
ABC INC. 2010 Waste Diversion Study
Prepared by Keystone Waste

Sample

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(company name)

Waste Diversion Study 2010

Executive Summary

This report summarizes the solid waste and recycling data for 15 ABC INC. locations across Canada for 2010.

Waste reduction is a key focus for ABC INC. under the Sustainability agenda and the goal of “zero waste”. ABC INC. has continuously succeeded in achieving a goal of ()% diversion each year, where third party contractors have conducted annual diversion studies. This year, ABC INC. retained the services of Keystone Waste to gather qualitative and quantitative information relating to waste and recycling, including waste costs analysis, for each of ABC INC.’s operating facilities. The result of the waste diversion study revealed a ()% diversion rate for 2010 and the information gathered has been summarized and is presented in this report.

Purpose

The overall purpose of the 2011 Waste Diversion Study is to analyze the current in-store waste and recycling processes, costs and make recommendations to improve on waste objectives and increase efficiencies in waste management processes. ABC INC. has a stated goal of ()% waste diversion, which has been exceeded since 2007 when the national diversion rate reached ()% In 2009 the National waste diversion rate was ()% which exhibits continuous improvement in ABC INC.’s waste diversion programs across the country.

Methods

To conduct the 2010 waste diversion study Keystone conducted the following activities:

- Conducted interviews with the Sustainability Coordinators at all locations. A copy of the questionnaire, which guided these interviews, is included in Appendix A;
- Analyzed waste and recycling data collected through “dumpster dives” for each location, as provided by head office;
- Confirmed collection methods and frequency of services, directly with vendors for waste/recycling at all locations and established a vendor rating system (see Appendix B) based on this process;

- Collected and analyzed invoices for all waste recycling materials for each location in order to establish waste costs and savings captured through recycling;
- Conducted a capacity survey for a 2 week period in January 2011 at all locations to measure fill rates and volumes of waste/recycling materials generated in order to establish a waste generation rate during a slower time of year;
- Calculated waste and recycling volume/density using the California Integrated Waste Management Board (CIWMB) industry standards in order to maintain consistency with previous ABC INC. waste diversion reports. The exception to this methodology is where vendors provided waste and recycling weights and as such, density and volume estimations were not required.

Assumptions

- Most locations (except Quebec City) recycle _____ but the amount of material generated is not recorded by any location and therefore not included in the study.
- All locations recycle fuel canisters, and in most cases are combined with scrap metal.
- _____ were added to most stores (except _____) which will affect the amount and type of materials produced compared to waste stream characterizations from previous years.
- We assume all locations recycle batteries and ballasts and the diversion rate at each store includes this material.
- Weights of recycled material are recorded by each store to the best of their ability, however the methodology and consistency of records greatly varies from one location to another. Solid waste measurements are not recorded by any of the facilities.
- “Unsecured” bins refers to bins that are not contained within the security of a building or loading bay. Most locations reported that even if bins were locked, they were still susceptible to illegal dumping.
- Broken pallets that cannot/are not returned to the shipper, are reported as recycled wood waste or in the case of a few locations, end up in the solid waste stream.

Data Tracking 2010

Excluded Materials

The following items were not included in the data tracking exercise:

Pallets - There is not sufficient data or quantity of pallets to justify tracking the recycling of pallets. As pallets are commonly reused or recycled informally this material has been excluded from the waste diversion calculation.

Construction Waste - this study did identify and recognize that most locations conducted renovations in 2010 where office spaces were added, renovated or refurbished. The construction waste was not recorded and therefore not included in the study.

Styrofoam – This material is difficult to recycle with limited recycling options available to many ABC INC. locations. In addition there is no standard volume measurement of Styrofoam due to irregular sizing of the material.

This material is not part of normal ABC INC. business operations, are infrequent and not recorded, therefore these items have been excluded.

Included Materials

Cardboard – The most widely recycled material in the typical Municipal Solid Waste (MSW) waste stream, all ABC INC. locations have cardboard recycling programs in place.

Computers – Computers that were retired due to a Tech Refresh or non-repairable breakdown. The computer vendor (Dell) recycled a portion of the computers in 2010, others were returned and reused by IT at Head Office.

Metal – various metal generated from minor refits, that is recorded and metal parts from the bicycle repair shop area. Fuel canisters are also classified as metal material and included in this category.

Mixed Containers – Includes glass, metal, aluminum and plastic food or beverage containers and rigid plastics, where accepted.

Organics – Organic materials that are collected for composting either onsite or using with the use of a vendor to pick up organic waste.

Paper – all paper products including office paper, newspaper, packing paper, confidential shredding, magazines, catalogues and paper coffee cups.

Shrink Wrap – soft plastic or PETE (**Polyethylene terephthalate**) that is primarily generated as a waste material from shipping activities. With the exception of Halifax, all of the locations included in this study collect and recycle this material.

¹ – with the introduction of at 11 of the 13 ABC INC. stores included in the study, are increasing as a generated material from ABC INC.'s business operations.

²Picking/Shipping Boxes – these large boxes are sent with product from the Distribution Centre and are typically reused by stores for inventory and return shipping purposes, however they ultimately end up in the recycling stream, contributing to the annual volume of cardboard recycled.

Batteries – have been included as ABC INC. sells batteries and collects batteries for recycling, however this material contributes to less than 1% of waste generated. Through the industry funded Call2Recycle product stewardship program, retailers in B.C., Quebec, Manitoba and Ontario can act as public battery recycling facility for no charge.

departments, which are donated, to a variety of non-profit organizations.

Density of Waste and Recyclables

In order to maintain consistency with previous waste diversion studies conducted for ABC INC., Keystone utilized the California Integrated Waste Management Board (CIWMB) and US Environmental Protection Agency (EPA) waste density classification. (<http://www.calrecycle.ca.gov/wastechar/DispRate.htm>)

The CIWMB classification of retail waste is between 33 and 40 kilograms per cubic yard. This standard combined with volume of waste generated is used as a baseline to calculate the weight of waste and recyclables generated by each ABC INC. location. For locations that have an organic waste diversion program the following assumptions are made:

- Participation in an organic waste diversion program (all types of organic food waste) will result in an average density of 30 kilograms per cubic yard (30 kg/yd³). This accounts for a lower weight per yard for material that contains a minimum of organic waste.
- Partial participation in an organic waste program (fruit and vegetables only), average density of 35 kilograms per cubic yard (35 kg/yd³)
- For organics, paper, cardboard, mixed containers, shrink wrap, and metal, the weights are estimated based on actual data provided by service providers or in

¹ were included in this study as they are part of ABC business operations. They have not been included in previous studies.

² the material eventually enters the recycling stream and has therefore, been included.

most cases the weights are estimated using industry standards for density, calculated by CIWMB.

Results

National Waste Diversion

In 2010, the national waste diversion rate was $X\%$. This is a 3% decline from 2009, which could be the result of operational changes. ABC INC. expanded its by adding , which contribute to an increase in packaging material and a bike store, which contributes to increased waste generation.

In addition, a different consultant was contracted to conduct the study in 2010, whereas the same consultant was used every year previously, from 2003-2009. In addition, based on the differences in assumptions and the methodologies used in 2010 compared to previous years, this can also attribute to variances in the data analysis.

The waste diversion rate is calculated by adding waste disposed and waste recycled; this sums equals **waste generated**. Waste recycled is then divided by waste generated, which equals the **diversion rate**.

