030 was presented to the Public Works Committee on April 18, 2011 to outline waste collection service level options and preferred options to move forward to a Request for Proposals and internal costing process. Report PW11030 also referred to the contract for processing recyclable materials at the City’s Materials Recycling Facility (MRF) ending in 2013.

There were concerns with the options presented and following discussions at both Committee and Council on April 27, 2011, a decision could not be reached. Public Works Committee requested that additional information on the waste collection system options be presented through a General Issues Committee workshop.
Concurrently, Public Works Committee received report PW04113a on April 18th, 2011 regarding Activity Based Costing for the public/private sector service delivery model which would see the continuation of the 50/50 public/private model for the collection of garbage, organics, leaf and yard waste and bulk waste, and to also request public sector costing on the collection of recyclable materials in the A zones. This report was approved by Council on April 27, 2011.

The General Issues Committee workshop took place on July 6th, 2011. As a result of discussion at the workshop, Committee provided direction on collection options, collection system refinements and the operation of the MRF. The recommendations were approved by Council on July 7, 2011.

This report is in response to the direction and includes information on the refinements for consideration in the upcoming award of service contracts for 2013 to 2020. The report on the award of services will be presented to the Public Works Committee in January 2012. Staff was also requested to enter into negotiations with Canada Fibres Limited for the operation of the City’s MRF. The results of these negotiations are presented in Report PW11030b.

**POLICY IMPLICATIONS**

The recommendations in this report are guided by the Public Works Business Plan ‘Innovate Now!’, the Solid Waste Management Master Plan (SWMMP), and Solid Waste Management By-law No. 09-067.

**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 affecting the recommendations in this report are:

- **Communities: Services our communities connect with and trust**  
  Waste management services and improvements recommended in this report 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 have no net negative impact on the budget represents sound and efficient financial management.

- **Processes: Business processes are defined and aligned**  
  Waste diversion programs that are cost neutral or cost savings align with the Business Plan.

**Solid Waste Management Master Plan (SWMMP)**

The implementation of the recommendations in this report provides opportunities to achieve cost effectiveness and efficiencies in the City’s waste diversion programs. Recommendation #15: “The City of Hamilton should enter any Public-Private
partnerships with caution. If pursued, the City should ensure it retains sufficient control and financial protection, to allow the City to continue to deliver the service should the private partner be unable or unwilling to fulfill its obligations”. The contractual arrangements with the private sector will provide protection to the City against risk associated with non-performance by the contractors.

Solid Waste Management By-law No. 09-067
The waste management system is regulated by the provisions of Solid Waste Management By-law No. 09-067. Once a collection system is determined, amendments to the by-law would be undertaken as required.

RELEVANT CONSULTATION
The discussions and comments at the Public Works Committee, General Issues Committee and Council have been valuable in formulating the options contained in this report.

Several Consultations were undertaken with the Solid Waste Management Master Plan (SWMMP) Steering Committee and the Waste Reduction Task Force throughout the process.

ANALYSIS / RATIONALE FOR RECOMMENDATION
This report provides a general discussion of the potential other considerations options for curbside waste collection related to recycling container options, garbage pay per use programs, modified garbage bag limits, and smaller green carts options.

This information will be carried forward to develop waste collection system options, in conjunction with costs from the RFP, internal costing and material recycling facility processes. These options will be evaluated from a financial, economic and social perspective to identify preferred options. Based on the outcome of the financial analysis of the waste collection and processing procurement processes, preferred options for each of the alternatives presented in this report will be identified. Final recommendations regarding the other considerations options presented in this report will be presented to Council in January 2012 as part of the collection system options.

ALTERNATIVES FOR CONSIDERATION
A number of system refinements will be considered for the 2013 - 2020 waste collection system. Some information is provided on each of those system refinements to assist with the identification of preferred system options for recycling container options, container limits, tag system options and smaller green carts.

