

A Joint Report on the Alternative Container Pilot Study Summary of Findings



Township of King



Town of Richmond Hill



York Region



Alternative Container Pilot Study Summary of Findings

1.0 BACKGROUND:

A joint alternative recycling container pilot study was conducted in cooperation with the Township of King, Town of Richmond Hill and the Regional Municipality of York. The pilot study commenced the first week of February and extended until the last week of March, 2008. The alternative container pilot study was broken down into two separate pilots: the first pilot required mandatory participation where wheeled reusable containers with lids were distributed to participants. Reusable containers were to be used in place of blue boxes for recyclables during the month of February only (reusable container pilot). The second pilot involved a voluntary study where clear blue plastic bags were distributed to participants. The bags were to be used for any overflow recyclables that did not fit into their blue box during the month of March only (bags for overflow pilot). Both alternative collection methods were tested to determine if there were improvements to recycling capacity and litter reduction.

2.0 RESULTS AND ANALYSIS

The pilot study was analyzed in several ways during the pilot and after the pilot was completed. The analysis included the following:

- **Set out study** – weekly data collection of the characteristics on wastes set out at the curb on collection day (i.e. number of garbage bags, blue box containers, litter, etc.)
- **Waste audit** – all garbage and recyclable material collected, sorted and weighed to determine waste composition
- **Survey card** -
- **Focus group sessions**
- **Collection contractor questionnaire**

The following sections summarize the results gathered during the analysis.

Alternative Container Pilot Study Summary of Findings

2.1 SET OUT DATA

The set out data was captured in both municipalities to record participation characteristics including number of garbage bags, green bins, recyclable containers (i.e. blue box, clear bag, or wheeled reusable container), etc. In Richmond Hill, the set out study was conducted on all 225 single detached homes within the sample area. In King, the sample area had larger properties that were spread out making it difficult to record the set out data for all 200 single detached homes in one day. Therefore a sample of 50 households was observed throughout the study. Below, Tables 1 and 2 summarize the set out data results.

Table 1: Reusable container pilot set out results

Reusable Container Pilot						
	Avg Garbage Set Out (bags/hhld)	Avg % Green Bin Participation	% using containers	% of cont. w/ visible contam'n	% of containers showing litter	% of hhlds using BB for overflow
Richmond Hill	1.15	69.6%	74%	21.1%	0%	8.2%
King	1.58	73.5%	74.5%	28.9%	3.4%	12.5%

Table 2: Bag for overflow pilot set out results

Bags for Overflow Pilot								
	Avg Garbage Set Out (bags/hhld)	Avg % Green Bin Participation	% of hhlds using bags	% of hhlds bags only	% of bags with contam'n	% BB w/ visible contam'n	% w/ litter around BB?	% with litter around Bag?
Richmond Hill	1.19	64%	18.7%	4.8%	24.2%	12%	1%	0%
King	1.51	72%	19.5%	3.5%	47.2%	39.4%	2.4%	0%

Alternative Container Pilot Study Summary of Findings

The set out data captured the variety of methods used by each household that set out their recyclables; Figures 1 and 2 summarize these methods.

