



To: Public Works and Transportation Committee

Date: May 9, 2012

From: Tom Stewart, AScT.
Director, Public Works Operations

File: 10-6370-10-05/2012-
Vol 01

Re: Green Cart Pilot Program Results

Staff Recommendation

1. That based on the successful results of the Green Cart Pilot Program, staff report back on costs and options for an expanded cart-based collection program for a food scraps and organics recycling program for all townhome units in conjunction with introduction of a similar program for residents in single-family homes.
2. That the Green Cart Pilot program be continued pending a determination by Council on actions relating to a permanent food scraps/organics recycling program for townhomes.

Tom Stewart, AScT.
Director, Public Works Operations
(604-233-3301)

Att. 2

FOR ORIGINATING DEPARTMENT USE ONLY					
ROUTED TO:		CONCURRENCE		CONCURRENCE OF GENERAL MANAGER	
Budgets		Y <input checked="" type="checkbox"/> N <input type="checkbox"/>			
REVIEWED BY TAG		YES	NO	REVIEWED BY CAO	
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Staff Report

Origin

At their October 25, 2010 meeting, Council approved a pilot program to collect food scraps and yard trimmings from approximately one-third of townhomes in Richmond, or about 3,200 units. The purpose of the program was to test cart-based collection methodology, appropriate cart sizes, participation rates and waste quantities collected. Information from the pilot program can be used to help further develop and expand food scraps recycling services to residents in multi-family developments.

The 9-month pilot program commenced in April, 2011. The program is continuing in 2012 pending completion of the evaluation period and determination of next steps. This report presents the results of the pilot program from its commencement through December, 2011, and recommends that staff report back on costs and options to expand cart-based food scraps/organics recycling to all 11,200 townhomes in conjunction with consideration of a similar program for residents in single-family homes.

Analysis

The pilot program commenced on April 4, 2011 and involved 3,184 units at 77 different sites. The complexes/units selected for the pilot program were based on a number of factors, including: ease of serviceability, interest expressed by residents in food scraps recycling, collection methodology consistent with other services, i.e. door-to-door recycling and garbage collection. Carts were identified for testing in this program using semi-automated collection due to the challenges experienced with the heavy weights of cans in the single-family residential Green Can program.

An overview of the pilot program is provided in the following sections. Information on the program lead-in and implementation phase is provided as well as initial feedback and program adjustments. In addition, the pilot program measurements included operational collection statistics gathered regularly throughout the program, as well as a resident survey conducted two-thirds through the program. Summary information on these measures is provided. Information on the costs of the pilot program, summary conclusions and options/recommended next steps is also included.

1. Program Lead-In and Implementation

A summary of the 2011 activities and timelines associated with the lead-up and implementation aspects of this program is summarized below:

- a) *Early January* – a letter was sent to the property management company advising of the upcoming program and requesting strata council contact information. As part of this, City staff offered to attend strata/resident meetings to make presentations on the program. Nine such presentations/information sessions were conducted.
- b) *End January* – A letter was sent to the individual property/unit owners to advise them of the upcoming program. An FAQ (frequently asked questions) was provided.

c) *Early March* – Another letter was sent to the individual property/unit owners advising that their collection cart, along with an information brochure and collection information, would be delivered within two weeks’ time.

d) *Middle to End of March* – Cart deliveries took place. Carts were pre-labelled with both a “Green Cart” and instructional decal. Initially, 120 litre and 80 litre carts were targeted for the program. Cart size was pre-determined by the City based on the amount of available green space, i.e. complexes with more green space were provided the larger carts (120 L) and those with less green space were provided with the smaller (80 L) cart. This was based on our assumption that residents might use the carts for their garden trimmings as well as food scraps.



e) *September* – A letter was sent to individual property/unit owners providing resident feedback received to date along with program tips. Complimentary paper bin liners were provided. In addition, a staff-monitored V-Bulletin discussion forum, where residents were invited to go online and ask questions, get information on tips and resources and share their thoughts and experiences about the program, was introduced. In addition, residents were requested to fill in an on-line survey or those wishing a hard copy of the survey could request one.