1. Alternatives for Recycling Collection Container Options
Three alternative container options were considered in this review including plastic bags, larger blue boxes and plastic lids. These alternatives for recycling collection
containers offer a number of advantages and disadvantages. The actual cost of each of these alternative container options for recyclables will be known once the financial analysis is completed for the waste collection and possessing procurement processes.

In Ontario, municipalities use a variety of recycling collection containers with varying success. Standard blue boxes still appear to be the most prevalent type of container used in Ontario.

1.1 Plastic Bags

Blue translucent or clear plastic bags are used to a limited extent in Hamilton for curbside recycling collection service. Although blue translucent or clear plastic bags are an acceptable container in the City’s recycling program, they are not promoted or encouraged. This is consistent with the City’s position of no plastic bags for leaf and yard waste or organic waste. In an environment where the reduction of plastic bag use is the goal, it is preferable that we continue to try to discourage the use of plastic bags rather than promote it.

One of the major drawbacks to expanding the use of bags as recycling collection containers is that it would require the City to retrofit the MRF with a bag-breaker which would require a capital investment. There may also be additional operating costs which are being explored. Other advantages and disadvantages of a full bag-based recycling collection are illustrated below:

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>City would no longer be responsible for capital costs associated with replacing blue boxes.</td>
<td>Would require purchase of bag-breaker for MRF (capital cost). Would also increase operating costs at the MRF (additional labour).</td>
</tr>
<tr>
<td>Would reduce potential for litter in comparison to a blue box based system.</td>
<td>Residents would be required to purchase bags (additional costs).</td>
</tr>
<tr>
<td>Would protect recyclable material from the elements. Less snow and water would be present in the materials sent to the MRF and to market.</td>
<td>Potential increased promotion and education costs with a switch from blue boxes to bags.</td>
</tr>
<tr>
<td>Ergonomically preferable for both residents and collection crews.</td>
<td>Cost to resident for a full bag system would be approx. $21/yr or could continue to use/purchase reusable blue boxes.</td>
</tr>
<tr>
<td>Less storage issues as bags are less bulky than boxes or carts. Bags provide a flexible storage option for all types of residential accommodations.</td>
<td>May lead to increased contamination rates. It is more difficult for collection crews to inspect recyclables in bags as compared with blue boxes.</td>
</tr>
</tbody>
</table>
In 2011, the cost of clear bags would cost the average household approximately $20.80/year. That is assuming they use two 67 litre (17.7 gallon) bags per week (one for fibres, one for containers), using an average cost of translucent blue and clear bags from a variety of stores. This is also assuming the bags weigh no more than 23 kilograms (or 50 pounds).

1.2 Larger Blue Boxes

The current size of a City issued Blue Box is 60 litres (16 gallons). Larger open top Blue Boxes are available in 68 and 83 Litre (18 and 22 gallon) sizes. Current recycling vehicles are predominantly side load vehicles that require the collector to reach to the far side to dump one of the waste streams, usually the papers.

In 2008, a consultation was undertaken with an ergonomic expert to determine the impact of this movement on the collector. From an ergonomics perspective, the City's current allowable weight limit for a Blue Box is 13kg and this should not be exceeded when using the one (1) person side loader vehicle. If Blue Box sizes are increased to a larger Blue Box, the weight of the Blue Boxes could far exceed the recommended standards in the ergonomics report. The risk of injury to the collection operators would increase and many operators would not be able to safely lift the larger Blue Boxes.

The existing recycling co-collection vehicles are side loaders and are split into two (2) compartments with the 40% side being on the far side (left hand side) of the vehicle, and the 60% side being the near side. At present, container materials require more volume therefore they are placed in the larger compartment of the vehicle, closer to the curb. The compartments have been designed based on the volume of materials captured in Hamilton’s recycling program in order to create a balanced load by volume and weight. Once designed and constructed, the vehicle compartments cannot be modified.