For example:

$$\text{Waste disposed} + \text{waste recycled} = \text{waste generated}$$
$$\frac{\text{Waste recycled}}{\text{Waste generated}} = \text{Waste diversion rate}$$

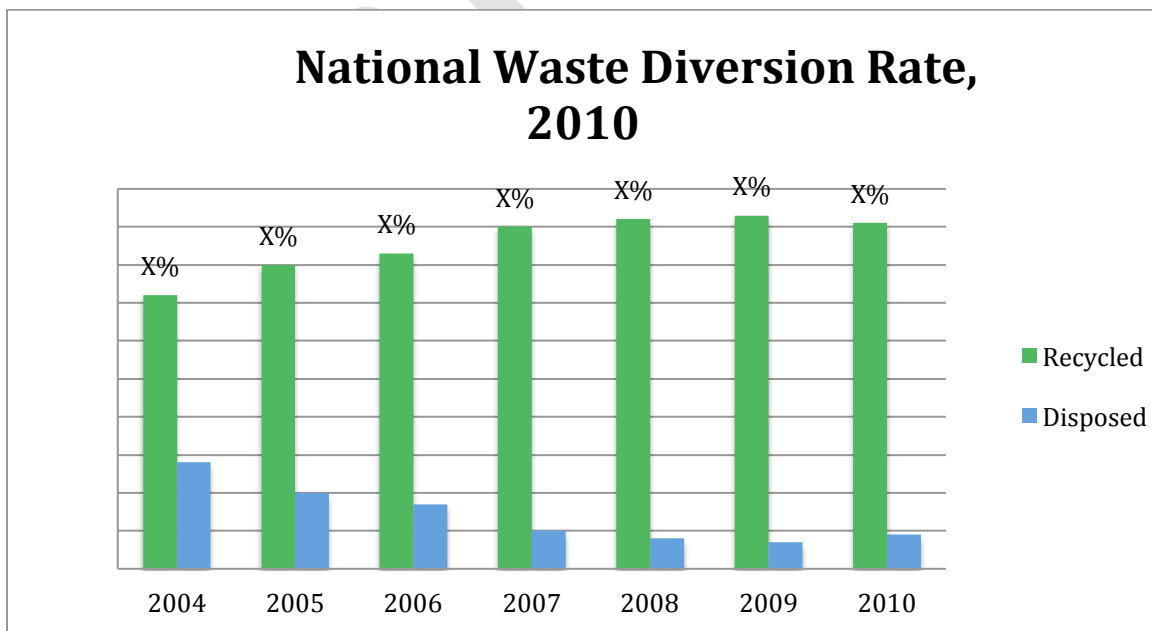


Figure 1 National Waste Diversion Rate based on 15 locations

Table 1. National Waste Diversion: Summary of Waste and Recycling Costs and Savings resulting from diversion.

Location	Solid Waste			Recycling			Cost Savings		Waste Diversion	
	Disposed Tonnes	Annual Cost	Cost/Tonne	Recycled Tonnes	Annual Cost	Cost/Tonne	Cost Savings/tonne recycling	Annual Diversion Savings	Waste Diversion Rate 2010	2010 Goal
Location 1	5	1680	\$336.00	103	\$9,414.00	\$90.26	\$245.74	\$25,630.80	%	%
Location 2	6.65	1388	\$208.72	81	\$5,451.00	\$67.30	\$141.43	\$11,455.47	%	%
Location 3	10.6	3897	\$367.64	63	\$25,144.00	\$399.11	\$(31.47)	\$(1,982.58)	%	%
Location 4	7.2	1656	\$230.00	62	\$3,300.00	\$53.23	\$176.77	\$10,960.00	%	%
Location 5	7	2300	\$328.57	44	\$3,500.00	\$79.55	\$249.03	\$10,957.14	%	%
Location 6	4.7	1568	\$333.62	43	\$9,377.00	\$218.07	\$115.55	\$4,968.53	%	%
Location 7	2.1	855	\$407.14	21.2	\$6,933.00	\$327.03	\$80.11	\$1,698.43	%	%
Location 8 ³	1.5	0	\$-	20		\$-	\$-	\$-	%	%
Location 9	3.1	1249	\$402.90	31.3	\$12,158.00	\$388.43	\$14.47	\$452.87	%	%
Location 10	2.7	1233	\$456.67	21.6	\$1,144.00	\$52.96	\$403.70	\$8,720.00	%	%
Location 11	2.4	505	\$210.42	16.5	\$3,320.00	\$201.21	\$9.20	\$151.88	%	%
Location 12	0.5	715	\$1,430.00	16.7	\$5,523.00	\$330.72	\$1,099.28	\$18,358.00	%	%
Location 13	6.2	510	\$82.26	45.1	\$2,970.00	\$65.85	\$16.40	\$739.84	%	%
Location 14	2.3	964	\$419.13	9.9	\$2,217.00	\$223.94	\$195.19	\$1,932.39	%	%
Location 15	5.2	733	\$140.96	174	\$(1,312.00)	\$(7.54)	\$148.50	\$25,839.31	%	%

Location Summaries

Locations are summarized according to the classification provided by ABC INC., according to volume of sales in 2010.

Location Structure

A - \$ million plus

B - \$ - \$ million

C+ - \$ - \$ million

C - \$ - \$ million

*Note that locations have to achieve and sustain these sales figures to be considered in that class of store.

2010 Current Structure is:

A - Location 1,2,3

B - Location 4,5

C+ - Location 6,7,8,9

C - Location 10,11,12,13,14,15

Location 1

Variation in Data

- The [redacted] and its employees share the space in the building, thereby contributing to the waste and recycling generated at this location.
- Waste and recycling bins are located in a secured area, thereby reducing the risk of illegal dumping.
- Capacity of organic collection is the lowest for this store category and according to the capacity survey, may be underutilized.

Waste/Recycling Summary

Material	Container	Service
Waste	2 cu/yd	2 X week
Cardboard/Mixed Paper	2- 4 cu/yd	7 X week
Organic Waste	1 -64 gal tote	1 X week
Mixed Containers	3- 96 gal totes	1 X week
Scrap Metal	96 gal tote	1 X week
	3 cu/yd	1 X month
Paper Shredding	3-96 gal/totes*	1 x month

* Includes shredding from the service center.

Note: Styrofoam and electronics are recycled on an on call basis.

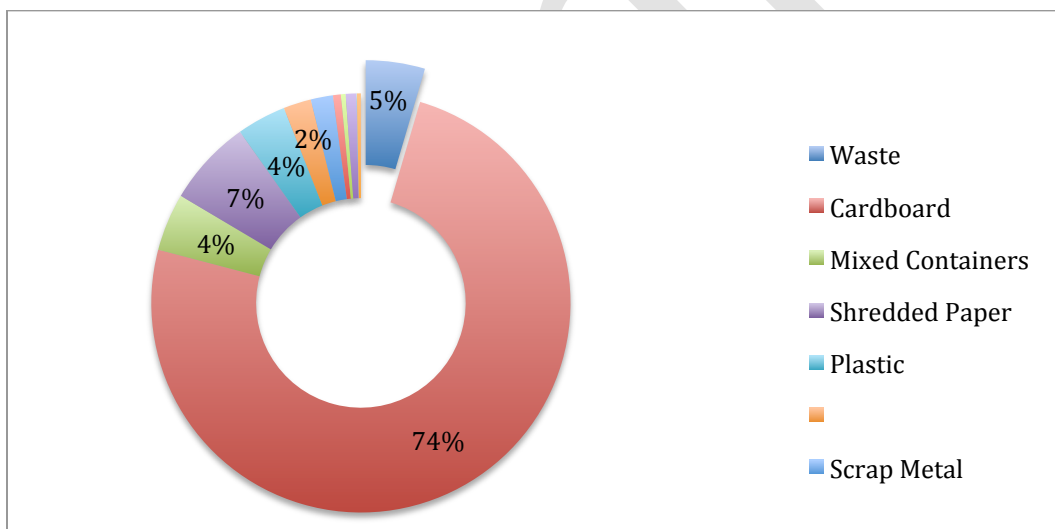


Figure 2 Location 1: Waste Profile displaying a 95% diversion rate.

Barriers to Diversion

There are ongoing challenges with respect to members and staff properly sorting recyclables into the correct receptacles.

Location 2

Variation in Data

extensive recycling program and their service provider picks up a wider variety of materials than most other stores. The

- Cardboard is recycled in cardboard boxes instead of in a standard size container or tote, compared to most other locations which have standard sized receptacles.
- This is one of only three locations where the vendor has provided comprehensive weights of waste and recycling materials.
-

The data provided didn't correlate with the density of material, sizes and frequency of service, so we adjusted the weights provided industry densities, in accordance with same type of measurement measurements for the other locations. Based on analysis of the two sets of data, the diversion rate could vary between 84%-89%.

Waste/Recycling Summary

Material	Container	Service
Waste	4 - 96 gal totes	3 X week
Cardboard (mixed with paper)	Cardboard Boxes	6 X week
Organic Waste	3 - 32 gal totes	1 X week
Mixed Containers	4 - 96 gal tote	2 X week

Notes:

- Scrap metal is picked up weekly, approximately 48 kg/ week.
- Soft plastic is collected in bags picked up on demand.
- Styrofoam is collected and picked up on demand, but not included in the diversion rate.
- [unclear] picked up on-demand, approximately 10 kg/week.
- E-Waste and toner cartridges are picked up on demand.
- [unclear] and included in the diversion rate.

