

**Solid Waste Resource Advisory Committee  
November 25, 2010**

**TO:** Chair and Members of Solid Waste Resource Advisory Committee

**SUBMITTED BY:**



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Ken Reashor, P.Eng., Director, Transportation & Public Works

**DATE:** November 22, 2010

**SUBJECT:** Diversion Opportunities – Amendments to By-Law S-600

**ORIGIN**

COW Meetings on February 13 and February 27, 2007.

**RECOMMENDATION**

It is recommended that Solid Waste Resource Advisory Committee recommend Council initiate the process to amend By-Law S-600 respecting the following:

1. Reduce the garbage bag limit from 6 to 4 bags/containers for residential collections services;
2. Specify the use of clear bags for garbage for the residential and ICI sector(s) including one opaque or black bag.
3. Specify commercial multi-unit property owners provide occupants with kitchen counter top mini bin;

## **BACKGROUND**

In February 2007, Council authorized staff to initiate the process to amend By-Law S-600 to support diversion in 3 key areas: to reduce the bag limit from 10 to 6; to prohibit the ICI mixing of blue bag and paper in the same bin and/or collection vehicle with garbage; and, a requirement to designate stream signage onto commercial containers. Amendments to the By-Law were approved and became effective November 5, 2007.

At that time, staff indicated that 18 months after the implementation of the reduction in the bag limit, an assessment would be undertaken to measure the impact of bag limit changes and to determine the requirement for a further bag/container limit reduction and/or other measures to support maximizing diversion away from landfill disposal and increasing compliance.

This report is a follow up to reveal the results of the 2009 waste content assessment and to identify and recommend further diversion opportunities.

## **DISCUSSION**

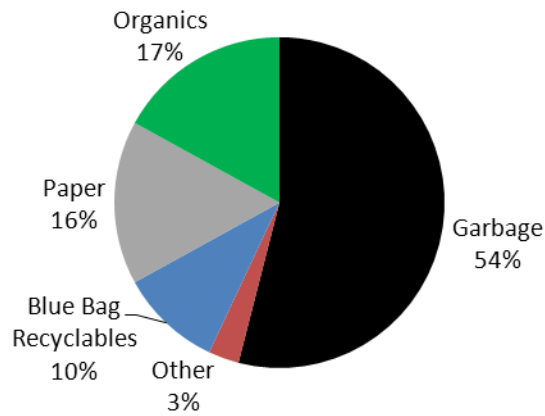
### **Waste Characterization Study – Residual Waste – Black Bag/Container**

A waste audit or waste characterization study was completed through 2008-2009 to assess the black bag/container content in order to identify materials that should have been placed in other streams, such as recyclables, and organics. This assessment took place after the implementation of the bag limit reduction of 2007 and was then compared to the waste characterization baseline data from prior to the bag limit changes.

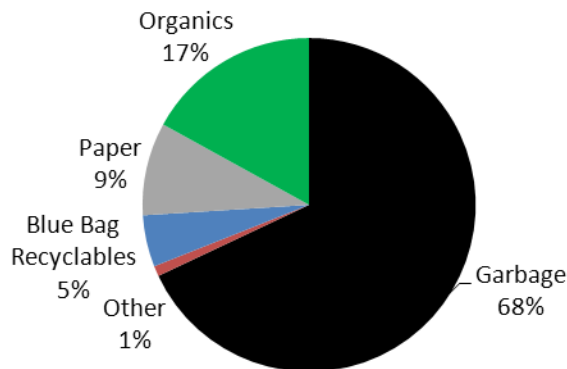
Audits conducted in 2008-2009 revealed 32% of materials in the residential black bag were identified as recyclable and compostable materials banned from landfill and targeted for diversion. This compares to the 2004 baseline data where 46% of the residential black bag included recyclables and compostable materials.

