To: Chair and Members  
Public Works Committee

From: Scott Stewart, C.E.T.  
General Manager  
Public Works Department  

Telephone: 905 546-2313  
Facsimile: 905 546-4481  
E-mail: sstewart@hamilton.ca

Date: September 15, 2008

Re: Larger Blue Boxes for Curbside Recycling Materials  
(PW08112) - (City Wide)  
Public Works Committee Outstanding Business List

Council Direction:

This report is in response to the following motion that was presented to the Public Works Committee on March 17, 2008 Larger Blue Boxes for Curbside Recycling Materials (Item 9.1) and subsequently approved by Council on March 26, 2008:

i) “That City staff report back to Committee and Council on the feasibility of utilizing larger Blue Boxes and/or containers with lids for curbside recycling materials, with the intent of capturing more recyclables, and reducing litter in all areas of the community;

ii) That the report includes pertinent information related to cost and the environmental benefits of such an initiative;

iii) “That the study be conducted internally and prioritized as part of the 2008 work plan for the Waste Management Division;

iv) That the matter be referred to the Solid Waste Management Master Plan Steering Committee for discussion and recommendations; and

v) That the final report be forwarded to Committee and Council prior to the 2009 Budget process.”

Information:

The information contained in this report has City wide implications.

This report has been prepared in response to concern from Council that recyclables set out for collection in open top Blue Box recycling containers contribute to the City’s litter problem. In addition, there is concern that existing Blue Boxes are too small as the list of recyclable items continues to increase.

Staff undertook a review of alternatives to the current 14 and 16 gallon Blue Box. Since 2007, the larger 16 gallon Blue Box has become the new standard. They are distributed
to new home development areas and to residents needing additional or replacement Blue Boxes.

Consideration was given to a larger Blue Box, Blue Carts and to alternative covers for Blue Boxes.

Larger Blue Boxes pose potential occupational health and safety risks because of their capacity and the ergonomic activity required to move them.

Blue Carts may be an appropriate container in an automated or semi-automated collection system which could be considered in the next collection system review commencing in 2010 for implementation in 2013. However, the current recycling contract would not facilitate a cart system.

There are alternatives for containing Blue Box materials when they are set out for collection. These containment features would have to be removed by collectors, impacting on route times, if they were widely used. These features would also impact on the recycling collection contract. Lid options have a cost that ranges from $2.00 to $5.00. The cost of covers for two (2) Blue Boxes per household would be $600,000 to $3 million. Additional funds would be received in the Capital budget to fund the purchase of box covers.

Communication efforts currently include information on how to prevent material from escaping Blue Boxes. Tips include bundling papers and cardboard and stacking container Blue Boxes on top of paper Blue Boxes.

Based on the review, no changes are recommended to the current Blue Box system at this time. Further consideration of alternatives to the Blue Box will be considered in the next collection service review for the new waste collection system to be implemented in 2013.

**Background**

The information contained within this report has City wide implications.

Over the past several years, new items have continued to be added to the list of acceptable Blue Box materials. Larger Blue Boxes may capture more recyclables and reduce the amount of materials that escape the container. Many recyclables are lightweight so if Blue Boxes are not packed properly (tightly) items can easily leave the box when it is windy or if it is knocked over.

In 2007, the Blue Box capacity was increased from 14 to 16 gallons although the container shape remained the same. Residents continue to use the 14 gallon container until they require a new Blue Box and the replacement is the 16 gallon container. The replacement program ensures that residents have convenient access to Blue Boxes encouraging participation in the recycling program. As well, there is no limit on the number of Blue Boxes that residents can set out for collection.

The purpose of this report is to respond to Council’s direction that staff report on larger Blue Boxes and/or containers with lids relative to the capture of materials and reducing litter.

**Alternatives to the Current Blue Box**

The City of Hamilton currently has a two (2) stream recycling system in which papers and containers are collected in separate Blue Boxes and processed separately at the
Material Recycling Facility (MRF). The size of the Blue Box in use in the City’s program was increased from 14 gallons to 16 gallons in 2007. Blue Boxes are distributed free of charge to residents to encourage recycling and in an attempt to achieve our target of 65% diversion of waste from landfill. There is no limit on the number of Blue Boxes that can be set out for collection.

In response to the request by Council, staff has explored a variety of containers for service delivery of the current Blue Box program. More specifically a review of alternative containers and methods of securing materials were undertaken.

a) Larger Blue Boxes

Larger open top Blue Boxes are available in 18 and 22 gallon sizes. However, 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. As part of this review, 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.

The approximate cost of the 16 gallon Blue Box is $5.00. The cost increases by 15% for the 18 gallon Blue Box, and 20% for the 22 gallon Blue Box.

b) Recycling Carts

The use of carts for recycling is generally associated with single stream collection and processing of recyclable materials.