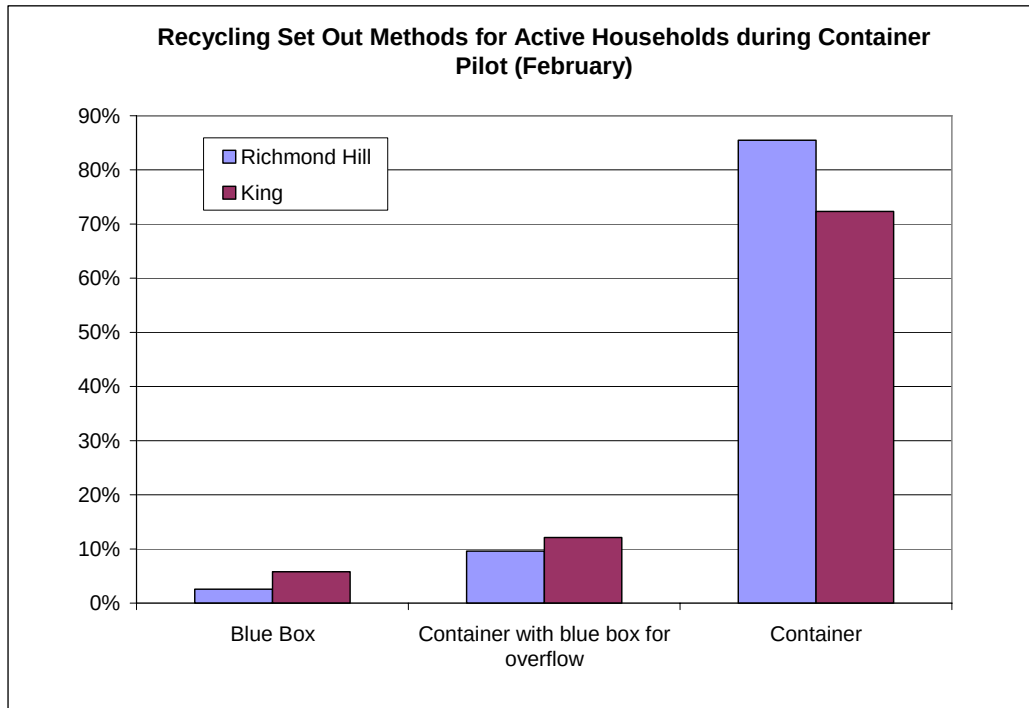


Figure 1: Recycling set out methods for active households during the reusable container pilot

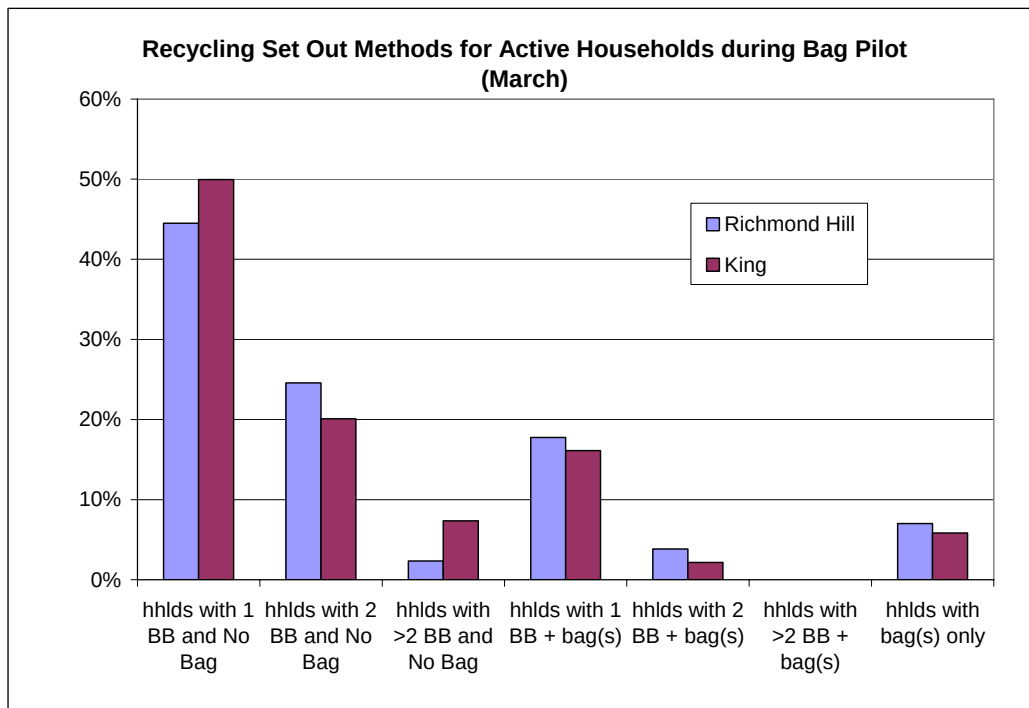


Figure 2: Recycling set out methods for active households during bag for overflow pilot

Alternative Container Pilot Study
Summary of Findings

2.2 WASTE AUDIT RESULTS

Waste audits were conducted on 50 households in each sample area during the pilot study; one during the reusable container pilot and one during the bag for overflow pilot. During the reusable container pilot, the first 50 households that had containers set out for recycling collection were sampled for the waste audit. These same households were sampled during the bag for overflow pilot and resulted in a smaller sample size as fewer households set out recyclables during the bag for overflow audit. During the bag for overflow pilot audit, the sample size for the Town of Richmond Hill was 46 households and King Township was 39 households.