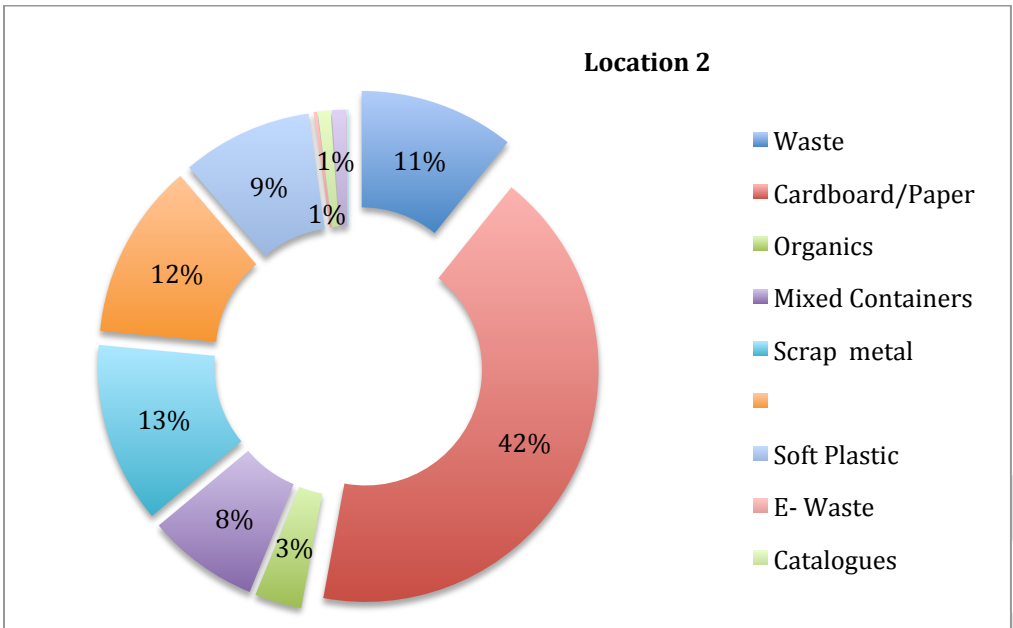


Figure 3 Location 2: Waste Profile displaying an 89% diversion rate

Barriers to Diversion

- High traffic store in an urban area means a lot of "walk in waste", especially coffee cups.
- Communication with janitorial staff is difficult due to the combination of a language barrier and the complex waste diversion system that is in place.

Location 3

Variation in Data

- Organic waste (fruits and vegetable waste only) is composted on site using backyard-composting units, the amount of material collected is weighed by the store. Staff takes the finished compost home for use in personal gardens.
- is the only location that bales soft plastic using a baler, resulting in very reliable data for this material. In 2009, it was reported that the store didn't use the baler, which wasn't accurate.
- This location kept meticulous records of recycled materials, limiting the estimations and therefore, variation in the data.
- The diversion rate only includes material generated directly from the store.
- The bins are not secured, and are therefore susceptible to illegal dumping.

Waste/Recycling Summary

Material	Container	Service
Waste	4 cu/yd	1 X week
Cardboard/Mixed Paper	6 cu/yd	5 X week
Soft Plastics	baled	On demand

Notes:

- Organics are composted on site using a backyard composter.
- Soft plastics are baled for pick up at no charge.
- Glass and hard plastics are collected in bags for recycling by a local recycler.
- Metal is recycled on-demand.
- Refundable containers are collected in store and informally donated to "shopping cart collectors" in the area.
- Wood waste is collected and serviced on-demand, approximately three times/year.

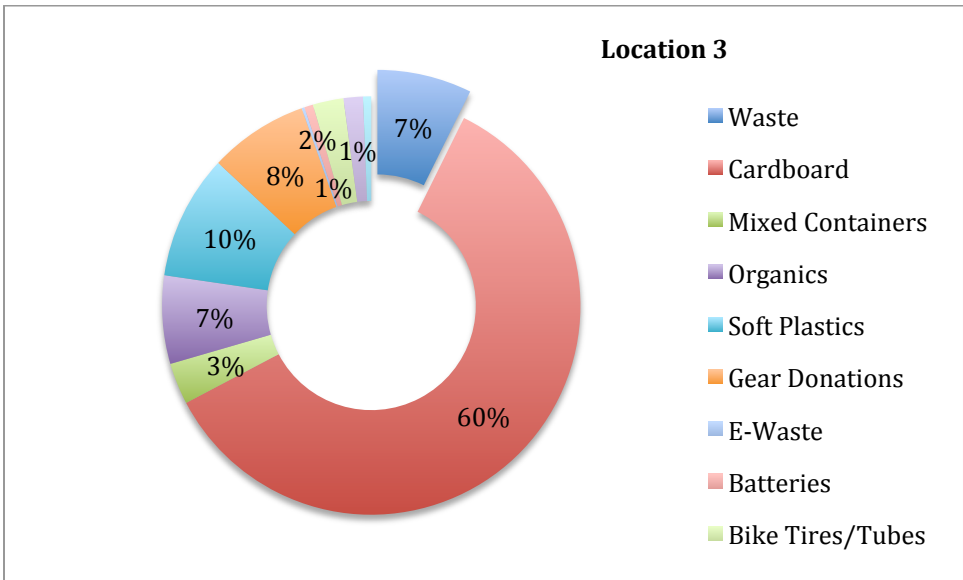


Figure 4 Location 3 Waste Profile displaying a 93% diversion rate

Barriers to Diversion

This location has struggled to get buy in from the janitorial staff with respect to sorting and waste diversion. This requires ongoing monitoring and education to ensure that recycling bins are not contaminated.

Disposable food containers from staff meals are a big source of residual waste. The sustainability coordinator provides ongoing education to staff to encourage "litter lunches."

Illegal dumping is an issue as the garbage bins are not locked.

Due to the proximity of several coffee shops, this store is prone to high volumes of "walk in waste" from coffee shops in area.

Location 4

Variation in Data

- Weights of recycled _____, scrap metal, textiles and _____ was not recorded in 2010, and therefore estimates were used for these materials based on qualitative data and generation rates at other stores of similar size.
- There is a _____ that shares the waste and recycling receptacles with this location. The _____ does not separate organic waste, resulting in a higher density of solid waste generated.
- The store does not have access to recycling for mixed textiles or plastic #6 however they send small amounts of recyclable odds and ends such shoe insoles and small fabric scraps to local kindergartens for use in craft programs.
- The number of staff has decreased at this location by approximately _____ FTE in 2010 compared to 2009, perhaps reducing annual waste generation.

Waste/Recycling Summary

Material	Container	Service
Waste	4 cu/yd	1 X week
Cardboard	6 cu/yd	5 X week
Organic Waste	95 gal tote	1 X week
Mixed Containers/Paper*	8 - 96 gal tote	1 X week

Notes:

- *Mixed containers, plastic, glass, metal and paper is commingled in 8 x 96 gal totes picked up once per week. The City of _____ has a comingled single stream collection.
- Soft plastic is collected in bags and picked up weekly with the comingled recycling totes.
- Oversize scrap metal, mostly from _____ is taken to a scrap metal recycler by staff.
- _____ are recycled but the weight/volume is not tracked, estimations were provided for the study.
- Certain varieties of textiles are recycled.