It was determined that the larger Blue Box (18 and 22 gallon) may be suitable for container materials which are typically dumped into the near side and tend to be lighter than papers particularly since the deposit return program on alcoholic beverage containers has been implemented. However, this same container full of paper is too heavy and requires a different movement because of its height and distance, increasing the potential for injury. The Blue Box must be raised chest high to tip it and empty the contents to the far side. Collectors would need to be over six (6) feet tall to achieve this movement repeatedly and in a safe manner.

Initiated in 2010, Durham Region’s Big Blue program introduced bigger blue boxes (83 Litres/22 gallon) for containers only to approximately 184,000 households. Durham
Region’s recycling program is two-stream. The intention is that larger blue boxes will enable residents to place more container items in the blue box. Initial reports indicate that the implementation of the Big Blue has been positive although measuring the success of the program will not be possible until a more through review is completed.

The Waste Collection RFP process provided for the use of vehicles that would accommodate larger blue boxes without ergonomics issues. The approximate cost of the 60 litre blue box is $5.00. The cost increases by 15% for the 68 litre blue box, and 20% for the 83 litre blue box.

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential to reduce litter in comparison to</td>
<td>Increase cost to replace current blue boxes by</td>
</tr>
<tr>
<td>current 16 gallon blue box based system.</td>
<td>approximately 15% to 20%</td>
</tr>
<tr>
<td>Additional materials can be placed in larger</td>
<td>Ergonomic issues may arise for waste collection</td>
</tr>
<tr>
<td>blue box</td>
<td>staff</td>
</tr>
</tbody>
</table>

1.3 Plastic Lids

There are emerging options available to cover blue box contents however they are not widespread and are generally not available at retail outlets. This blue box plastic lid option was included in the waste collection services RFP. Plastic lids that fit blue boxes currently used in the City’s recycling program are also available. This type of lid is a solid surface which would contain litter, keep moisture out of the blue boxes and potentially deter scavenging. This lid is not difficult to remove but it would still add time to collection for the collector to remove the lid and place it on the ground while emptying the box. Then the collector would either have to put the lid back on or in the box to avoid lids being scattered. The Blue Box lid is not currently available at retail outlets. The cost of the lid is approximately $2.00 each.

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential to reduce litter in comparison to</td>
<td>Capital cost of blue box lid is approximately $2.00.</td>
</tr>
<tr>
<td>current blue box based system.</td>
<td>Cost to provide every residential household with 2</td>
</tr>
<tr>
<td></td>
<td>blue box lids would be about $640,000.</td>
</tr>
<tr>
<td>Keep moisture out of Blue Boxes</td>
<td>Collection time will be increased so that</td>
</tr>
<tr>
<td></td>
<td>collectors can remove lids and place back in box</td>
</tr>
<tr>
<td></td>
<td>System to sell or distribute lids would need to be</td>
</tr>
<tr>
<td></td>
<td>developed either by City or through discussions</td>
</tr>
<tr>
<td></td>
<td>with retailers</td>
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</tbody>
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2. Container Limits for Curbside Garbage Collection

The current waste management system is based on 1 garbage bag collected weekly curbside for residential properties. Three extra bags can be set out three times a year. Special consideration is also provided for special circumstances which allow three
containers per week. In 2010, the concern with the current system is the flexibility for residents to set out extra waste when needed.

Possible scenarios for an increased bag limit for weekly collection include two bags per week or introducing a bag-tag system for additional bags. Bi-weekly collection container limits options include:

- 2 container plus tag system
- 3 or more containers

The waste collection services RFP asked for the best pricing to vet costs of the proposed system options including changes to the current container limit.

While increased bag limits will add flexibility for household’s curbside garbage disposal options, further analysis will be needed to understand the extent of the negative impact on diversion of waste rates from landfill.

### 2.1 Container Limits

In 2008, Hamilton residents began transitioning to the one (1) container limit which was established on the heels of the implementation of the green cart program two years earlier. By 2009, residents could set out one bag of garbage plus an additional clear bag of garbage if needed. The transition to a one (1) container limit was complete in the spring of 2010.