Table 3: Waste audit results for pilot study

Waste Audit Results: Reusable Container Pilot vs. Bags for Overflow Pilot				
	% of residual waste comprised of BB material (by weight)		% Contamination in recycling material (by weight)	
	Container	Bag	Container	Bag
Richmond Hill Pilot Study	13.3%	12.3%	8.7%	6.2%
Richmond Hill Benchmark – 2007 Audit	13.8%		8.4%	
King Pilot Study	12.4%	11.0%	8.4%	5.0%
King Benchmark – 2005 Audit	12.2%		1.4%	

It should be noted that the percentage of households sampled during the 2008 audit that used bags for overflow in Richmond Hill and King are 18% and 28%, respectively.

The differences recorded when comparing the mandatory reusable container pilot, the bags for overflow pilot and the benchmark blue box audits for both Richmond Hill and King do not show any significant trends. The following summarizes the data collected in the audits and presented in Table 3.

- The difference in the % of residual waste comprising of blue box material found between the reusable container pilot and the bag for overflow pilot for both municipalities was generally small (less than 2%).
- Overall, the contamination rate was higher during the reusable container pilot for both Richmond and King than the benchmark audits. However, the differences were generally small for both pilots; the reusable container pilot was 3.4 percentage points higher than the bags for overflow pilot in King and in Richmond Hill the container was 2.5 percentage points higher.

The waste audit revealed several different types of contaminants in the recycling stream that can be summarized in the following table:

Main Contaminant in Recycling Stream		
	Richmond Hill	King
Reusable Container Pilot	Non-recyclable plastics • Polystyrene, plastic film and durable plastics (i.e. toys)	Organics • Food waste still in recyclable containers

Bags for Overflow Pilot	Non-recyclable paper and paper packaging Shredded paper and tissue/towelling	Non-recyclable plastics Polystyrene, plastic film and durable plastics (i.e. toys)
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A prepaid postage survey card was delivered to each participant at the end of the pilot study. The survey cards generated an excellent response rate with 35% of Richmond Hill households and 42.5% of King households participating in the survey. The survey card consisted of three questions where residents were required to check off a box for the most appropriate answer, and two questions that required a descriptive answer (see Figure 3).

Figure 3: Survey Card sent out to all participants in the Richmond Hill and King pilot study

Alternative Container Pilot Study Summary of Findings

Below, Figures 4, 5 and 6 summarize the three questions where residents checked off a box on the survey card.