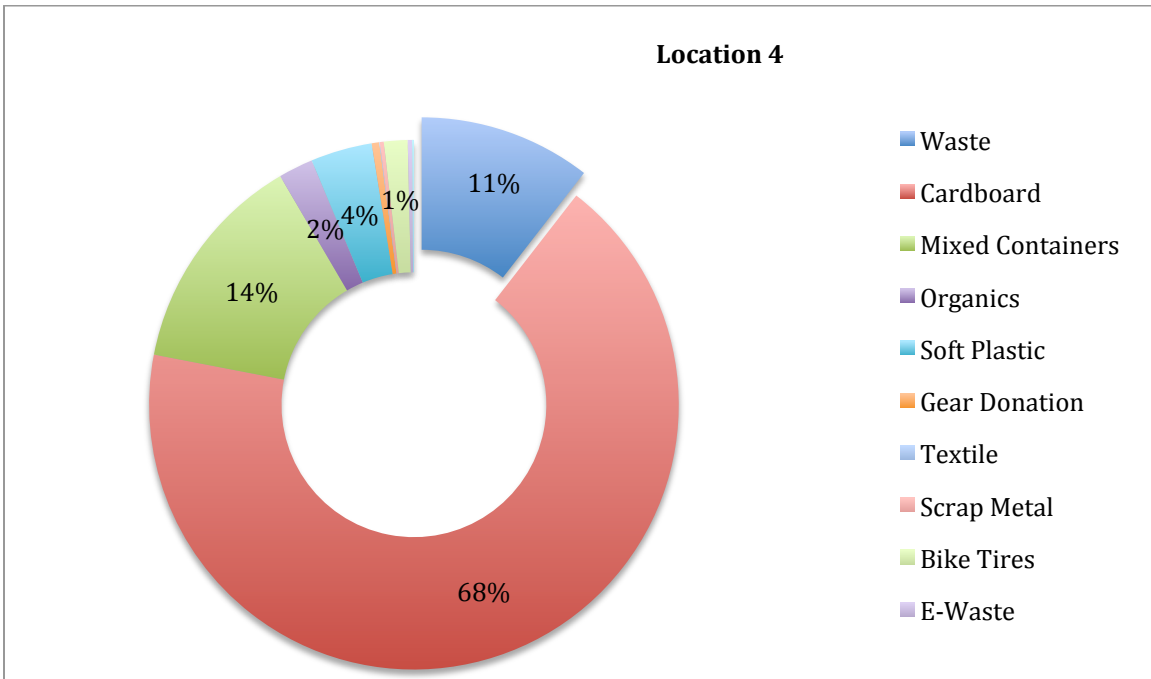


Figure 5 Location 4: Waste Profile displaying a 89% diversion rate

Barriers to Diversion

This location is limited by the City of Montreal’s recycling program for some items such as plastic #6.

The [redacted] currently does not participate in an organic waste program however, the sustainability coordinator is currently working to implement this program with the coffee shop for 2011.

Location 5

Variation In Data

- This location shares its waste and recycling receptacles with a resulting in excessive waste generation, compared to most other locations.
- The annual waste capacity is greater than any other store, yet according to the capacity survey, it is rarely full which will likely result in a lower density of solid waste calculated.
- The waste bin is shared with a in the same building (), which makes it difficult to determine the exact volumes of waste generated by the store.
- The store utilizes a located in the , which affects overall recycling costs when compared to other stores.
- This store participates in , however they had no record of the amount of materials donated so the data is a conservative estimate.
- This location has the only organics vendor that records actual weights of organic material collected and are presumed accurate, whereas vendor and industry estimates are used for other locations.

There are organic waste receptacles at this store, accessible by which accept (tenant in building) and Starbuck's coffee cups. There are very few that directly offer organic receptacles to

Waste/Recycling Summary

Material	Container	Service
Waste	6 cu/yd	1 X week
Cardboard	6 cu/yd	3 X week
Organic Waste*	6 - 64 gal totes	1 X month

Notes:

Plastics and mixed paper are recycled through the City of

- No Styrofoam recycling strategy is in place at this location, however volume of Styrofoam is reported to be minimal.
- There is a public recycling bin located in the store parking lot.
- The store works with Commuters of Edmonton by donating used
- Very little scrap metal generated, with the opening of the this year the volume of scrap metal from has increased but the have been picking up most of the used
- Electronics can also be recycled at the City of Station.

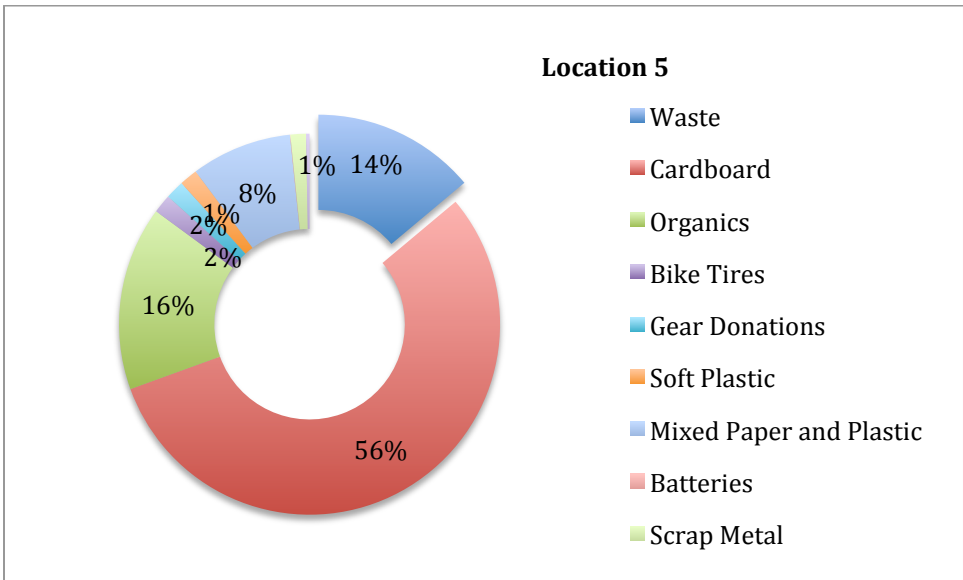


Figure 6 Location 5: Waste Profile displaying an 86% diversion rate.

Barriers to Diversion

Having a third party in the same building creates challenges, not only because of the amount of generated, but this location is essentially responsible for the waste diversion for the coffee shop as well.

The store has been challenged by a lack of response from their waste and recycling service provider, from metal. The would like to switch to a smaller waste bin and adjust the pick up schedule, however they have been told that the service cannot be changed. The store would also like to lock the waste bin to discourage illegal dumping however this was not done successfully in 2010. The store is hopeful that changing to a new waste/recycling service provider in early 2011 will help resolve these issues.

Location 6

Variation in Data

- The sustainability coordinator was off work for 9 months, which affected the accuracy and reliability of the recorded data of recycled material collected for most of 2010.
- Cardboard is baled at this store, but not at any other locations. This method of collection provides more accurate data, compared to bins, which are used at the other retail locations.

Waste/Recycling Summary

Material	Container	Service
Waste	4 cu/yd	Every other week
Cardboard	4 cu/yd	1 X week
Mixed Paper	2 - 96 gal totes	2 X week
Organic Waste	2 - 64 gal totes	1 X week
Mixed Containers	2- 96 gal totes	2 X week

Notes:

- Soft plastics are bagged and collected weekly, ranging from 5-15 bags/week depending on the time of year.
- Bike tires and tubes, textiles, scrap metal and wood is collected, weighed and picked up on-demand.
- All gear donations were weighed for 2010 (683 kg).

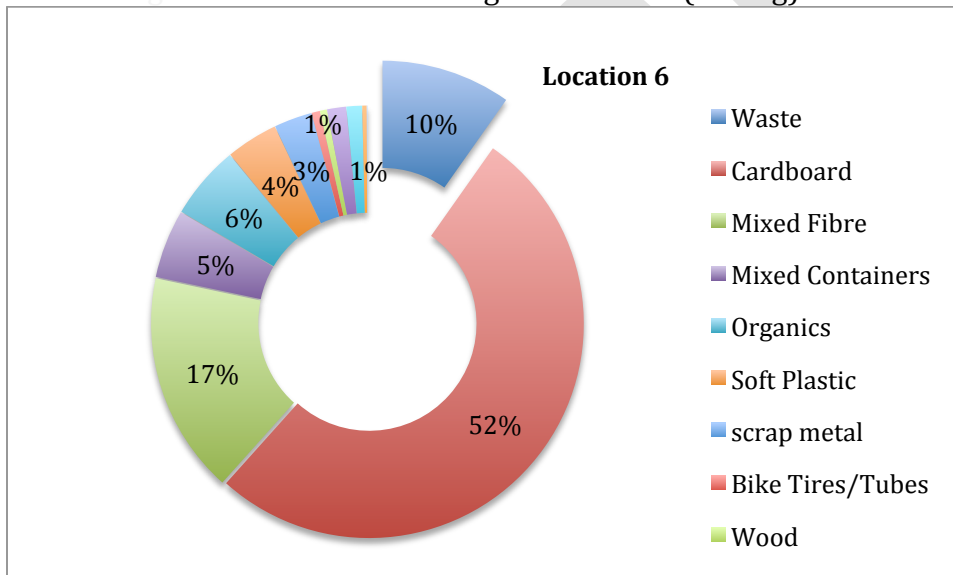


Figure 7 Location 6: Waste Profile displaying 90% diversion rate

Barriers to Diversion

The store has struggled to get buy-in from the janitorial staff with respect to material sorting and waste diversion. This requires ongoing monitoring and education to ensure that recycling bins are not contaminated.

Due to the proximity of several coffee shops, this store is prone to high volumes of "walk in waste" from coffee shops in area.