Reverting to a two (2) container limit for weekly garbage collection may have a negative impact on diversion.

If a bi-weekly collection of garbage is instituted as the preferred collection system then three (3) or more container limit could be considered. Research on other programs with bi-weekly garbage collection indicates that higher limits for garbage collection still result in higher diversion rates. Staff recommends that a limit of three (3) or more containers be implemented with a bi-weekly waste collection. The limit that is set should be determined in conjunction with other potential adjustments including the implementation of a tag based system or changes to the special consideration policy.

### 2.2 Tag System Options

Staff has investigated and considered options that could effectively allow households some flexibility throughout the year for additional waste container/bag through a tag system. There are several options and the concept is that extra waste can be set out for collection beyond the container limit if it is appropriately tagged. The number of tags and price per tag selected will depend on diversion objectives.

Further to the review the following scenarios allow for an enhanced curbside collection service throughout the City of Hamilton and will continue to accommodate households requiring special collections. The options presented are based on a one container weekly collection system. A tag system can also be implemented with a bi-weekly waste collection system.
2.2.1 Scenario 1 - Limited Free Tags

In addition to the curbside collection of one container/bag per week each household will receive twelve (12) free bag tags that they can use at their discretion throughout the year. The free bag tags will be mailed out with the Leaf and Yard Waste Schedule provided to each household annually. Potential program costs are estimated to be $210,000 annually.

Households that require Special Considerations will tag two of the three containers/bags that are placed curbside each week. Again these tags (104) will be free and accompany the approval letter subsequent to their application.

<table>
<thead>
<tr>
<th>Scenario 1 - Advantages</th>
<th>Scenario 1 - Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>• One container/bag limit is still in effect</td>
<td>• The City of Hamilton is absorbing the total cost to run the program (administrative, distribution, promotion, bag tags)</td>
</tr>
<tr>
<td>• No amnesty weeks required</td>
<td>• Decrease landfill life</td>
</tr>
<tr>
<td>• There is no extra expense to residents</td>
<td>• Education and training of the waste operator, and</td>
</tr>
<tr>
<td>• Allows each household the opportunity to put out more garbage when they require; for family gatherings or special events</td>
<td>• Education and training of administrative staff</td>
</tr>
<tr>
<td>• The waste tags will be mailed/sent to the household so they are not inconvenience</td>
<td>• Potential for counterfeit tags and transfer or sale of tags</td>
</tr>
<tr>
<td>• Potential reduction in illegal dumping</td>
<td>• Program costs are estimated to be $210,000 annually</td>
</tr>
<tr>
<td>• Special considerations household will not be inconvenienced, in fact this should streamline the process</td>
<td>• Potential collection costs to be determined through Waste Collection Services procurement process</td>
</tr>
<tr>
<td>• Waste collection operators will have less decisions to make at the curbside</td>
<td></td>
</tr>
</tbody>
</table>

2.2.2 Scenario 2 - Partial Pay as You Throw Program

A partial Pay as You Throw (PAYT) program will allow households to purchase bag tags from the Municipal Service Centres as they require throughout the year. This program is anticipated to be cost neutral at a fee of $1 per tag.

Households that require Special Considerations will tag two of the three containers/bags that are placed curbside each week. Again these tags (104) will be free and accompany the approval letter subsequent to their application.
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2.3 Amnesty Days

The purpose of the Amnesty Days is to allow flexibility to set out additional waste at certain times of the year. As of 2008, three grace weeks following Victoria Day, Thanksgiving and New Year are available to Hamilton residents when up to three (3) containers of garbage can be set out curbside.

Should bag limits be increased for either weekly and bi-weekly collection scenarios or a tag system introduced, the Amnesty Days can be revisited and perhaps eliminated depending on the option selected. For example, with a free tag system would replace there would no longer be a need for the Amnesty Days as residents could set out an additional bag with a tag whenever it is convenient for them need for them.