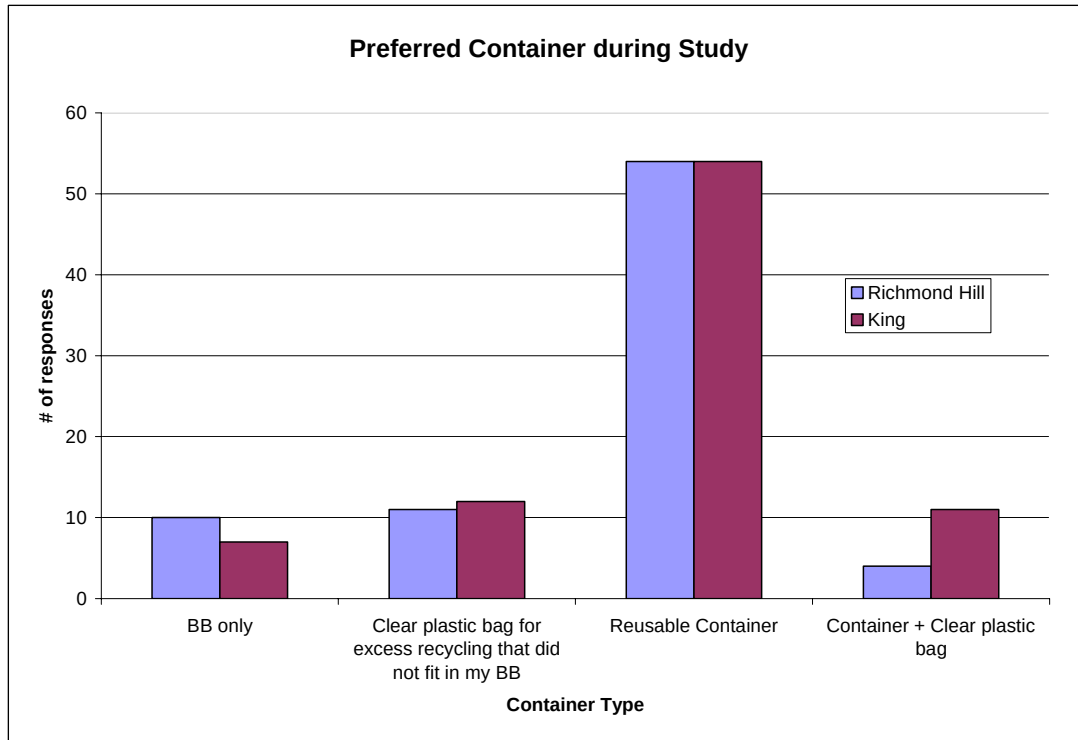


Figure 4: Preferred Container to use during the pilot study

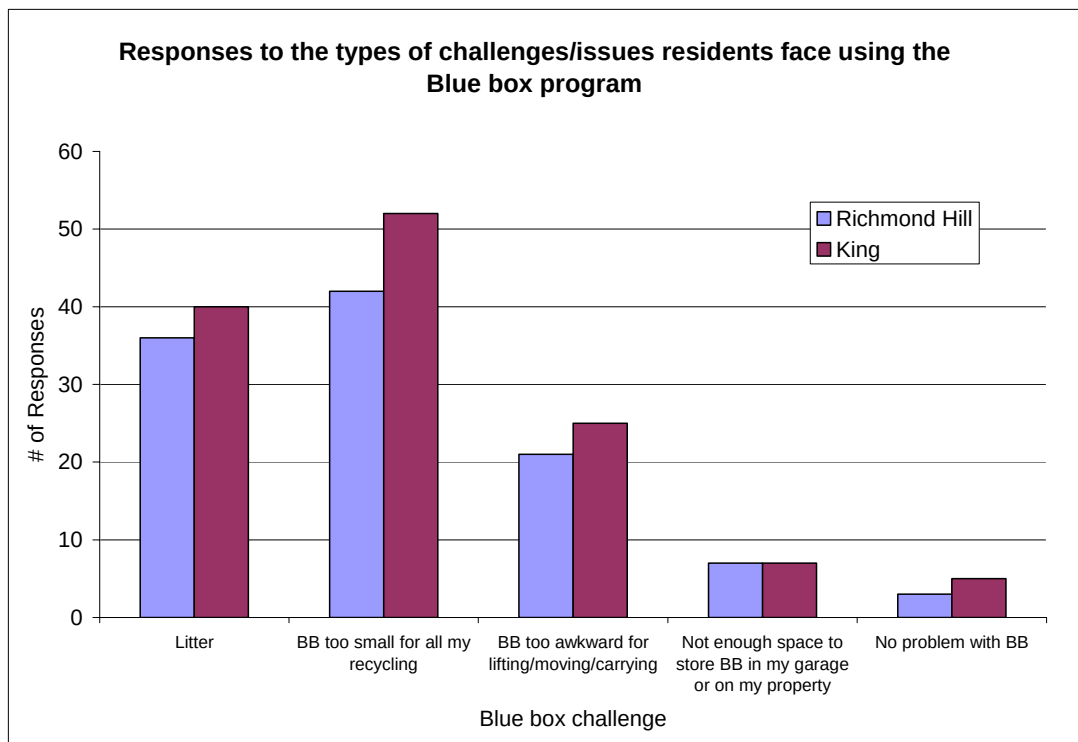


Figure 5: Responses to the types of challenges/issues residents face using the blue box program