Early Feedback and Program Adjustments

Feedback was received early on in the program about the size of the carts being too large and storage and cleaning were difficult, particularly in relation to the 120 L carts. A common issue highlighted was that local strata bylaws do not allow refuse containers to be stored outside. As a result, two key actions were taken: 1) An alternative cart size was introduced, i.e. 46.5 litre, and 2) Carts were switched out, upon request, to either 80 L or 46.5 L carts. A comparison to the initial cart size distribution and that now in place with requested adjustments is shown below.

Table 1: Cart Size Distribution

Cart Size	Initial Carts Distribution	Program Adjustment
46.5 L	-	286 Units
80 L	1757 Units	1654 Units
120 L	1435 Units	1244 Units
Total	3192 Units	3184* Units

*Eight units opted out

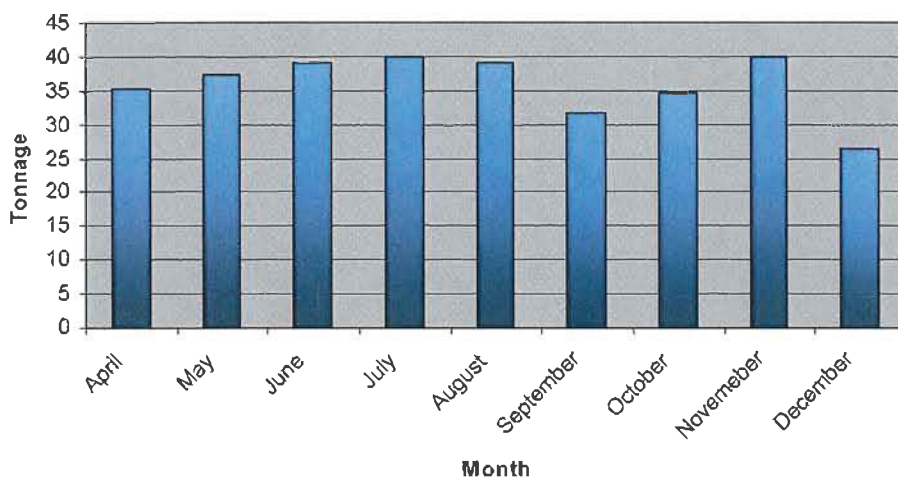
2. Collection Statistics

Program information was collected by the service provider throughout the pilot including quantities collected, weekly set out rates and contamination rates as outlined below:

- a) On average, approximately 36 tonnes was collected per month, or a total of 323.39 tonnes during April – December, 2011. While tonnages collected each month varied slightly, they remained fairly consistent throughout the pilot. This is different from the single-family Green Can program, which spikes considerably in the growing season (March/April – October) and drops off in the winter/cooler months. This would indicate that Green Cart pilot program participants were mostly recycling food scraps and only some yard trimmings.

Graph 1: Volumes Collected Per Month

Total Tonnage Collected Per Month



- b) The average weight collected per unit per month was 11.29 kg averaged over all units.
- c) Weekly set-out rates averaged 45.75%, meaning approximately one-half of residents put their Green Cart out for collection on any given week.
- d) Residents within the Monday collection zone had the highest weekly set out at 52.83%, followed by Wednesday at 49.8%, Thursday at 42.24% and the Tuesday zone at 36.73%.
- e) The number of carts which contained non-program materials (contamination) and had to be tagged with an information sticker was 3.33% at the start of the program, and dropped to .05% by the end of December, indicating a high level of compliance. The contamination make up was as follows:
- o 87.6% plastic
 - o 6.2% garbage
 - o 6.2% plastic liners

Average contamination rates were lowest among residents with collection on Mondays at .59%, followed by Wednesday at .67%, Thursday at .92% and Tuesday at 1.31%.

