



MOVING THE FOOD SCRAP COLLECTION NEED

A case study of seven municipalities reveals that, by introducing bi-weekly pick up into a community's collection program, the capture of organic materials can possibly increase by as much as 50 percent.

By Rod Mulr

Bi-weekly, or every-other-week (EOW), collection of residual material is a recovery strategy that holds interest to many municipal coordinators, both as a means to increase participation in food scrap collection programs and lower overall collection costs.

It's been speculated by those overseeing municipal recovery programs that an increase in program participation is likely once residents realize that food scraps, the portion of the materials stream most likely to produce odors, can be placed curbside either on a weekly basis, in conjunction with a community's food scrap collection program, or bi-weekly with residuals collection. Cost savings from EOW residual collection occurs as a result of programs being able to co-collect materials from different streams (i.e., food scraps, recycling and debris), and loading them into the same collection vehicle. This is especially true when recyclables are commingled into a single stream.

For example, in Toronto, neighborhoods normally only get one pass per week, meaning one week food scraps and commingled recyclables are collected, while the next week it's food scraps and debris. So, one must ask, what is the true potential of increasing participation via the use of EOW collection?

This study focuses on seven Ontario, Canada municipalities, which make up the Greater Toronto Area (GTA), except for the City of Barrie (Figure 1). A provincial planning area with a population exceeding 5.5 million, the GTA lends itself to being an excellent case study subject when addressing the effects of EOW residuals collection on food scrap capture. The municipalities that make up the GTA are in close proximity to each other, all being within a radius of 50 miles. As a result, all have very similar demographic profiles.

When comparing the respective municipal programs, each of them has food scraps collected on a weekly basis, and six of the seven require residents to use the same food scrap bin and curbside container. The kitchen container measures nine-inches high by one-foot wide, with 1.6 gallons of capacity, while the green curbside bin is 27-inches high, 15-inches wide, and includes 10.5 gallons of capacity. Hamilton residents use a 32-gallon rollcart for their curbside container.

Traditional compostable materials are recognized by each program, including fruit and vegetable scraps, soiled paper products and household plants; however, other non-traditional items are also

Figure 1 | Study Municipalities

Weekly solid waste collection

	# Households
City of Barrie	38,000
City of Hamilton	155,000
Region of Peel	285,000

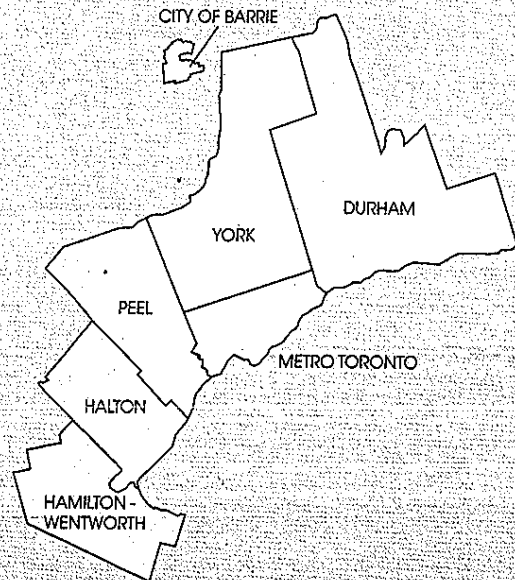
Bi-weekly solid waste collection

	# Households
Region of Halton	135,000
Region of York	235,000
City of Toronto	525,000

Switched from weekly to bi-weekly

	# Households
Region of Durham	180,000

Source: Waste Diversion Ontario, Sierra Club of Canada and Rod Muir, 2009.



accepted by each of the seven programs, including candies, cookies, cake and diapers (Toronto); microwave popcorn bags, sawdust and woodchips/shavings (Region of Peel); fast food drink trays and cups, popsicle sticks and wood wine corks (City of Barrie); butter and margarine, jams and jellies and mayonnaise

(Hamilton); and, sanitary and incontinence products and nail clippings (Region of York).

While there are other slight differences between each of the municipal Green Bin programs, probably the most notable includes whether or not residents are required to use bag liners and if the program has established bag limits.

Breaking down the GTA

With performance of each of the seven programs detailed in Table 1, at the lower end of the performance scale was the City of Barrie, which captured an average of 210 pounds per household in 2006, and



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Table 1 | Food scrap capture rate with weekly solid waste collection (pounds/household/year)

Community	'06	'07	'08	Note
Barrie ¹	210	160	n/a	One bag limit, \$2 bag tag, paper bag liner only
Hamilton	350	410	480	Two-bag limit, one must be clear, paper bag liner only
adjusted ²			260	To adjust for use of larger 32-gallon cart
Region of Peel ³		290	280	Two-bag limit, BPI-certified or paper bag liner
Estimated average			260	
With EOW solid waste collection				
Region of Halton ⁴			400	Six-bag limit, bi-weekly, BPI-certified or paper bag liner
Toronto	475	450	395	Solid waste is cart/volume-based, any type of liner allowed
Region of York			800	Two-to-four bag limit, bi-weekly, any type of liner allowed
Estimated average			390	
	'06	'07	'08	
Average for all 18 Ontario programs:	343	327	n/a	
Switch from weekly to bi-weekly collection				
Region of Durham		'05	'08	
		123	315	Four-bag limit, BPI-certified or paper bag liner

- 1: Barrie started pro-rated, May '06
- 2: Hamilton also switched to allow BPI certified bags, April '08
- 3: Region of Peel started pro-rated, April '07
- 4: Region of Halton started pro-rated, April '08

Source: Waste Diversion Ontario, Sierra Club of Canada and Rod Muir, 2009.