The 2007 bag limit reduction policy resulted in a positive decrease of 15% in the compostable and recyclables that were being wrongly placed in the garbage stream destined for landfill. The data is depicted in Figure 1.0 below:

**Residential Black Bag Audit - 2003/2004**  
**46% Targeted for Diversion**



**Residential Black Bag Audit - 2008/2009**  
**32% Targeted for Diversion**



The following lists outline the breakdown of materials identified in the black bag during the 2008/2009 content analysis which should have been placed in other diversion streams:

<b>Compostable Organics</b>	<b>17%</b>	<b>Recyclable Paper</b>	<b>9%</b>
Food Waste	14%	Envelopes/writing paper/bills	4%
Leaf & Yard materials	1%	Corrugated Cardboard	2%
Boxboard	2%	Pizza Boxes (Corrugated)	2%
		Newspapers & Magazines	1%
<b>Blue Bag Recyclables</b>	<b>5%</b>	<b>Other</b>	<b>1%</b>
Plastic Bags (LDPE #4 & HDPE #2)	2%	Paints, oils & batteries	
Deposit Beverage Containers	1%		
Food Containers	1%		
(glass, metal & aluminum)			
Plastic Containers	1%		
(PETE #1 & HDPE #2)			

The current HRM garbage limit of 6 bags/containers every two weeks is still in the high range as compared to other Nova Scotia municipal units and cities across Canada which have waste diversion programs. The following is a range of bag limits across Nova Scotia and comparable cities:

Bag Limit Ranges per 2 weeks	NS Municipal Units	Other Cities
1-3 bags	0	Hamilton, ON – 2 bag limit
4-5 bags	33	
6-7 bags	11	
8+	11	

60% of Nova Scotia municipalities have a bag limit of less than 6 bags every 2 weeks. There are no tags for additional garbage in any municipality in Nova Scotia. In comparison, the City of Hamilton, with a population of 504,559 residents, collects one bag of garbage weekly and offers no tags for additional garbage. An additional factor for Nova Scotia Municipalities noted above, is that they all include plastics 3, 5, and 7 material types in their recycling stream. Halifax currently only allows for plastics 1, 2 & 4. This issue has been a source of frustration for many HRM residents who have indicated to staff that they would like to place all plastics in the recycling stream.

In conjunction with the recommended bag limit reduction, staff have planned for the opportunity to include the addition of container plastics #3 PVC (polyvinyl chloride); #5 Polypropylene food containers and #7 Other Plastic containers, in the recycling stream, thereby responding to this resident request. The only remaining “plastic” not to be included in the recycling stream would be Styrofoam. This would reduce the volume of materials in the black bags and the need for additional bags, and the plastics would also be diverted from the landfill. Over the past year, the HRM recycling plant has undergone upgrades to accommodate the sorting and capture of

additional materials and it is now an option HRM can exercise. If Council directs staff to take this course and approves adding the new recycling streams the additional material processing costs are estimated at \$78,000 and will have additional budget implications which can be included in planning and implementation, if approved, for the fiscal 2011/12 budget.

There have been no municipal units reporting an increase in illegal dumping due to a bag limit reduction. HRM will continue to deal with complaints with respect to infractions including illegal dumping which are followed up by By-Law under Police Services Business Unit. Our priority is to educate residents on what materials can be diverted and how to participate in diversion programs in HRM.

A survey of HRM residents was conducted in 2009, the CRA Halifax Urban Report, where residents were asked how many bags of garbage they generate in their household and place curbside for pick up. A resounding 71% of residents reported they place 1-3 bags curbside every two weeks. This fact also supports a reduction to the current bag limit from 6 to 4 bags bi-weekly.

It is staff's objective that the decrease to 4 bags, switch to clear bags and inclusion of new plastics in the recycling stream will achieve a further 15% reduction in materials diverted from the garbage stream and landfill.