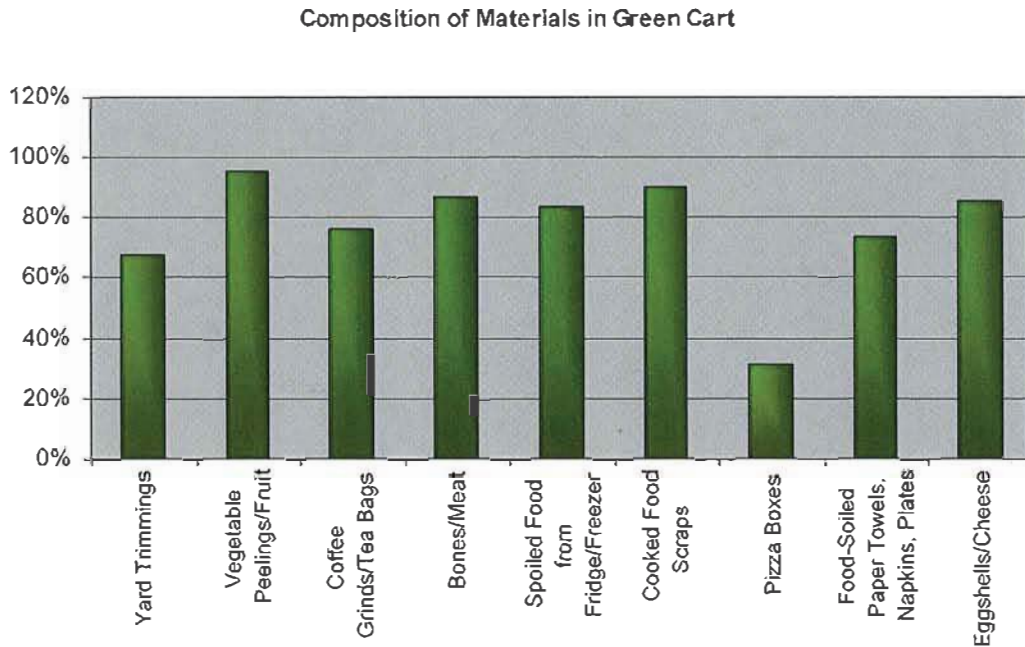
Overall, weekly set out rates were somewhat lower than expected, i.e. slightly less than one-half. However, the quantities collected per unit at 11.29 kg per unit per month (averaged over all units) is significant, or 135 kg per year. Based on estimated total waste generation of 600 kg per unit per year, the pilot program results indicate that a food scraps recycling program will result in 22.6% of waste being diverted from townhomes.

3. Resident Participant Survey

As noted previously, residents were requested to complete an on-line survey approximately two-thirds into the program. A copy of the survey is contained in **Attachment 1**. Survey responses were received from 295 residents, or a response rate of over 9%. Of those who responded, 92% indicated they were actively participating in the program and 8% were not. The survey response is summarized in **Attachment 2**. Key highlights from the survey are as follows:

- a) Most residents (84%) indicated they were placing their containers out for collection weekly.
- b) A broad-scale and generally equal variety of materials were being placed in the Green Cart, indicating that residents were very familiar with the program parameters. This is likely due to the robust communication approach used and provision of easy-to-understand program information. Fruit/vegetable peelings, cooked food scraps, and bones/meat topped the list of items being included in the Green Cart, followed closely by eggshells and cheese, spoiled foods, food-soiled paper and coffee grounds. A chart showing the various materials as reported by the survey respondents is shown below:

