

# Municipality of Trent Lakes

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## Waste Audit Report

**County of Peterborough**

11/1/2015

## **Background**

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On November 21 and November 22, Trent Lakes contracted staff collected garbage and recycling from participating residents from the 4 Transfer Stations located in the Municipality: Buckhorn, Bobcaygeon, Cavendish and Crystal Lake. The sorting was completed by Fleming College students under the supervision of County of Peterborough staff and the assistance of Trent Lakes staff on November 24. This was a co-operative project with Trent Lakes, the County and Fleming College all benefitting from the experience and the data collected.

The following summary report is intended to provide insight into the results of this waste audit. If the Municipality is interested in more details, please contact Catrina Switzer at [cswitzer@county.peterborough.on.ca](mailto:cswitzer@county.peterborough.on.ca) or 705-775-2737 x313.

### **Purpose**

The purpose of performing a waste audit is to determine current participation rates, provide insight into seasonal waste variability, capture rates (amount of recycling found in blue box vs. garbage), residue rates (amount of garbage in recycling), and to assess where there is a need for further education and communication. The audit was focused on residential waste only.

### **Methodology**

Participants were asked at the entrance of the transfer station if they would voluntarily provide their waste materials for a waste audit. Materials were not collected from businesses.

The total waste collected was equivalent to 30 households producing one week's worth of waste. To determine this, residents were asked how many week's worth of waste they were depositing. If a resident brought in 2 weeks worth of materials, this counted as 2 households.

Staff collected garbage and blue box recyclables (containers and fibres) from all participants.

Garbage and recycling collected from participants was transferred to a sorting location and all materials were sorted into categories. Materials from each sorted category were weighed to determine percent composition.

The Buckhorn Transfer Station has a Source Separated Organics collection system called a Molok. This is essentially a 6 foot tube in the ground with an additional 3 feet showing above ground. If participants at the Buckhorn Transfer Station had materials for

the Molok, they were collected from the participant, weighed and deposited in the Molok. These materials were not sub-sorted during the main sort on November 24.

## Auditing Results and Observations

### Composition Study

During the audit a total of 932.85 kilograms of materials were collected, sorted, and weighed. The tables below highlight the composition of the waste from each site and the performance of the recycling and garbage systems at each site.

Waste composition is defined as the percentage amount, in kilograms, of the entire sample of waste comprised by each waste category.

**Table 1: Comparison Chart: % Composition: All Waste Categories**

	Fibres	Containers	Organics	HHW	Other Recyclable	Garbage
Buckhorn	24%	12%	43%	2%	8%	11%
Bobcaygeon	26%	14%	37%	2%	8%	13%
Cavendish	26%	14%	32%	1%	17%	10%
Crystal	25%	14%	35%	2%	9%	16%
All	25%	13%	36%	2%	11%	13%

### Observations:

The composition of waste at the 4 transfer stations is very similar. The 'Other Recyclable' category includes items that may be recyclable at the transfer station now such as scrap metals and waste electronics or items such as textiles, hard plastics or construction materials that may not have a program in place.

## Blue Box Recycling

**Table 2: Recycling Stream – Containers Capture Rate**

Material	Buckhorn	Bobcaygeon	Cavendish	Crystal	All
Glass– Clear–Food & Beverage	66%	83%	89%	85%	81%
Glass – Coloured-Food & Beverage	44%	63%	100%	95%	70%
#1 Plastic	88%	75%	72%	89%	83%
Aluminum Food and Beverage	96%	68%	75%	81%	83%
#2 Plastic	87%	76%	93%	94%	89%
Wide Mouth Tubs and Lids	92%	40%	41%	100%	75%
Gable Top and Aseptic Containers	67%	54%	44%	87%	67%
Steel Food & Beverage	70%	95%	74%	95%	84%
Paper Cups	14%	0%	37%	13%	16%
<b>Contamination</b>					
Contamination – All other Waste Categories	12%	10%	10%	14%	14%
Cross Contamination of Recyclable Fibres	12%	2%	1%	10%	8%
<b>Total Contamination</b>	<b>24%</b>	<b>12%</b>	<b>11%</b>	<b>24%</b>	<b>22%</b>