Earlier this year, the City of Toronto implemented a fully automated waste collection system and is currently rolling out a Blue Cart program to single family households. The Blue Cart is about 120 litres in capacity (similar to Hamilton’s larger Green Cart). The City of Toronto collects recyclables in single stream and recyclables are only collected every two (2) weeks.
The use of a cart that is emptied either by full or semi-automated equipment has minimal expected ergonomic and safety issues.

The current recycling contract with National Waste Services Inc. (NWSI) would have to be renegotiated to move to an automated cart system with the cost of converting the fleet likely to be imposed on the City. A cart based system can be considered further in the next contract process for recycling collection and processing for implementation in 2013. A single family household recycling cart pilot project is being considered for fall 2009. This pilot should provide direction as to the impact that larger capacity containers have on diversion. The pilot being considered would be specific to the needs of Hamilton residents, similar to the approach taken with the Green Cart Demonstration Project undertaken prior to the full roll-out of the Green Cart Program. Staff will be in touch with other municipalities that have implemented cart-based recycling systems to gain information on their experiences prior to launch of the pilot. The cost of a 120 litre cart would be approximately $50.00 per unit.

c) Plastic Bags

Blue opaque or clear plastic bags are used to a limited extent in Hamilton for curbside recycling collection service. There are a number of factors that contribute to this practice.

Although they 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.

Although weight may not be a significant issue if plastic bags can be tossed to the far side of the collection truck, the bags may be bulky enough that they don’t fit through the equipment on the truck. Bags can also break under excess weight and sharp objects can tear a plastic bag and cause injury to the collector.

The new container line has a plastic film recovery system to help recover plastic bags from the containers stream. Plastic bags full of recyclables must be broken open manually to capture the contents inside the bags. To promote the increased use of plastic bags for recyclables would increase the time for the recycling processing.

Bags are easily accessible at retail outlets. The use of bags would reduce the City’s capital costs for Carts or Blue Boxes however the City would end up with additional film in the recycling program requiring processing.

Alternative Lid Options

There are emerging options available to cover Blue Box contents however they are not widespread, are generally not available at retail outlets and would require discussions with the current recycling collection contractor to ensure that there is no conflict with the contract.

a) Mesh Covers

There are flexible mesh covers (similar to an automobile cargo net) on the market that would fit most Blue Boxes, such as “RecycleNet”. The RecycleNet attaches permanently to one end of the Blue Box, and the elasticized mesh hooks over the other end of the Blue Box. It expands so that it can fit around larger objects or more material.
Although this may add capacity to the Blue Box, the materials on top could freely escape when the collector opens the net. Additional collection time will be required to open the mesh and to collect any materials that may escape.

In 2007, the Town of Markham piloted the RecycleNet in 5,000 households. Preliminary results indicate that almost everyone used the mesh and 95% thought it was easy to use. About half the residents thought they recycled more and about the same number thought there was less litter. However at this time, there is no data available on increased capture and diversion rates. No safety issues have been raised. During the pilot there have been no reports of pinching, catching or other issues associated with the collection of Blue Boxes with the RecycleNet.

The Region of Peel will pilot the RecycleNet in September 2008.

This product is not currently available at local retail outlets although we understand the manufacturer is having discussions with retailers and hopes to have them available in retail outlets soon.

The suggested retail price for individual sale would be approximately $10.00.

b) Plastic Lid

Plastic lids that fit the Blue Boxes 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 make scavenging slightly more difficult.

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.

c) Fabric Covers

Another option that would fit the Blue Boxes in the City’s recycling program is a fabric cover system, such as the “Bonnet”. This cover is made from tarpaulin material with an elasticized edge that covers the Blue Box (similar to a shower cap). It would be attached to one side of the Blue Box by an adhesive strip. The Bonnet would contain recyclables, keep moisture out and make scavenging slightly more difficult.

During collection, the collector would need to peel back the Bonnet to access the recyclables for tipping. The use of the Bonnet would increase collection time per stop as the collector would need time to open up the Blue Box so that it may be tipped.

Essex Windsor is currently conducting a pilot project using the Bonnet.

This product is not currently available at retail outlets.

The cost of the Bonnet is approximately $4.50 for a package of three (3).

d) Bungee Cord

A criss-cross bungee cord could be used to contain recyclables set out for collection. The bungee cord would attach from each corner to form an “X” across the top of the Blue Box. A bungee cord may help to contain materials, but not entirely, and moisture could get into the box.
The City does not currently allow the use of bungee cords on waste containers set out at the curb since they pose a risk to collection operators. Collection operators have been injured in the past when trying to remove bungee cords from containers.