Alternative Container Pilot Study Summary of Findings

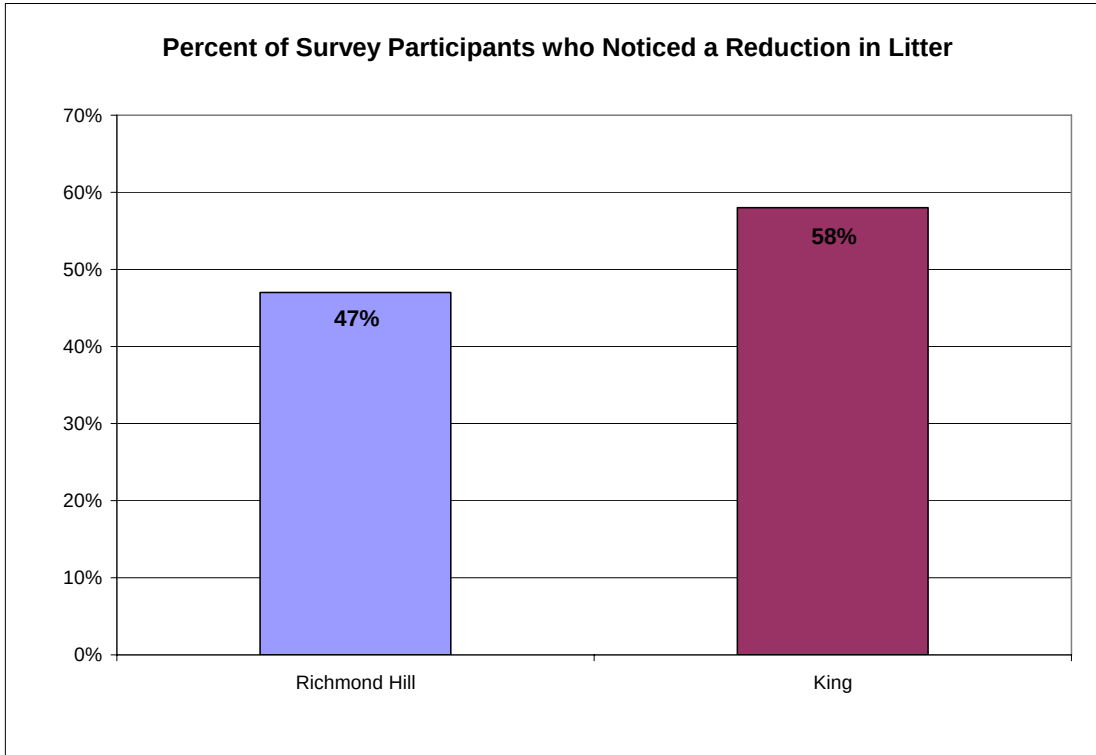


Figure 6: Percent of survey participants who noticed a reduction in litter

Below, Table 4 summarizes the open-ended questions provided on the survey card requiring descriptive answers.

Table 4: Summary of descriptive answers from survey card results

Reasons why they liked the container:	Liked the wheels, easy to move, lid kept materials from blowing around, easy to store, and held more material
Reasons why they disliked the container:	too awkward - if it was square could fold up cardboard in it easier, too big for small household, contractors would not secure lid after pick up and lid would blow away, container not sturdy and too flimsy in windy conditions
Reasons why they liked the bags:	no mess, reduced number of trips to end of driveway - once collected its gone, bag could be used as liner in can in kitchen - with container stored in garage, its not as accessible, bags can be tied to reduce litter - prevents collectors from spilling its contents
Reasons why they disliked the bags:	Do not like the idea of using 'Plastic bags' and creating more waste, harder to carry bags to curb, ripped too easily with cardboard and cans, and more difficult to handle

2.4 FOCUS GROUP SESSIONS

Two focus group sessions were conducted, one in each municipality, in both sample areas, with 10 participants recruited in each group at random.

Every member of both focus groups preferred the reusable container supplied for the pilot. Overall, the majority of participants at both sessions found it easy to use, largely due to the wheels. Alternatively, the overwhelming majority of participants at both focus groups were against use of the blue plastic bags. One focus group member summed up the majority opinion from both sessions when he said, “somehow it seems that using the blue plastic bag is not really recycling and that I was contributing to the problem, not helping solve it.”

The following are key responses that were voiced during the focus group sessions.

- Majority of participants supported the recycling container (with wheels) versus the bags for overflow.
- It was a key opinion at both sessions that participants wanted the option to be able to still use a blue box for what they could not fit in the container (e.g. large pieces of cardboard).
- Majority opinion at both sessions supported the use of containers particularly if it has wheels but felt strongly that the lid needs to be connected to the body of the container.
- Majority preferred to keep paper separate from other recycling materials.
- Majority at both sessions said they would be willing to purchase a container, if necessary, if the cost was reasonable. There was little support for use of the blue bags except for plastic bottles and no support for purchasing them.