Location 7

Variation in Data

- Soft plastics are sent to the distribution center for recycling, the weights included in the diversion rates are based on estimates.
- The store switched from one 4 yard cubic yard bin to one 2 yard cubic bin, for waste, which will affect the average density.
- There were no gear swaps held at this location in 2010 and the bike shop was not added until the end of 2010.
- There were no actual weights provided by the store or the vendor for any materials generated and as a result, all weights are based on estimates.

Waste/Recycling Summary

Material	Container	Service
Waste	2 cu/yd	Every other week
Cardboard	4 cu/yd	2 X week
Organic Waste	64 gal totes	2 X week
Mixed Containers	64 gal tote	2 X week

Notes:

- Mixed paper is bagged and collected twice/week, with an average of 10 bags/week.
- Soft plastics are sent to the distribution center for recycling
- Batteries, electronics, Styrofoam bike tires/tubes, scrap metal and wood waste are recycled on-demand.

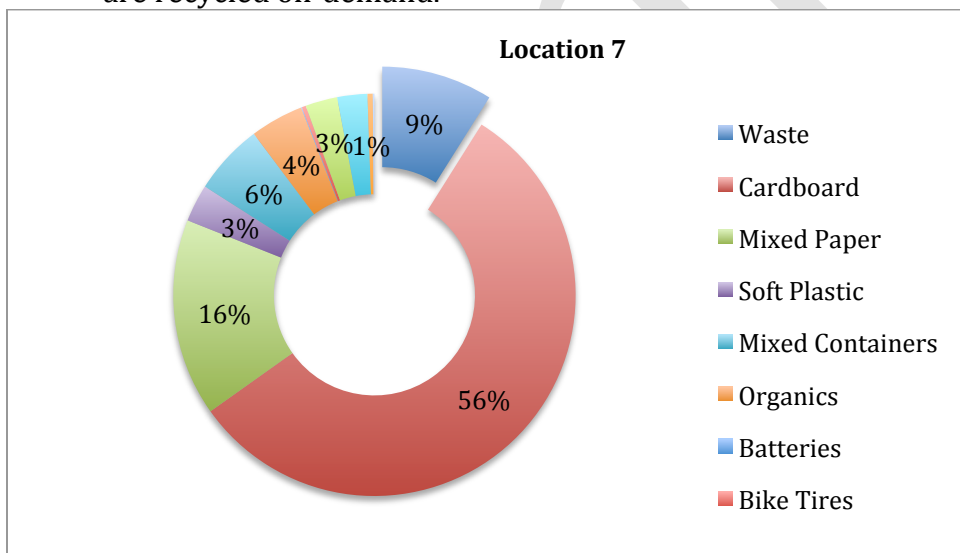


Figure 8 Location 7: Waste Profile displaying 91% diversion rate

Barriers to Diversion

There isn't a robust tracking system in place, which makes it difficult to consistently track recycled items and as a result, none of the materials are weighed. The sustainability coordinator has requested recycling reports from the vendor and hopes to collaborate more in the future to increase awareness at the store. There seems to be an unawareness of the types of materials that the organics program will accept.

Further, it takes time for any of the new staff to adapt to the culture of organics diversion and recycling at ABC INC.

Location 8

Variation in Data

- This location only held one gear swap in 2010, compared to two in previous years.
- Cardboard is not collected in a standard bin size, which makes measuring volume collected difficult and variable.
- There is no bike shop at this store; bike tires/tubes are not recycled.
- There is no wood recycling program at this location.
- The municipality services waste and recycling, therefore no records could be obtained regarding the weights for waste and recycling and therefore estimates were used.

Waste/Recycling Summary

Material	Container	Service
Waste	1-96 gal tote	1-2 X week
Cardboard	loose	2 X week
Mixed Containers	4 - 96 gal totes	1 X week
Soft Plastic	3 cu/yd	1 X week
Organics	1- 96 gal tote	1 x week

Notes:

- Bike tires are not recycled by this location and the store does not have a bike shop.
- Solid waste is picked up once/week in winter and twice/week in summer.
- There is no recycling program in place for Styrofoam, however it is generated in minimal quantities.

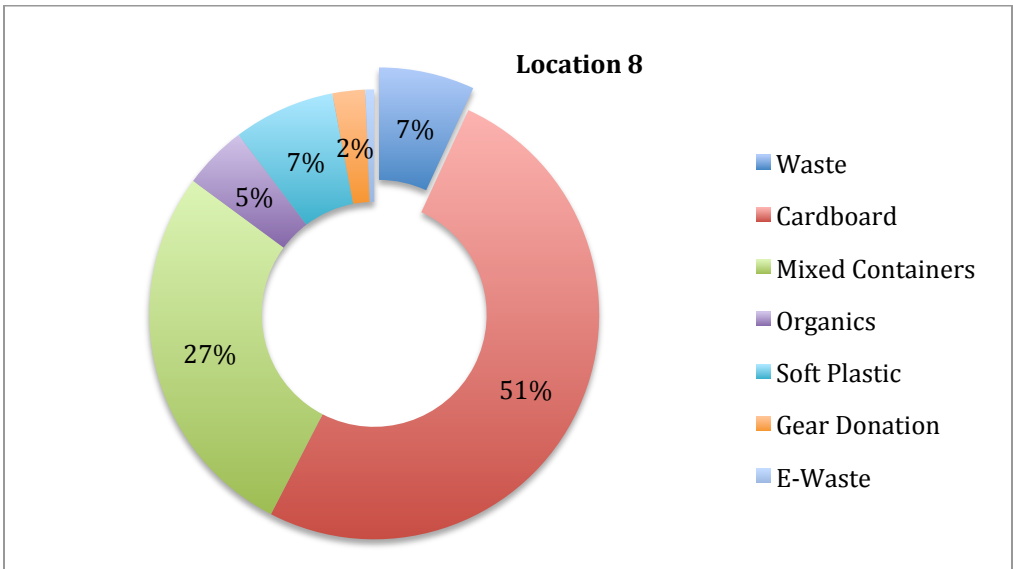


Figure 9 Location 8: Waste Profile displaying a 93% diversion rate

Barriers to Diversion

Currently, there is a lack of recycling strategy for warranty/repair items that are not selected for staff auctions, but can be reused, however it currently ends up in the garbage.

The sustainability coordinator feels there is a lack of standardization for bins and signage in the store, which likely contributes to consistently inefficient waste diversion.

The municipality collects solid waste and recycling and currently does not offer wood recycling.

The challenges surrounding education still exists in 2010, with more awareness required for members and staff with respect to proper diversion practices. The suggestion is to engage members, by visibility promoting waste diversion rates and goals of the store.

Location 9

Variation in Data

- Waste collection schedule decreased from weekly to every other week during 2010.
- This location has a recycling program which was expanded in 2010 to include plastics and Tim Horton coffee cups.
- This store has a very extensive recycling program and their service provider picks up a wider variety of materials than most other stores.
- No gear swaps were conducted in 2010.

Waste/Recycling Summary

Material	Container	Service
Waste	8 cu/yd	Every other week
Cardboard	6 cu/yd	2 X week
Organic Waste	4 - 32 gal totes	Every other week
Mixed Containers	64 gal tote	1 X week

Notes:

- Tim Horton coffee cups are collected in bags and picked up once a month.
- Styrofoam, scrap metal, mixed plastic and bicycle tires are collected on-demand.

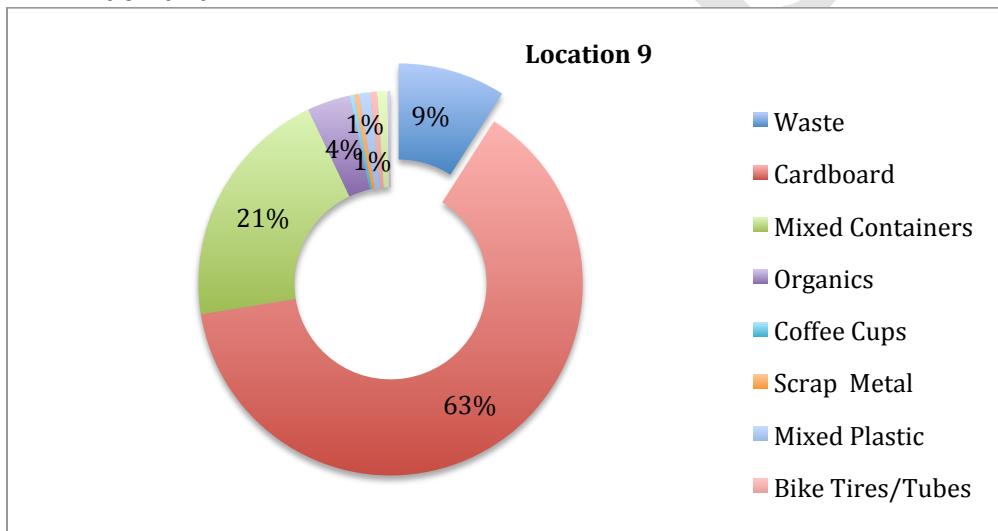


Figure 10 Location 9: Waste Profile displaying a 91% diversion rate

Barriers to Diversion

There needs to be more signage and education for members to ensure proper sorting of recyclable materials.