Since options around recycling containers, garbage container limits and bag tag systems would be addressed in conjunction with the waste collection system to be in place for 2013, there is a question about how residents will manage in the interim particularly with the concerns about illegal dumping. Consideration could be given to an interim measure of increasing the number of Amnesty Days from three (3) to a monthly schedule, with collection at the end of the month to coincide with frequently scheduled move dates.

2.4 Special Considerations

The City of Hamilton recognizes that some households may need to set out more garbage containers than what is stipulated in the City of Hamilton’s Solid Waste
Management By-law 09-067. City Council has approved a provision to permit an increase in the number of waste containers for the following reasons:

- families with 3 or more children under the age of 5
- residents with medical conditions
- home day care providers

Application approval will granted to those properties that meet one of the three criteria listed above demonstrating need for additional waste container. Agricultural properties may also apply for special considerations upon proof of being a Registered Agricultural Operator.

Residential properties currently granted special considerations for families, medical conditions or home day care can place up to 3 bags per week at the curb. Data from a recent curbside audit revealed that 32% of special considerations households place no more than 1 bag at the curb/week while 66% of special considerations households place 2–3 bags/week. A number of households currently approved for special considerations may no longer require enrolment in this program while others will remain over the per household garbage limit.

Agricultural special considerations properties are allowed 4 bags per week for curbside collection. Data from a recent curbside audit show that 7% of agricultural properties place 0-1 bags at the curb/week while the remaining 93% place set out two or more bags/weekly.

No changes would be recommended to the special considerations policy with a weekly collection system and a one or two container limit. The policy could be eliminated if a bi-weekly 6 container limit is implemented.

4. Smaller Green Carts Options

The Green Cart program was first introduced in 2006 in Hamilton. At that time, most residents received a large 120 Litre green cart. Some residents in downtown locations received smaller 40L green carts to facilitate collection in neighbourhoods with higher density housing. The City often receives requests for smaller green carts. Staff have examined a number of options to allow for the use of smaller cart that can be manually emptied.

By 2013 green cart replacement requirements will be 10% annually (15,000 carts) with full replacement of all 120L green carts distributed prior to 2010 by 2020. Replacement costs for small and medium sized green carts can be found in the table below.
5. Conclusions

The other considerations presented in this report help to inform what waste system refinements could be made for the next collection period from 2013 to 2020. Pricing from the Waste Collection Services RFP will assist in determining feasibility and implementation.

In selecting the preferred option it will be important to balance costs, waste diversion and ease of use and flexibility for residents. Among the simplest options would be a bi-weekly collection system with a six container limit. This option would achieve higher diversion and would eliminate the need for a tag system, amnesty days, and the special consideration policy. However, the potential impact on collection costs will not be identified until the completion of the waste collection system procurement process.

Many municipalities in Ontario use some form of user pay system residential garbage services. Included in this list are Niagara Region. There is no one model for pay-as-you throw programs but rather a tendency for communities to design a program that fits with the particular needs of the municipality. If a tag system were to be implemented in Hamilton than a pay per use system would be preferable over a free tag system as administrative costs could be offset by user fees.

Further consideration will be given to the size of the green cart following the outcomes of the Waste Collection Services RFP.
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CORPORATE STRATEGIC PLAN


Skilled, Innovative & Respectful Organization
• A skilled, adaptive and diverse workforce, i.e. more flexible staff
• More innovation, greater teamwork, better client focus
• Opportunity for employee input in management decision making

Financial Sustainability
• Financially Sustainable City by 2020
• Effective and sustainable Growth Management
• Delivery of municipal services and management capital assets/liabilities in a sustainable, innovative and cost effective manner

Environmental Stewardship
• Natural resources are protected and enhanced
• Aspiring to the highest environmental standards

APPENDICES / SCHEDULES

None