Alternative Container Pilot Study Summary of Findings

2.5 COLLECTION CONTRACTOR QUESTIONNAIRE

A questionnaire was also provided to each of the recycling collection drivers responsible for the sample areas during the pilot study. Input was gathered on their perspectives on the different collection methods.

The collection contractor questionnaire was completed by one recycling collection driver from the King pilot area and two recycling collection drivers from the Richmond Hill pilot area. It should be noted that King used a side load compacting co-collection vehicle and Richmond Hill used over the top side loaders (see Figures 7 and 8). The hoppers are more restrictive in size.

The following table summarizes the results.

Table 5: Results from collection contractor questionnaire

	Questions	Richmond Hill Driver 1	Richmond Hill Driver 2	King Driver
Container	Was the container easy to identify as recyclables for collection?	Yes	Yes	Yes
	Was contamination easy to identify within the container?	No	No	No
	Was the container too awkward to lift and empty?	Yes	Sometimes	No
	Were the container and its contents too heavy at time?	Yes	Yes	No
	Did you notice a reduction in recycling related litter near the container?	Yes	Left Blank	Yes
Bags	Were the bags easy to identify as recyclables for collection?	Yes	Yes	Yes
	Was contamination easy to identify within the bag?	No	Yes	No
	Was the bag too awkward to throw into the truck for collection?	No	Sometimes	No
	Were the bag and its contents heavy at times?	No	Yes	No
	Did you notice a reduction in recycling related litter?	Yes	Yes	Yes
Which did you prefer, the reusable container or the clear plastic bag?		Bag	Bag	Bag

Alternative Container Pilot Study Summary of Findings



Recycling and organics are loaded in the side loader here and then lifted over the top and into the truck

Figure 7: Richmond Hill over the top side loader collection truck for recyclables and organics



Recycling and organics are loaded in the side here

Figure 8: King side load compacting co-collection truck for recycling and organics

3.0 SUMMARY

The survey cards and the focus group sessions revealed overwhelming support for the reusable containers as the preferred methodology for setting out recyclables. The majority of participants claimed during the focus group session that the plastic bags would contribute to the problem of adding more waste to the recycling stream. The survey card revealed similar results where less than 15% of participants selected the bags for blue box overflow as the preferred method for recycling (refer to Figure 4). Moreover, during the set out study, it was observed that less than 20% of participants used bags for blue box overflow (refer to Tables 1 and 2).

The results from the waste audit were less obvious in determining the superior collection method. The differences recorded when comparing the mandatory reusable container pilot, the bags for overflow pilot and the benchmark blue box audits for both Richmond Hill and King do not show any significant trends. The largest difference was observed where the reusable container revealed higher contamination levels in the recycling stream than the bag for overflow pilot and the benchmark audit data for both municipalities. It should be noted that due to the voluntary nature of the bag for overflow pilot, not every household used bags for overflow. As a result, analyses on the waste audit drawn between the reusable container and bag for overflow pilots should consider the differences in collection methodologies. In addition, the sample size audited for the bag for overflow audit was smaller than the reusable container pilot, possibly reducing the value of the audit data as a representative sample.

The collection staff for both municipalities preferred the bags over the collection of the reusable container. The reusable container was too heavy and awkward for two of the three collection staff. In addition, both drivers found it difficult to detect contamination within the reusable container.

The survey card results indicated that the number one issue/challenge to the current blue box program is that their blue boxes were too small for all their recycling. Yet, less than 20% of the participants in both pilot areas took advantage of bags to use for additional capacity. This may suggest that if a program similar to the bag for overflow pilot were introduced to all local municipalities, the participation would be low. It should also be noted that the clear blue plastic bags were provided for free during the pilot study; during the focus group session there was no support for purchasing bags for blue box overflow. Therefore, selecting a collection method that the majority of residents prefer will have a greater impact on recycling rates and litter reduction.

The pilot study revealed the different perspectives of participants and collection staff, and the performance of each recycling method piloted. Future direction will focus on the impacts each collection method will have on the entire recycling system. This will include a full cost-benefit analysis on reusable containers versus bags for overflow implemented across York Region. The analysis will focus on collection costs and processing costs and the benefits achieved by using either method. The results of this analysis will help determine the overall recycling system enhancements required to optimize the current blue box program.