Graph 2: Resident Reported Composition of Organics Placed in Green Cart



- c) The vast majority of respondents (95%) indicated a preference for door-to-door vs. centralized (4%) collection service.
- d) Residents clearly preferred that the City provide the collection container/cart (83%) vs. 9% who would prefer to provide their own container.
- e) Residents reported significant reductions in their garbage, with most (43%) reporting their garbage reduced by 50%. Thirty-four percent reported their garbage reduced by 75%.
- f) When active participants were asked about the common barriers that might prevent residents from recycling food scraps, 81% reported concerns about smell, 60% reported concerns about rodents/wildlife, 55% reported that they did not want to store food scraps in the home, and 51% reported concerns with lack of sufficient space to store the Green Cart.
- g) When those who were not participating in the program were asked about the common barriers, an equal number (78%) reported concerns about smell and rodents/wildlife, 52% stated they did not want to store food scraps in the home, 48% said that the container size was a barrier, followed by 26% who said there was a lack of sufficient space to store the Green Cart.
- h) In relation to container size, 50% of residents indicated preference for a smaller container.
- i) To encourage greater recycling of food scraps, 57% of residents indicated preference to have a small container to temporarily store their food scraps for later transfer to the Green Cart.
- j) Only 2% of respondents indicated that changes were made to existing landscape contracts as a result of the program. In reviewing survey comments, it would appear this is due to the temporary nature of the pilot and a reluctance to make a contractual change without certainty about the future of the program.
- k) Dislikes about the program included odour concerns, cart size (too large), lack of bin liners, cost of paper bin liners, challenges with keeping the carts clean, and fruit fly/insect issues during the warmer months.
- l) The environmental benefits of recycling and waste reduction overwhelmingly topped the list of 'likes' about the program. Many residents commented on having much less garbage, and reduced smell from their garbage. Positive comments were made about the carts (on wheels, secure lid, sturdy design, etc.). Several residents commented about the convenience of also being able to recycle yard trimmings through this program.

4. *Pilot Program Cost*

The estimated cost of the pilot program was \$450,000, which aligns closely with approximate total costs incurred of \$439,450:

- Provision of carts, including purchase, assembly, preparation & delivery: \$195,000
- Collection service (Apr-Dec, 2011), material processing and outreach \$244,450
- Total Cost: \$439,450

The ongoing cost of the pilot program in 2012 is approximately \$26,850 per month for collection and processing services only.

5. *Summary Conclusions*

The Green Cart pilot resulted in the food scraps recycling program diverting approximately 22% of total estimated waste generation from townhomes, or approximately .14 tonnes per unit/year. This is significant and indicates that food scraps is likely a large component of material remaining in waste disposed by residents in townhomes. Based on these results, if all 11,200 townhomes were included in a food scraps/organics recycling program, an estimated additional 1,500 tonnes could be diverted from disposal annually. When rolled into Richmond's total residential waste stream, this would further our overall waste diversion by an additional 2.5%.

Given the challenges experienced by townhome residents in storing the carts, it would be beneficial to incorporate the smaller 46.5 L carts into the program and eliminate the larger 120 L carts. Based on the results of this program and survey feedback, the following parameters would likely result in the greatest participation for a food scraps/organics recycling program if expanded to all townhome residents:

- a) Provide options for residents to select either 46.5 L or 80 L carts. All carts to be on wheels for easy manoeuvring. Permit the use of paper yard waste bags for additional yard trimmings that may not fit into the cart.
- b) Ensure all containers have secure lockable lids to avoid concerns regarding intrusion by rodents or wildlife.
- c) Include a kitchen container as a one-time issue for residents to temporarily store scraps before transferring to their storage container.
- d) Include a maximum number of paper bag liners at implementation, with coupons/purchase incentives and information on where to obtain additional liners.
- e) Expand communications materials to provide tips on minimizing fruit flies/insects in warmer weather.
- f) Provide door-to-door collection.
- g) Provide weekly collection service.
- h) Offer attendance at strata council/resident meetings to provide education and Q&A sessions about the program.

6. *Options and Next Steps*

The positive results of the pilot program indicate that an expanded food scraps/organics recycling program for townhomes is an important next step in furthering residential waste diversion. The measures outlined in Section 5 (above) would help to maximize weekly participation in the program, as would the program being introduced on a permanent basis. Expanded programs for food scraps recycling is also important in light of pending disposal bans being considered by Metro Vancouver (i.e. estimated in 2015).

Options for an expanded food scraps/organics recycling program for townhomes could include:

Option 1 – Mandate via Bylaw: No City Involvement in Service Provision (Residents Contract Independently) – Under this option, the City would modify existing Solid Waste and Recycling Bylaw 6803 to require food scraps/organics recycling by residents in townhomes, but would not play any active role in providing the service. Residents would be required to work with independent service providers to arrange collection/recycling services.