### **Clear Bags**

Nova Scotia municipalities are leaders in pioneering the use of clear bags for garbage. The policy was first introduced in Nova Scotia in 2005. 33 of 55 municipalities have now implemented clear bag policies with others moving forward to institute similar policies. The majority of municipal units using clear bags also have accompanying bag limits in the 4-5 bags range. Privacy concerns for intimate or sanitary products being placed in clear bags is addressed with the permitted use of one black bag for garbage included in the 4 bag limit.

SWR staff conducted interviews with Nova Scotia SWR municipal unit authorities to discuss their experience in the implementation of the clear bag programs. The Valley Waste Authority provides the management of collection and processing services to 12 municipal units representing a population of 84,000 comprised of urban, suburban and rural centres, and have a mature source separation program for recyclables, paper, and organics comparable to HRM. The Valley was early entrants in the green cart program, in place since 1999. The Valley Region introduced clear bags on April 1, 2008. The clear bag program is applicable to residential as well as the institutional, commercial and industrial (ICI) sector, ensuring a level playing field.

Valley Waste authority tonnage reports reveal increases in both the organics and recycling streams and corresponding decreases in garbage for processing. The organics stream increase was 18% by weight in tonnage while the recycling increased 10% in the first year following implementation of the clear bag policy. The Valley continues to report sustained diversion in each of the diversion waste streams.

The Valley reported that some residents are still not participating in the recycling and composting programs and there is frustration from residents who have neighbours that are not doing their part. The clear bag program has had the effect of changing behaviour, where residents had not previously participated in the curbside green cart program or recycling, were now calling to ask questions about what goes where. With the anticipation of the program being implemented where compliance included leaving behind excess black bags, residents responded by calling for advice on how to ensure garbage is collected. **The leaving behind of unacceptable materials, and extra black bags, was the most effective tool in gaining compliance.** However, the education and compliance programming also played an important role.

The lead up and actual implementation of the clear bag program required resources to support education. This included household notification mailouts, newsletters, and notices in the media. Letters to the retail sector to advise them of the pending change from black to clear bags enabled the ordering of stock in support of the implementation of the program. The Valley phased in the program over a 6 month period before bags were left uncollected.

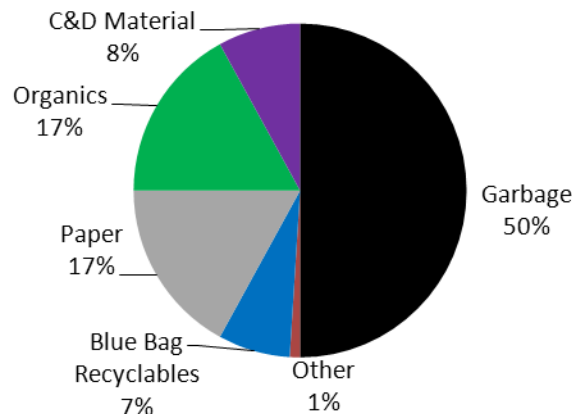
In the Yarmouth Region, a population of 47,000 residents, the waste management programs are administered by Waste Check authority. The clear bag program was implemented in this Region on April 1, 2007. The clear bags are also required in both the residential and commercial sector establishments. In the first year of the clear bag program, organic and recycling tonnages increased 16% and 11%, respectively, with corresponding reduction in waste for processing.

The Regions' program was phased in over a 6 month period to include education and compliance programming. Education included a Region wide mailout including a Q&A sheet and sample pack of clear bags, special edition of their Newsletter, community information sessions, hauler information sessions and door to door visits.

In both the Valley and Yarmouth Regions, monitoring of the ICI sector occurs at the transfer stations, where bags are inspected to determine source of generation. Clear bags have enhanced staff's ability to view material unacceptable for landfill and track down generators not separating organics or recyclables for diversion, and, in turn, enhance diversion by following up with generators.