There are so many different types of material to collect that there isn't sufficient storage space for the recycle collection.

As a newer location, they are still in the process of working out systems, capacity and frequency of service for their materials.

Location 10

Variation in Data

- No gear swaps are held at this location, gear for donation is estimated and there are some returned/warrantied items that are sent to the Vancouver store.
- Bins are unsecured and illegal dumping is a problem, which increases the amount of waste disposed but not necessarily generated by this location.
- There is no bike shop at this location, however tires/tubes are collected and weight estimates were made.
- This store does not record weights for any materials generated. Estimates are used to compile the overall waste generation and diversion rates.
- The plastic film goes is comingled with the cardboard recycling, which will decrease the density of cardboard collected.

Waste/Recycling Summary

Material	Container	Service
Waste	3 cu/yd	Every other week
Cardboard/Mixed Paper	6 cu/yd	2 X week
Mixed Containers	96 gal tote	1 X month

Notes:

- Organic waste is composted on site.
- Hard plastic is recycled on-demand using a mobile recycling service.
- Bike tires, fuel containers, lightbulbs, batteries and miscellaneous scrap metal is recycled on an on call basis, the weights are not recorded.

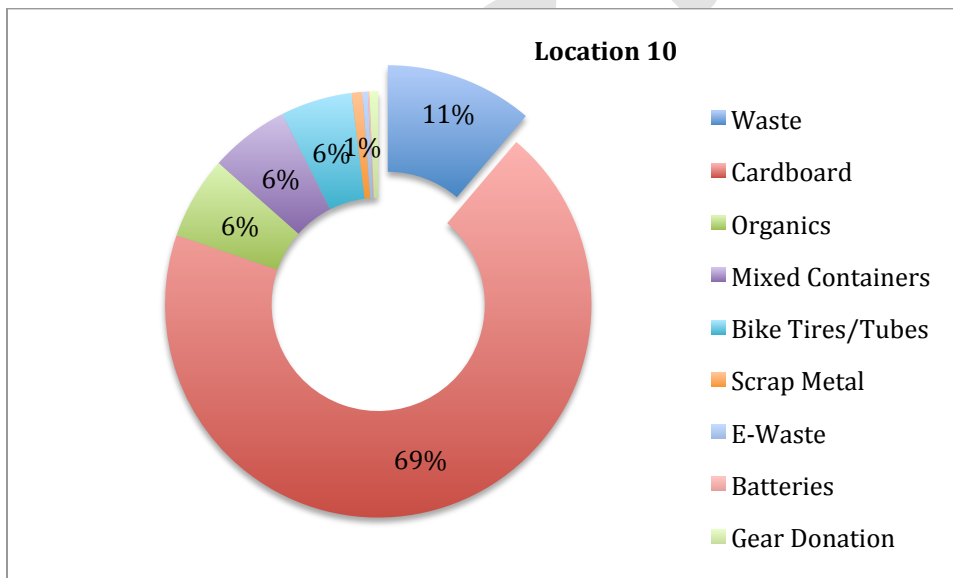


Figure 11 Location 10: Waste Profile displaying a 89% diversion rate

Barriers to Diversion

There is a coffee shop next to the store and as a result, staff and members generate a lot of waste from disposable coffee cups.

Ensuring that the janitorial staff is properly trained on sorting recyclable materials is a timely, but necessary task.

Location 11

Variation in Data

- This store keeps detailed and complete records of weights for all recycled materials.

Waste/Recycling Summary

Material	Container	Service
Waste	3 cu/yd	Every other week
Cardboard	3 cu/yd	3 X week
Mixed Containers/Paper	3- 96 gal totes	Every other week

Notes:

- Soft plastic is collected in bags, picked up by a bike courier and taken to a Safeway public recycling bin.
- Organic waste is composted on site using backyard composters located on the roof.
- Styrofoam is reused wherever possible for packing material.
- Batteries, donated clothing, and scrap metal are collected on-demand.
- Glass is taken home by employees and recycled using residential recycling service.
- Tire Stewardship of Manitoba picks up bicycle tires and tubes on-demand which affects recycling costs.

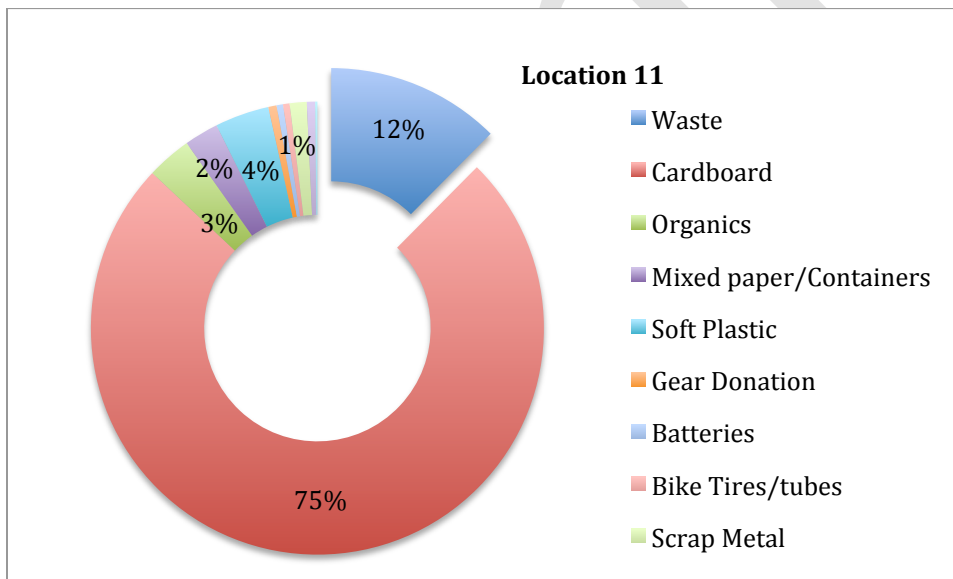


Figure 12 Location 11: Waste Profile displaying a 88% diversion rate

Barriers to Diversion

There is a consistent amount of disposable (Styrofoam) food service items generated by staff.

There is a limited amount of commercial recycling service providers in Winnipeg, which forces staff to recycle many materials using home recycling services or other methods.

Location 12

Variation in Data

- Changed from the City of Montreal to a private vendor for recycling in August 2010.
- No soft plastic recycling.
- Organic diversion only includes fruits and vegetables, which affects the density for the collected material.

Waste/Recycling Summary

Material	Container	Service
Waste	4 cu/yd	1 X week
Cardboard	8 cu/yd	3 X week
Mixed Containers/Paper/Plastic	4 - cu/yd *	Every other week

Notes:

- This store changed from 4, 96 gal totes to the 4 cu/yd bin Aug 1, 2010.
- Organic waste (only fruits and vegetables) is composted onsite using a backyard composter.
- Bike tires/tubes and scrap metal are recycled on demand.
- Plastic #6 is returned to the Distribution Centre for recycling.
- Textiles are recycled using a clothing donation bin located in the store parking lot.