This option is not recommended. While it gives residents the flexibility to arrange their services independently, it would require more work and coordination effort on their part to arrange. In addition, piece-meal servicing among different complexes is expected to be more costly for residents when compared with one comprehensive City-provided program. Another key drawback of this option is that the City would not be able to obtain collection data and statistics for measuring waste diversion performance.

Option 2 – Expand Food Scraps/Organics Recycling to all Townhomes

There are two difference approaches within this option that could be pursued:

- a) Issue a separate tender contract for a comprehensive service agreement to all townhomes, or
- b) Expand the City's existing waste management services contract (which is currently targeted to expire December 31, 2014) to include food scraps/organics recycling to all townhomes.

Staff can investigate and report back on the costs associated with Item b). Staff would not know costs associated with Item a) until after a tender was issued and evaluated. However, both of these options are expected to result in costs that may be higher than what could be achieved through a broader program (see Option 3) due to the lack of ability to achieve maximum economies of scale. In the case of Item b), there is the challenge of a lack of economies of scale plus the contract is short-term in nature. The economies of scale are an issue because a collector is not expected to be able to maximize the use of their collection vehicles due to the number that would be required to service the total townhome units involved.

Staff recommend reporting back on Option b) as part of considering a further option, i.e. Option 3, which follows.

Option 3 – Expand Organics Recycling to all Townhomes in Conjunction with Introducing a Cart-Based Collection Program for Single-Family Homes

Under this option, a similar cart based collection program could be introduced for residents in single-family homes, in conjunction with expanding food scraps/organics recycling collection to all townhomes.

This would require single-family residents to transition from Green Cans to carts. This would offer several advantages for single-family residents in that they would have a larger cart to use in place of several Green Cans, would avoid challenges with over-weight containers, would avoid missed collections in situations where residents forget to ensure the Green Can decal faces the road, etc. In addition, it would allow for increased ability for a collector to maximize the use of their collection equipment due to having an increased service base which aligns better with resource requirements. Staff expect this would translate into the most cost-effective approach.

Staff recommend exploring the cost of this option and reporting back to Council for further consideration. A cost analysis for Item 2b) would also be included for Council's consideration.

Financial Impact

Funding in the amount of approximately \$200,000 is included in the 2012 Sanitation and Recycling budget for continuation of the pilot program.

Should Council expand the service on a permanent basis, staff would propose that the costs be recovered through user charges to those eligible for the service.

Conclusion

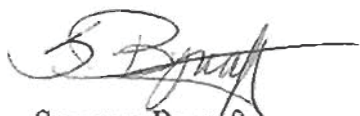
Excellent insights and information has been obtained from the food scraps/organics recycling pilot program for townhomes, undertaken during April – December, 2011. Results indicate that approximately .14 tonnes per townhome unit per year can be diverted, or over 22% of total estimated townhome waste generated.

Feedback from residents who participated in the pilot (92% of those responding to the survey) has been very positive, with 78% reporting their garbage being reduced by 50%-75%. Eighty-four percent of residents stated they were placing their carts out for collection weekly. In light of pending disposal bans for food scraps/organics expected in 2015, it is important that the City look to provide recycling options for these materials. The information obtained from the resident survey contained very valuable information in terms of cart sizes, preferred methods of collection, etc., in order to help develop a broader scale program for all townhome residents.

Staff recommend reporting back on costs and options associated with an expanded food scraps/organics cart-based recycling program for all residents in townhomes in conjunction with an option to implement cart-based collection for residents in single-family homes. In the interim, it is recommended that the food scraps/organics service be continued for the 3,184 townhome units currently participating in the pilot program.

May 9, 2012

- 10 -

A handwritten signature in black ink, appearing to read 'S Bycraft', with a long horizontal flourish extending to the right.