Cost Recovery of Blue Boxes

Presently the City of Hamilton provides each household with Blue Boxes on request free of charge. Information on the availability of Blue Boxes is promoted through tours, school and community presentations, newspaper advertising, and the annual Waste Collection Calendar.

Many of the municipalities charge residents either for all Blue Boxes or for additional Blue Boxes. Some provide new residents with free boxes and some will replace broken boxes free of charge. The fees range from $5.00 to $8.00 as shown in Appendix A.

Although it is an option to charge residents for Blue Boxes, this might send confusing messages to residents around the goal of reaching 65% diversion including the phasing in of the container limit on garbage and the need to recycle. It is preferred that any charges for Blue Boxes be deferred until after the one (1) container limit is completely phased in.

Participation and Capture

Single family waste audit information from the fall 2006 Stewardship Ontario waste audits yielded the following results: 84% of household recyclables are being captured, residents set out an average of 1.2 Blue Boxes per week, and the average weight of recyclables set out for collection was 5kg. According to the Solid Waste Management By-Law No. 05-190, a single Blue Box may not exceed 13kg and there is no limit on the amount of Blue Boxes allowed to be set out for collection. These statistics strongly suggest that there is no need for a larger Blue Box at this time and that even as the container limit for garbage goes down, the capacity of the Blue Box system is adequate.

Conclusions

Based on the analysis of the alternatives to the Blue Box and options for covering Blue Boxes, the following conclusions have been made:

- There are ergonomic, health and safety issues related to larger Blue Boxes
- There are contractual impacts of increasing the size of the Blue Box or introducing a Blue Cart in the curbside collection program
- The options for covering the Blue Box are generally not readily available and have impacts on operation and contractual arrangements
- Residents are doing well in the amount of material that the City is capturing, and this is expected to increase with the container limits on garbage
- Continue promoting the proper packing of Blue Boxes in conjunction with other litter reduction programs in Public Works with the goal of litter prevention
- The Blue Box system has the capacity to accommodate the additional recyclable material that will be generated by container limits for garbage, however while the container limit transition takes place, Blue Boxes should continue to be provided to residents free of charge
- The best opportunity to review the recycling container will be around the collection service review for the next service period starting in 2013
Changes to the current Blue Box system are not proposed at this time. However, it is appropriate that alternative containers be considered in the next collection service.

Scott Stewart, C.E.T.
General Manager
Public Works Department
### Blue Box Cost Recovery in Other Municipalities

<table>
<thead>
<tr>
<th>City/Region</th>
<th>Charge for New Residents</th>
<th>Charge for Additional Blue Box</th>
<th>Cost</th>
<th>Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Toronto</td>
<td>No</td>
<td>Yes</td>
<td>$6.00</td>
<td>New residents must provide proof of new residency in order to obtain Blue Boxes at no charge.</td>
</tr>
<tr>
<td>City of Vaughan</td>
<td>Yes</td>
<td>Yes</td>
<td>$6.00</td>
<td>Residents can exchange damaged Blue Boxes for a free replacement.</td>
</tr>
<tr>
<td>City of Waterloo</td>
<td>No</td>
<td>No</td>
<td>$0.00</td>
<td></td>
</tr>
<tr>
<td>County of Brant</td>
<td>Yes</td>
<td>Yes</td>
<td>$6.00</td>
<td></td>
</tr>
<tr>
<td>County of Wellington</td>
<td>No</td>
<td>Yes</td>
<td>$5.00</td>
<td>Residents receive 2 Blue Boxes. Damaged Blue Boxes may be exchanged for a free replacement. A fee applies for additional boxes (above the 2 free boxes).</td>
</tr>
<tr>
<td>Halton Region</td>
<td>No</td>
<td>Yes</td>
<td>$5.00</td>
<td>New residents can get 2 Blue Boxes free of charge; current residents can get 1 Blue Box free of charge; additional Blue Boxes are $5 (3 maximum).</td>
</tr>
<tr>
<td>Niagara Region</td>
<td>Yes</td>
<td>Yes</td>
<td>$5.00</td>
<td></td>
</tr>
<tr>
<td>Peel Region</td>
<td>Yes</td>
<td>Yes</td>
<td>$6.00</td>
<td>Residents can exchange damaged Blue Boxes for a free replacement.</td>
</tr>
<tr>
<td>Town of Markham</td>
<td>Yes</td>
<td>Yes</td>
<td>$6.00</td>
<td>Residents can exchange damaged Blue Boxes for a free replacement.</td>
</tr>
<tr>
<td>Town of Newmarket</td>
<td>Yes</td>
<td>Yes</td>
<td>$8.00</td>
<td></td>
</tr>
</tbody>
</table>