ICI waste represents approximately 60% of all waste generated in HRM, accounting for 85,527 tonnes of the total annual 149,240 garbage tonnes arriving at the HRM Otter Lake facility for processing in 2009/2010. The ICI sector represents the greatest opportunity to enhance diversion. Audit of ICI waste arriving at Otter Lake landfill indicates that ICI compliance is lower than the residential sector. As identified in the following waste composition chart, 50% of ICI waste arriving at the landfill should have been diverted:

**Commercial Black Bag Audit**  
**50% Targeted for Diversion Commercial Waste**  
**2008/2009**



The composition of the 50% by material types are noted below:

<b>Compostable Organics</b>	<b>17%</b>	<b>Recyclable Paper</b>	<b>17%</b>
Food Waste	14%	Office paper, other fine paper	8%
Boxboard	2%	Corrugated Cardboard	4%
Leaf & Yard Waste	1%	Newspaper & Flyers	3%
		Glossy Magazines & Books	2%
<b>Blue Bag Recyclables</b>	<b>7%</b>	C&D	8%
Plastic Bags (LDPE #4 & HDPE #2)	3%	Wood	6%
Deposit Beverage Containers	2%	Other	2%
Food Containers	1%	Other	1%
(glass, metal & aluminum)		(paints, oils & batteries)	
Plastic Containers	1%		
(PETE #1 & HDPE #2)			

The ICI sector includes waste generated from apartment properties, offices, institutions, retail sector, restaurant sector, big box stores, malls, and small, medium and large industrial businesses in HRM. A cross section of all sectors was included in this waste composition study to ensure representative sampling.

Staff, both in the Valley and Waste Check regions, included communication to haulers to notify that loads delivered containing black bags would not be accepted after the 4-6 month grace period. The haulers passed along clear bag notifications to ICI customers. Apartment properties, offices, restaurants and any other ICI sector businesses who deposit clear bags into commercial containers will be easily identified and staff can determine who is depositing waste unacceptable

for landfill. Staff can then work with the business to establish and initiate programs for diversion. Recyclable paper can no longer be hidden in a black bag deposited into commercial containers. Experience with clear bag programs has shown that the presence of materials targeted for diversion will be identifiable resulting in greater opportunity for enforcement which will lead to behaviour change. Occupants not participating in recycling and organic diversion programs will be easily identified by the property management firm when clear bags are used. Staff will conduct ICI visits as part of a phased-in education program and will enhance communication to this sector using trade publications, commercial sector associations, direct mail to property management companies, as well as mail outs in conjunction with the HRM tipping fee billing system.

Cape Breton Regional Municipality (CBRM) is the most recent municipality to join the majority and adopt a clear bag program. CBRM Council approved clear bags for garbage on June 1, 2010. This is the second largest single Regional municipality in the province and most similar to HRM in composition of urban, suburban and rural environment. The program is being rolled out in 3 phases: Phase 1 is education for residents and commercial properties where clear bags will be required for all sectors; Phase 2 includes notification or a warning issued where households not using clear bags and not sorting their waste are provided a notice that compliance with the program is expected. The final phase is the material left uncollected. CBRM will be measuring the effect of this initiative upon full implementation to occur April 1, 2011.

### **Kitchen Counter Top Mini-Bin – Provision for Tenants of Multi-unit Properties**

In accordance with HRM By-Law S-600 “*Solid Waste Resource Collection and Disposal By-Law*”, it is the responsibility of the property owner or occupant that generates the waste to remove and properly dispose of the waste streams. Typically, it is the property owner who procures the services of a hauler to supply commercial (exterior) bins and arrange for collection services, not the individual occupant. Currently, in the case of the supply of a kitchen counter top (mini bin), it is not required to be provided by the property owner. However, the provision of a countertop organics bin could be accommodated as part of a tenant agreement. In the case of a multi-unit apartment property, the mini bin can be considered an operational fixture and may be built into the damage deposit to remain with the property upon move out, so as to secure the landlords’ investment and prevent replacement for each new tenant.