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160 pounds in 2007, despite having a one-bag limit on residual debris with a \$2 (\$Cn) tag fee for additional waste set out. Unfortunately, 2008 numbers for the city were not available.

Next was the City of Hamilton, where a per-household average of 480 pounds was captured in 2008. One of the more notable volumes displayed by the seven communities, it should be noted, however, that the residential use of a larger 32-gallon rollcart – compared to the smaller 10.5-gallon containers utilized by the other communities – probably had a major effect on this average, as it's estimated that roughly half of that 480-pound average was generated by residents including bigger portions of green waste with their organics in the container. Though each of the communities allow for some form of green waste to be collected, it's not being captured and counted by their food scrap program to nearly the same extent as Hamilton's.

Taking a closer look at Hamilton's program, Table 2 details the tonnage deposited into the curbside carts for calendar year 2008, broken down by month. During the heavy leaf and yard months, April – November, you will notice that the amount captured, per household, averages around 50 pounds per week, or the equivalent of 600 pounds collected per year. However, during the non-leaf and yard months (December – March), per-household capture lessens to approximately 21 pounds collected per week, or 260 pounds per year, falling to an even lower 16-pounds-per-week – 195 pounds per year – average for January – February. One estimate suggests that 260 pounds is closer to the actual per-household amount of food scrap material being collected on an annual basis.

For the City of Toronto, and the Region of York, the per-household tonnage levels captured for 2008 averaged about 450 and 800 pounds, respectively. However, here's where container liners may or may not play a role in affecting those tonnage levels. Both programs in York and Toronto – together posting the top two food scrap capture rates of the seven communities studied – allow residents to line their in-home container with any type of plastic bag. In most cases, this is a single-use polyethylene grocery bag usually achieved at no cost. This, no doubt, drives participation and capture, and, too, could have an affect on the overall weight being recovered.

Regardless, when taking into account the programs of Toronto and York, as well as the Region of Halton – all of which have residual material collected EOW – the three programs, combined, capture an average of around 390 pounds per year, per household. That's 130 pounds more, or 50 percent more, than the municipalities who have residential debris collected weekly.

Next is the Region of Durham. In 2003, the region's four smallest communities, Brock, Clarington, Scugog and Uxbridge (totaling roughly 45,000 households), introduced their green bin programs, along with weekly residuals

collection. For the 2005 calendar year, the capture rate for the four communities averaged around 135 pounds collected per household. In 2006, the region's four remaining municipalities, Ajax, Oshawa, Pickering and Whitby (totaling over 135,000 households), also introduced the green bin program, and, with that, the entire region switched to bi-weekly residuals collection. The effect? With over 180,000 households now receiving EOW residuals collection, an annual average of 315 pounds was being collected per household, an increase of 180 pounds per year, or 130 percent.

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Finally, we come to the Regions of Halton and Peel – both introduced food scrap collection within a year of each other. As previously mentioned, both use the same small kitchen bin, but, most importantly, both have the same policy regarding liners – only Biodegradable Products Institute-certified bags can be used. There are, however, two differences between Peel and Halton's programs, the biggest being that debris and food scraps under Peel's program are collected weekly, while the same materials in Halton are collected EOW. The difference in capture is noticeable, too, as the average household in Halton is setting out around 400 pounds of food scraps annually, while the same house in Peel is only placing curbside 290 pounds per year – a 40-percent difference in tonnage between both programs. The other difference between the two programs involves bag limits, as Halton's program allows residents to place up to six bags curbside every two weeks, while Peel's program only allows residents to use two bags on a weekly basis.

What does this tell us?

Though this was only a small study of Canada's most populous metropolitan area, it does appear that increases in food scrap capture are likely when a municipality switches from weekly to bi-weekly materials collection. In fact, this study alone showed that increases in collection volumes could reach 40 percent, to even as high as 130 percent, when a program altered its collection schedule. Then again, maybe it's not about collection frequency, but the size of the container provided to residents for use with these municipal green bin programs.

I'll never forget the words of Steve Grealy, with the City of San Diego's Environmental Services Department, when he spoke at the

Table 2 | City of Hamilton, monthly tonnage (in pounds)

Apr.	3,195
May	3,424
Jun.	3,572
Jul.	3,649
Aug.	3,742
Sep.	3,666
Oct.	3,495
Nov.	3,062

Average, April-November
50 pounds per week = 600 pounds per year

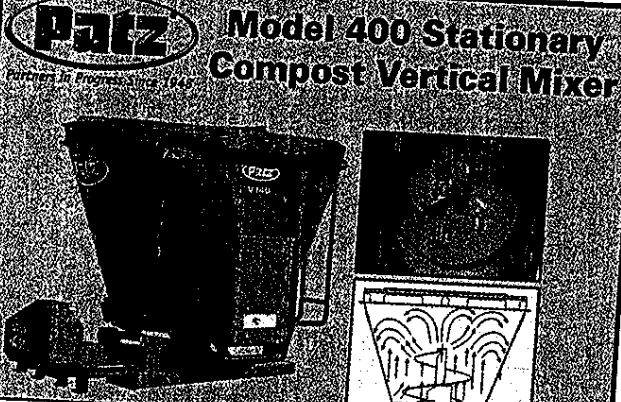
Dec.	1,762
Jan.	1,724
Feb.	1,130
Mar.	1,374

Average, December-March
21 pounds per week = 260 pounds per year

Average, January-February
16 pounds per week = 195 pounds year

Total: 33,795 pounds

Source: City of Hamilton, Ontario, 2009



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annual U.S. Composting Council conference back in 2 detailing how the city tested every cart size available, at one valuable point from that project: "No matter what you give residents, they will fill it." In the end, the size cart distributed sends an important message to residents may not fully be appreciated. RR

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