Suzanne Bycraft
Manager, Fleet & Environmental Programs
(604-233-3338)

SJB:



GREEN CART

Food Scraps and Yard Trimmings Pilot Program

Complete green cart survey for a chance to win an iPad2 and other prizes!

Thank you for assisting us with the review of the Green Cart Pilot Program. Your input as participants in this program is crucial to assessing options for the Green Cart recycling programs for townhomes in the City of Richmond. Please take a few minutes to complete this survey and submit it by 5:00 p.m. on September 12, 2011. Your individual responses will be kept confidential and will be used in the program review only.

Three ways to submit your completed survey:

- I. Mail or drop off to Linh Huynh, Environmental Programs –
5599 Lynas Lane, Richmond, BC V7C 5B2.
- II. Scan and email to lhuyh@richmond.ca.
- III. Fax it to Environmental Programs, Attention Linh Huynh, 604 233-3336.

This survey can also be completed online at www.richmond.ca/greencart.

Your input is needed!

1. What is your green cart collection day?

- Monday
 Tuesday
 Wednesday
 Thursday

2. Are you actively participating in the Green Cart Pilot Program? If no, please skip ahead to question 15.

- Yes
 No.

3. What size container are you using?

- 120 Litre
 Other (Please specify.) _____
 80 Litre _____
 46.5 Litre _____

4. How often do you place your Green Cart out for pick-up?

- Weekly
 Other (Please specify.) _____
 Bi-weekly (every two weeks) _____
 Monthly _____

5. Which of the following items are you putting in your Green Cart? (Please check all that apply.)

- | | |
|---|--|
| <input type="checkbox"/> Yard trimmings | <input type="checkbox"/> Food-soiled paper towels, napkins, plates |
| <input type="checkbox"/> Vegetable peelings/fruit | <input type="checkbox"/> Eggshells/cheese |
| <input type="checkbox"/> Coffee grinds/tea bags | <input type="checkbox"/> Other (Please specify.) _____ |
| <input type="checkbox"/> Bones/meat | _____ |
| <input type="checkbox"/> Spoiled food from fridge/freezer | _____ |
| <input type="checkbox"/> Cooked food scraps | _____ |
| <input type="checkbox"/> Pizza boxes | |



Attachment 1 (Cont'd)

6. If you are not putting food scraps in your Green Cart, please tell us why:

7. Please indicate your preferred method of service:

- Door-to-door collection
- Centralized (pick-up from one central location)

8. Please indicate your preference for the collection container:

- City-provided cart (pre-decalled)
- Resident-provided container of choice (where City provides label only)

9. On average, when using the Green Cart, how much would you estimate that your garbage is being reduced:

- 75% Less garbage
 - 50% Less garbage
 - 25% Less garbage
 - No change
- Other (Please specify.) _____

10. If you currently receive curbside collection of your garbage, how often do you feel your garbage needs to be collected when using Green Cart recycling?

- Weekly
- Bi-weekly (every two weeks)
- Monthly

11. What do you like about the Green Cart Pilot Program?

12. What do you dislike about the Green Cart pilot program?

13. Did you find the information provided about the Green Cart Pilot Program to be:

- Very helpful- explained everything I needed to know.
- Somewhat helpful – gave me some basic information, but I still had questions.
- Not at all helpful – I didn't understand the program or what was required to use my Green Cart.

14. For each statement below, please indicate Yes, No or Not Sure.

	Yes	No	Not Sure
A) I need more information on the environmental benefits of recycling yard trimmings and food scraps.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B) I need more information on why I should recycle food scraps.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C) I need more information on how to recycle food scraps.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D) I would recycle food scraps if I had a smaller container.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E) I would recycle food scraps if a small container was supplied for temporarily storing food scraps before transferring them to the Green Cart.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F) I would recycle food scraps if.....: (Please specify.)			



Attachment 1 (Cont'd)

15. What do you think are the most common barriers that prevent residents from using their Green Carts? (please check all that apply.)