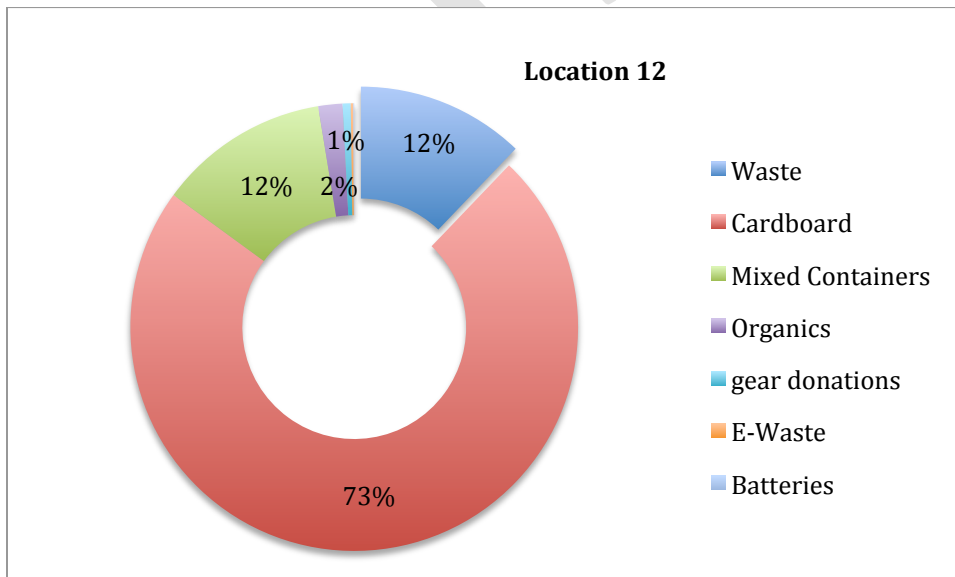


Figure 13 Location 12: Waste Profile displaying a 88% diversion rate

Barriers to Diversion

There is a lot of "walk in waste" from coffee shops in area and disposable foodservice items from staff meals.

As a new location the recycling systems at this location are still in development.

Location 13

Variation in Data

- This store is currently stockpiling bike tires as they have not yet secured a vendor to collect the tires.
- Shrink wrap (soft plastics) are not recycled by this location. Bubble wrap recycling is accepted by Halifax regional.
- Renovations prevented the store from doing the fall gear swap, resulting in only one gear swap in 2010.
- Wood waste, gear donations and batteries are the only actual weights recorded by the store, the remaining materials are estimates.

Waste/Recycling Summary

Material	Container	Service
Waste	1 cu/yd	On call
Cardboard	4 cu/yd	2 X week
Organic Waste	64 gal totes	1 X week
Mixed Containers	64 gal tote	3 X week
Mixed Paper/Plastics	1 cu/yd	1 X week

Notes:

- Scrap metal, bubble wrap and wood are picked up on demand.

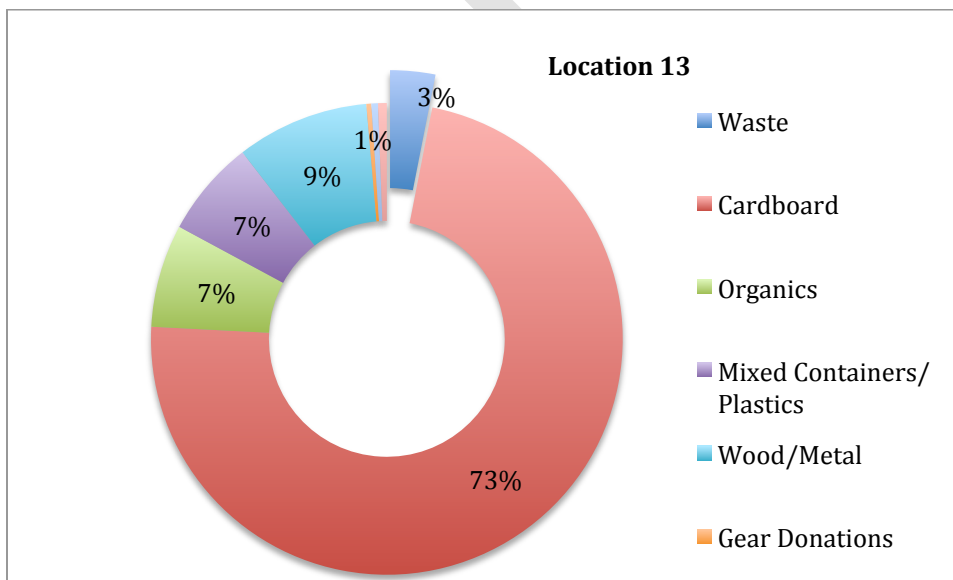


Figure 14 Location 13: Waste Profile displaying a 97% diversion rate

Barriers to Diversion

Currently, there is no soft plastic recycling available in this market currently.

The store continues to be challenged with a lot of "walk in waste" from coffee shops in the area.

Location 14

Variation in Data

- The head office environment is a more controlled environment than the retail stores and has significantly less "walk in waste".
- Staff numbers have increased since 2009, an approximate increase of 10% FTE's which will likely increase waste generation.
- Office is open only during office hours (M-F, 8AM-4:30PM), compared to 7 day/week operations at retail stores.
- No seasonal fluctuation in waste/recycling/staff, unlike the stores.

Waste/Recycling Summary

Material	Container	Service
Waste	3 cu/yd	Every other week
Cardboard/Mixed Paper	3 cu/yd	1 X week
Organic Waste	64 gal totes	1 X week
Mixed Containers	64 gal tote	1 X week

Notes:

- Styrofoam/soft plastics are recycled on an as needed basis.

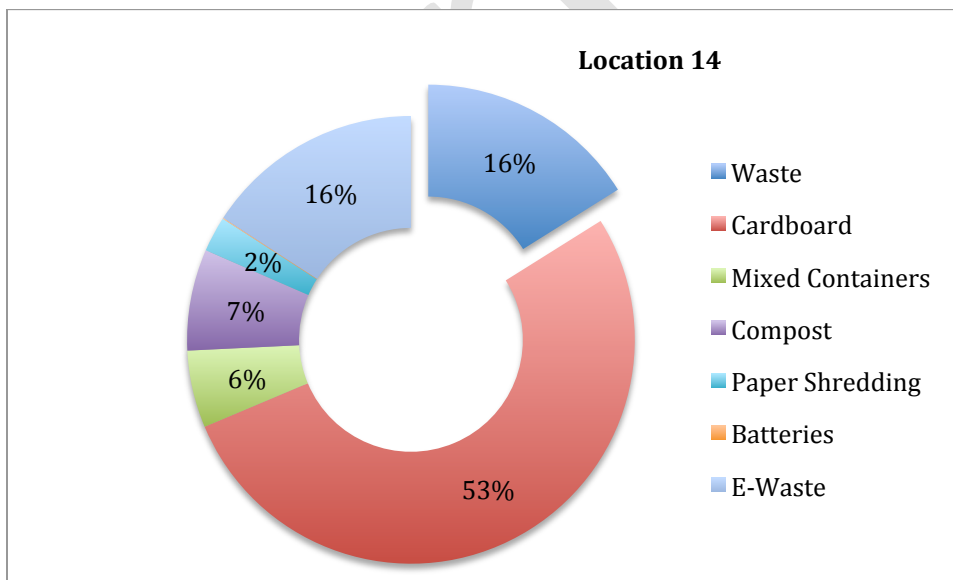


Figure 15 Location 14: Waste Profile displaying a 84% diversion rate

Barriers to Diversion

The annual dumpster dive in the spring revealed significant amounts of soft plastics and organic waste in the waste bin. Perhaps, additional signage and staff education is required to increase the diversion rate of these materials.

There is no dedicated sustainability coordinator, which likely makes it difficult to carry diversion initiatives forward.

The numbers of staff continue to increase which can result in a prolonged learning curve to adopt comprehensive recycling processes.

Location 15

Variation in Data

- The distribution center collects and recycles plastics from two locations, which are estimated and not included in their diversion rate.
- The vendor provides weights for cardboard, garbage, paper and plastics.

Waste/Recycling Summary

Material	Container	Service
Waste	40 cu/yd compactor	On-call
Cardboard	40 cu/yd roll off	On-call
Mixed Plastic	1- 4 yd cages	1/week
Mixed Paper	13 -96 gallon totes	1/week
Soft Plastic	2- 4 yd cages	1/week

Notes:

- Styrofoam, catalogues, paper shredding is picked up on-demand.
- There is on-site composting.