The mini bin cost is between \$2.00 - \$3.75 per unit, depending on size and configuration. The supply of a mini bin to apartment property tenants was undertaken in a pilot program conducted by HRM staff in 2009 to measure its impact on enhancing diversion. Baseline audits of apartment property’s waste were conducted pre mini bin distribution and revealed 46% of the garbage stream contained compostable food waste.

HRM staff distributed a kitchen mini bin to tenants with a ‘what goes where’ guide to separation along with an agreement (between the tenant and the property management firm), signed by tenants who agreed the kitchen mini bins would stay in the apartment upon move out, that the bin was included in the damage deposit for replacement. A post mini bin distribution follow up



audit was conducted which revealed 50% less organics in the garbage stream with the distribution and use of mini bins.

One of the greatest challenges reported by the majority of cities across Canada in implementing organics diversion programs is to encourage the participation of multi-unit apartment tenants. The cost effective supply of operational elements such as mini bins is proven to support enhancing diversion in this ICI sector in HRM. There is a recognized upfront investment by the property owner. However, this investment can promote compliance and can help to reduce property owners' tipping fees charged by HRM for materials processing. The cost to process a tonne of garbage in HRM is \$125.00/tonne, while compostable organics processed is \$75.00/tonne tipping fee. These fee reductions should be negotiated by property management firms with haulers along with the reduction in size of garbage bins, the schedule for pickups, while balancing off with enhancements in organic pickups. Negotiating a new collection agreement in support of the changes in the waste material stream flows is critical for multi-unit property owners to realize operational cost efficiencies. HRM education staff can assist property owners with education to tenants and provide them with a template for a tenant agreement to supply the mini bin and can also assist with door to door distribution, hosting tenant information sessions and conducting waste audits.

### **BUDGET IMPLICATIONS**

There are no immediate costs or savings to HRM for implementation of the bag limit reduction, clear bag or provision for mini bins for multi-unit tenants. Educational and compliance programming will be conducted within current budget. A focus on funding for communication and education initiatives as well as partnership opportunities with the Resource Recovery Fund Board (RRFB) will be explored. If the anticipated diversion from landfill occurs as a result of the bag limit reduction and clear bag policy, HRM could stand to receive a substantial rebate on its operating contract for the landfill with MIRROR NS. Last year's rebate check from Mirror for reducing processed materials at Otter Lake was \$417,590 which related to a reduction in materials from the existing baseline band of 153,555-158,055 tonnes as per the supplemental agreement, down to the 150,555 - 147,555 tonnes band. If there is a reduction of 15% achieved as a result of this clear bag and bag limit policy, HRM stands to benefit in terms of Otter Lake costs.

### **FINANCIAL MANAGEMENT POLICIES / BUSINESS PLAN**

This report complies with the Municipality's Multi-Year Financial Strategy, the approved Operating, Project and Reserve budgets, policies and procedures regarding withdrawals from the utilization of Project and Operating reserves, as well as any relevant legislation.

**COMMUNITY ENGAGEMENT**

The Solid Waste Strategy is a citizen lead initiative with the motivation for staff moving forward to support enhancing diversion. In addition, as noted above, staff conducted public opinion surveys and waste audits to support moving forward with a change in policy direction to support further enhancing diversion.

**ALTERNATIVES**

In terms of the bag reduction, one issue that has arisen in other municipalities and cities is the issue of families with young children in diapers or families with adults with special needs. In response, municipal staffs have implemented special programs to accommodate registered families who require extra bags (up to the current 6 bag limit) to deal with special needs. While currently not included in this recommendation, this issue could be incorporated in the HRM program. An alternative to the one opaque or black bag is to permit the inclusion of one small opaque bag inside each large clear bag.

**ATTACHMENTS**

N/A

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A copy of this report can be obtained online at <http://www.halifax.ca/commcoun/cc.html> then choose the appropriate Community Council and meeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

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