- Not enough space to store Green Cart.
- Size of container.
- Not sure what goes into Green Cart.
- Do not want to put food scraps in home.
- Concerned about smell of food scraps in Green Cart.
- Concerned about rodents or other wildlife being attracted to Green Cart.
- Other (Please specify.)

16. What do you recommend or what do you think would help encourage people to use Green Carts for recycling food scraps?

17. Do you use a backyard composter?

- Yes
- No

18. If you answered no to question 2, what are your reasons for not participating?

19. Have you made any changes to your landscaping contract/arrangement as a result of this program?

- Yes
- No
- Not sure
- Not applicable

20. Please provide any other comments or suggestions about your experience participating in Richmond's Green Cart Pilot Program.

Optional: if you would like to be entered to win the green cart survey grand prize of an iPad2 and other prizes, please provide us with your contact information as follows:

Name: _____
 Address: _____
 Email: _____
 Phone: _____

Thank you for completing this survey and providing the city of Richmond with your comments about your participation in Richmond's Green Cart Pilot Program.

If you have questions about the Green Cart and related recycling services or would like to meet with our staff, please contact Linh Huynh of Environmental Programs directly at 604 233-3346 or lhuynh@richmond.ca or call the Environmental Programs Information Line at 604 276-4010.



Attachment 2

Response from All Survey Respondents

2. Participation

- Yes 92%
- No 8%

3. Size of Container

- 46.5 L 23%
- 80 L 29%
- 120L 30%
- Doesn't Know 19%

17. Backyard Composters

- Yes 9%
- No 3%

19. Changes to Landscaping Contract/Arrangement

- Yes 2%
- No 55%
- Not Sure 15%
- Not Applicable 15%
- No Response 26%

Response from Active Participants (Answered "Yes" to Question #2)

4. Frequency for placing Green Cart for Collection

- Weekly 84%
- Bi-weekly 10%
- Monthly 3%
- No response 3%

5. Composition of Materials in Green Cart

- Yard Trimmings 68%
- Vegetable Peelings/Fruit 96%
- Coffee Grinds/Tea Bags 76%
- Bones/Meat 87%
- Spoiled Food from Fridge/Freezer 83%
- Cooked Food Scraps 90%
- Pizza Boxes 31%
- Food-Soiled Paper Towels, Napkins, Plates 74%
- Eggshells/Cheese 86%

7. Preferred Collection Method

- Door-to-door collection 95%
- Centralized (pick-up from one location) 4%
- No Response 1%

8. Preference for Collection Container

- City-provided cart (pre-decalled) 83%
- Resident-provided container of choice (where City provides label only) 9%
- No Opinion 8%

9. Garbage Reduction

- 75% Less Garbage 34%
- 50% Less Garbage 43%
- 25% Less Garbage 16%
- No Change 2%
- No Response 4%

13. Feedback on Communication about the Program

- Very helpful- explained everything I needed to know. 81%
- Somewhat helpful – gave me some basic information, but I still had questions 17%
- Not at all helpful – I didn't understand the program or what was required to use my Green Cart 0%
- No Response 3%

14. Communications/Education

	Yes	No	Not Sure	No Response
• I need more information on the environmental benefits of recycling yard trimmings and food scraps.	12%	83%	4%	3%
• I need more information on why I should recycle food scraps.	7%	90%	2%	1%
• I need more information on how to recycle food scraps.	13%	83%	1%	3%
• I would recycle food scraps if I had a smaller container.	50%	36%	10%	4%
• I would recycle food scraps if a small container was supplied for temporarily storing scraps before transferring them to the Green Cart	57%	30%	8%	6%

Response from Active Participants & Non-Participants (Answered "No" to Question #2)

15. Most Common Barriers That Prevent Residents From Using Their Green Cart

	Active Participants	Non- Participants
• Not enough space to store Green Cart.	51%	26%
• Size of container.	44%	48%
• Not sure what goes inot Green Cart.	19%	22%
• Do not want to put food scraps in home.	55%	52%
• Concerned about smell of food scraps in Green Cart.	81%	78%
• Concerned about rodents or other wildlife being attracted to Green Cart	60%	78%