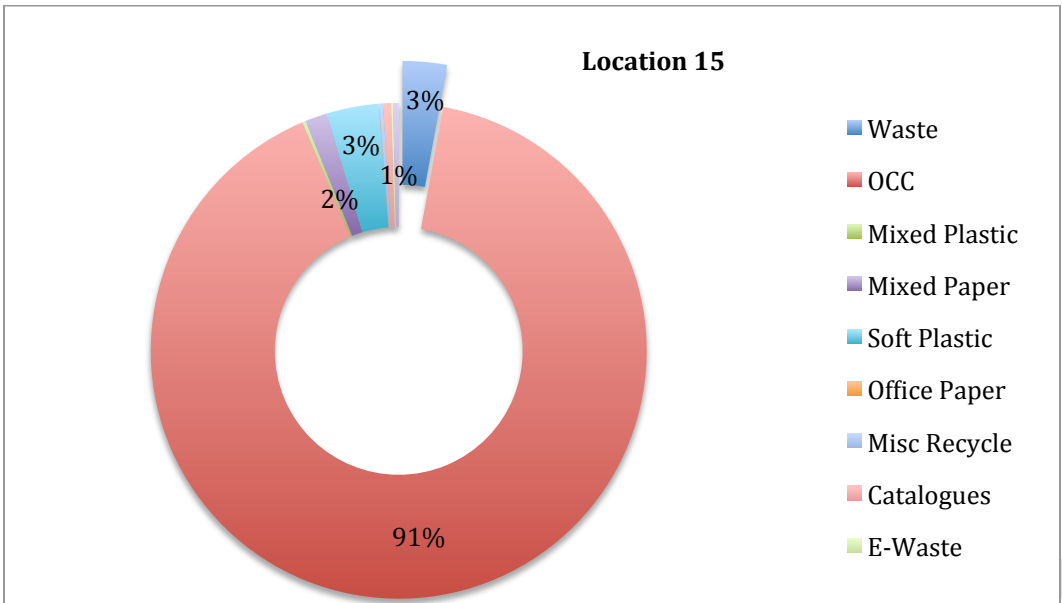


Figure 16 Location 15: Waste Profile displaying a 97% diversion rate

Barriers to Diversion

- The distribution centers handles the most volume of recycling and has a high diversion rate likely because they have very good systems in place, little employee turnover and no public access.

Discussion

In addition to the barriers to waste diversion identified in the location summaries, Keystone has provided the following recommendations to ABC INC., which aims to improve the validity and accuracy of the data, which informs the annual diversion rate.

1. Accurate information regarding the type of container, size of container, and collection frequency is vital for accurately calculating the *actual* waste generated and diverted. Based on the observed differences between data contained in historical waste diversion reports and documents vs. information received from vendors and store staff, this offers an explanation to some of the variations between calculated diversion rates from 2009 compared to 2010. The assumptions and methodology used to establish estimates to calculate the 2009 diversion rate were not documented and as a result, future studies should include a detailed summary of data analysis for each location.
2. ABC INC. would greatly benefit from a standardized, web based waste and recycling tracking tool such as *WasteTrack*. This would enable the sustainability coordinators to track and compile data on a monthly basis, enabling the coordinators to produce end of month reports, accessible by head office, other locations, etc. Not only would this improve the accuracy of the data but it would also create a deeper level of engagement within each location as they track their progress throughout the year. Keystone can assist ABC INC. with establishing the web based tracking tool.
3. Allowing locations to arrange for recycling using locally available services and opportunities allows for a flexible system of waste diversion. This system does create challenges for measuring diversion of materials in a standardized fashion. As weight is used as the standard measure of material in the waste diversion studies, a standard store operating procedure of weighing materials recycled should be considered. For regular, high volumes of recycled materials such as cardboard, paper, shrink wrap, organics and mixed containers, sampled weights can be used to generate average weights and assumptions or low and high seasons. For less frequently recycled materials such as *metal, batteries, wood*, these items can be sampled throughout the year at a minimum or consistently weighted throughout the year.
4. In addition to the *capacity survey*, Keystone recommends that ABC INC. implement a capacity survey at least twice a year; one in peak business season and one during a slow time of year. Keystone conducted a capacity survey in January 2011 for two weeks with the assistance of the sustainability coordinators, which provided very valuable information, which informed the study. The results revealed that in almost all of the locations, there were material receptacles functioning at only 50% capacity or less. For example,

This will certainly create discrepancies in the confidence of the data over a 12-month period. As there was not record of any type of capacity survey conducted in previous years, one can assume that previous studies were conducted assuming 100% capacity for each receptacle at each location where data was no provided by the hauler.

Conclusion

Based on the data from previous years, Keystone predicts

The consequences of calculating a diversion rate in this manner, doesn't account for two critical factors: . For example, at the end of the capacity survey,

To support this theory, that manage their solid waste on an on-call basis. This ensures that the bin is only serviced when it is full, where estimations on waste generation is highly accurate. Therefore, the 97% diversion rate for may be a result of eliminating "was space" in the calculated for the year.

In conclusion, this rationale of provides an explanation why some of the locations have drastically different diversion rates in 2010, compared to 2009. To support this theory,

, which may also have an effect on waste diversion rates.

Appendix A

ABC INC. Waste Diversion Study 2010

Sustainability Co-coordinator Questionnaire
January 2011

Store: ABC INC.

Notes:

A) General:

- 1) How long have you been working as a sustainability coordinator?
- 2) Have you worked at any other ABC INC. locations?
- 3) Have there been any significant changes in recycling/waste in 2010 that are different than in 2009? (e.g. added or removed equipment such as balers, compactors, changed vendors etc.).
- 4) Are there any types of materials generated at your store that you think can be recycled that currently are not?
- 5) Are there any waste and recycling related initiatives that you are currently working on?
- 6) In your opinion, what is the most difficult part of diversion at your store?
- 7) Anything unique to your store that you are aware of? (e.g. tire recycling, composting toilets, etc.).
- 8) Are there any recommendations that you have with respect to waste and recycling for 2011?

B) Vendor Rating: (1-3, where 1 is the poorest level of service):

Each of the following questions apply to waste and recycling vendors:

- 1) Response time to service requests
- 2) Communication (regular vs. very infrequent)
- 3) Reliability
- 4) Cleanliness of site after service
- 5) Overflow

C) Organic Diversion:

- 1) Does the staff room have a bin for organic material?
- 2) If so, what type of organic material is collected?
- 3) Who collects organic material (e.g. janitorial service, staff members)
- 4) Are paper towels collected for organic disposal in the washrooms or were hand dryers used in 2010?
- 5) Paper recycling – do you use clear bags vs. garbage bags in the receptacles?

D) Operations:

- 1) Have there been any significant changes in operations in 2010 compared to 2009?
E.g. increased/decreased staff.
- 2) Have there been any store modifications, renovations, etc. in 2010?
- 3) Have there been any store closures for any reason (other than holidays) in 2010?
- 4) When and how often were the gear Swaps in 2010?
- 5) Electronic Recycling – were there any refits to store electronic systems (replace POS, staff computers, printers, etc.) in 2010?
- 6) Is there a day(s) of the week when you regularly get a high volume of shipments or is it random?
- 7) Is there a coffee shop/café that shares your waste/recycling receptacles?

E) Seasonality:

- 1) Can you identify the busiest month(s) and slowest month(s) in 2010?
- 2) Are there any adjustments made to service pick-up for waste/recycling/organics during the year?
- 3) How often is store inventory done? When?

F) Included and Excluded Materials

1) Can you comment or provide information on the following miscellaneous items with respect to the quantities and frequency that is generated or collected from your store?

Excluded Data from 2009:

- CFL light bulbs
- Batteries -
- Pallets -
- Polyester –
- Bike Tires –

Included Data from 2009:

- Computers
- Fixtures –
- Fuel Canisters –
- Gear Donations –
- Wood (other than pallets) –

G) Information from Dumpster Dive

Date:

Comments from survey

H) Follow up

Appendix B

Vendor Rating System

ABC INC. Vendor Rating 2010			
Location	Vendor	Service Provided	Rating
1	Urban Impact	Recycling	2
	Waste Management	Waste	1
2	Urban Impact	Recycling	2
	Waste Management	Waste	1
	NuLife	Batteries/ballasts recycling	3
3	Urban Impact	Waste/Recycling	2
4	Canadian Fibre	Waste/Recycling	1
5	Waste Management	Waste	2
	ReFuse	Recycling	1
6	Wasteless	Waste/Recycling	2
	PEL Plastics	Recycling	3
	Merlin Plastics	Recycling	2
7	Wasteless	Waste/Recycling	2
	Inglis Environmental	Recycling	1
8	Waste Management	Waste	2
	Cascades Recovery	Recycling	1
9	BFI	Waste/Recycling	2
10	BFI	Waste/Recycling	2
11	Municipality	Waste/Recycling	n/a
12	Goulbourn-Stittsville/Tomlinson* ⁴	Waste/Recycling	1
13	Waste Reduction Group	Waste/Recycling	2
14	Waste Reduction Group	Waste/Recycling	2
15	Royal Environmental	Waste/Recycling	1

⁴ Goulbourn-Stittsville Sanitation was bought out by Tomlinson in August 2010.