

November 24, 2017



Mike Birett
Continuous Improvement Fund
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Subject: Recycling Contamination Study Summary of Findings

Dear Mike:

The following is a summary of the findings of the curbside recycling contamination collection study undertaken in Barrie on September 26 and October 11, 2017. The purpose of the study was to evaluate the effects of instructing curbside collection drivers to put more time and effort into hand sorting contamination from single family residential blue boxes.

Approach & Methodology:

Week 1 (September 26) - Instruct a curbside driver to collect curbside recycling from households as usual on one of their regular routes. AET trailed the collection vehicle, noting the amount of time taken to complete the route, and average time per stop. AET also collected any contamination left behind by the driver. The driver was instructed to tip their load in a dedicated area at the transfer facility (i.e. separately from other materials on the tipping floor), and weigh in/out after tipping each stream (fibres & containers). AET extracted a subsample from the load to determine the contamination level, by weight (subsample was split proportionally between the fibre and container streams). The material that was left behind by the driver and collected by AET was weighed, subsampled and audited, to obtain the complete composition profile (accepted vs. non-accepted materials) of recycling set out by the households.

Week 2 (November 11) – Repeat Week 1 exercise the following recycling collection week (same day of week, same route, same driver), but give the driver instructions to put additional effort into hand sorting and leaving contamination at the curbside. Again, AET trailed the collection vehicle, noting time and collecting contamination left behind. AET extracted a subsample from the load to determine the contamination level, by weight (subsample split proportionally between the fibre and container streams). The material that was left behind by the driver and collected by AET was also weighed, subsampled and

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audited, to obtain the complete composition profile (accepted vs. non-accepted materials) of recycling set out by the households.



List of Composition Audit Categories:

- Accepted Container Stream Materials
- Accepted Fibre Stream Materials
- Non-accepted paper & paper packaging
- Non-accepted plastics
- Non-accepted metals
- Non-accepted glass
- Contaminated accepted materials (e.g. >10% liquid in bottles)*
- Bagged/boxed materials (e.g. newspaper in bag, bagged recycling, etc.)*
- Other materials

Findings:

The following table summarizes the key findings of the study.

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Summary of Curbside Contamination Pilot - Barrie	Baseline (Wk 1)	Pilot (Wk 2)	Notes
Number of Households Collected	893	660	In Week 2, driver not able to complete full route due to time restrictions.
Total Material Set Out by Sample Area Households (kg):	4,270	3,830	
Total Material Left at Curb by Driver	259	336	
Contamination Left at Curb by Driver	215	232	
Accepted Materials Left at Curb by Driver (kg):	44	104	This would be from full rejected boxes left at curb
Number of Households With Material Left Behind:	52	354	
Total Material Collected in Fibres Stream (kg):	2,500	2,210	Pilot week was done after thanksgiving, so likely more material per household set out (offset by less households collected)
Contamination Rate of Fibres Stream Collected (%):	8.89%	1.81%	Contamination rate does not include cross stream contaminants (i.e. recyclable containers in the fibre stream).
Total Material Collected in Containers Stream (kg):	1,510	1,280	
Contamination Rate of Containers Stream Collected (%):	9.9%	11.1%	Contamination rate does not include cross stream contaminants (i.e. recyclable fibres in the containers stream).
Combined Contamination Rate of Fibre & Containers Streams Collected (%):	9.3%	5.2%	
Average Time Per Stop (seconds):	19.11	53.38	This is wheels stopped (i.e. does not include moving time between households)
What would Contamination Rate Have Been if Driver Collected Everything? (%):	13.7%	10.8%	Contamination rate if nothing was rejected at curb.

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Discussion:

During week 1 of the study, in which the collection driver was instructed to complete his route as usual (i.e. do not sort out any more or less at the curb than usual), the average time per stop was 19.11 seconds. Overall contamination rate of the material that ended up in the truck (fibres & containers stream combined) was 9.3%. The driver left behind 250 kg of material at the curbside from 52 households. This included larger individual items that were obviously contamination (e.g. vacuum, glass table top, large pails, plant pots), and full rejected boxed (obvious contamination mixed in throughout the box). The following photos show examples of common contaminants left at the curbside by the driver under normal operating conditions.



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Examples of Material Left at Curbside in Baseline Week 1

During week 2 of the study, in which the collection driver was instructed to take extra time at the curbside to sort out contaminants, before tipping into his truck; the average time per stop increased to 53.38 seconds. As a result of this additional time per stop, the driver was unable to complete the full route within his regular working hours (additional trucks were called in to help completed the rest of the route). Only material from the portion of the route that the original driver was able to complete was included in the study. Overall contamination rate of the material that ended up in the truck was 5.2%. The driver left behind 336 kg of material at the curbside from 354 households. Again, this included larger individual items that were obvious contamination, full rejected boxes which had significant contamination mixed in, as well as a lot more smaller contaminant items (e.g. coffee cups).

The following photos show examples of common contaminants left at the curbside by the driver under instruction to take more time to sort out contaminants at the curb (Week 2).



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Examples of Material Left at Curbside in Pilot Week 2

Respectfully submitted,
AET Group Inc.


Ben Dunbar
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