**Table 3: Recycling Stream – Fibres Capture Rate**

Material	Buckhorn	Bobcaygeon	Cavendish	Crystal	All
Corrugated and Kraft	89%	81%	93%	95%	89%
Newspapers and Phone books	96%	98%	100%	91%	95%
Boxboard/Cores and Molded Pulp	70%	52%	72%	66%	66%
Magazines and Catalogues	99%	95%	98%	78%	92%
Polyethylene Bags and Film	16%	11%	24%	15%	17%
Mixed Fine Paper & Shredded paper	19%	74%	64%	71%	56%
<b>Contamination</b>					
Contamination – All other Waste Categories	2%	2%	3%	1%	2%
Cross Contamination of Recyclable Containers	1%	5%	1%	0%	1%
<b>Total Contamination</b>	<b>3%</b>	<b>7%</b>	<b>4%</b>	<b>1%</b>	<b>3%</b>

**Observations: Blue Box Recycling**

The Capture Rate identifies the amount of a material that is in the correct material stream. Therefore, at Buckhorn, 89% of the available corrugated cardboard and kraft paper are being correctly deposited into the fibre bins. The other 11% may be in the container stream or in the garbage. The capture rate is a measure of performance of a recycling system and is helpful in determining where education may be needed by residents and/or staff.

Cross Contamination refers to those materials that should not be in that particular recycling stream such as cardboard in the container bin or a pop can in the fibre bin. This type of contamination is referred to as 'cross contamination'. These items do have a chance of being recycled at the Materials Recycling Facility (MRF), however, may still end up in the landfill.

The Contamination Rate may also identify other categories of waste such as MHSW, organic materials, and garbage. This type of contamination may lead to higher collection costs and processing costs as the materials collected are charged by weight. Total contamination should be 5% or less.

The actual levels of cross contamination may be slightly lower at sites where the depot attendants actively monitor the bins for contamination and remove it prior to the bins being collected.

The overall contamination rate in the fibre bins is acceptable (5% or less), except for the Bobcaygeon site. However, the audit may not accurately reflect the habits of the residents or depot attendants as audit staff collected materials from the residents before the sorting that may normally have occurred at the bins by the residents or by the attendants.

The contamination rate in the container bins, at 22% overall is significantly higher than the acceptable rate of 5%.

Contamination in the Container bins shows MHSW is entering the container stream in Crystal (7%), Cavendish (3%) and Buckhorn (4%). There was no MHSW in the container stream in Bobcaygeon.

Other items noted in the container stream from all sites are: polystyrene foam and trays, WEEE, hard plastics and other metals such as cutlery and pots and pans.

The current Deposit Return program in Ontario is operated by The Beer Store. Therefore all deposit return bottles and cans must go to The Beer Store rather than to the outlet where the item was purchased. Many residents do not take their bottles and cans back to The Beer Store as it may not be convenient (over 30 minutes drive) so will drop off in the container bins. Although these materials are recyclable, glass is a problematic material across all recycling programs and municipalities are not funded for Deposit Return material in the same manner as Blue Box materials.

In 2015, Trent Lakes implemented its own Deposit Return program at 3 of the transfer stations offering local charity groups the opportunity to run the program and collect the funds from the bottles and cans as a means of fundraising for the groups. The data shows that Buckhorn and Bobcaygeon have the highest percentage of deposit return containers in the container stream at 25% and 16% respectively.

## Garbage

**Table 4: Garbage**

Material	Buckhorn	Bobcaygeon	Cavendish	Crystal	All
Backyard Compostable & Organics	33%	37%	41%	45%	39%
Food Waste	26%	16%	7%	8%	15%
Recyclable Containers	4%	5%	5%	3%	4%
Recyclable Fibres	6%	11%	7%	7%	7%
MHSW	2%	3%	2%	1%	2%
Other Divertable (WEEE, textiles, media)	13%	11%	25%	14%	16%
Garbage	16%	17%	13%	23%	17%

### Observations: Garbage

The Buckhorn Transfer Station has a deep well collection system, called Moloks, for the collection of municipal compostable waste. Of the 30 household equivalents, 4 household equivalents (13%) participated.

The organic materials were weighed on site, on the day of collection, and placed in the Molok unit. This material represented 16% of the total organic materials processed for the site.

Overall in Trent Lakes, 7% of Fibres and 4% of Containers are in the garbage. In the fibre category the 7% is largely made up of boxes, fibre tubes such as toilet paper rolls, newspapers and paper. The container category is mostly plastic water and pop bottles, aluminum cans, steel cans, juice boxes or soup containers and yogurt containers.

A growing problem in waste management is the landfilling of food waste. This refers to uneaten food that was unnecessarily sent to the garbage stream. Examples include unopened yogurt containers, candy, bread, uneaten take out food and produce. In contrast, banana peels, apple cores and vegetable scraps would be considered necessary food waste and would be included in the Backyard Compostable category.

To measure how much food waste is being unnecessarily generated in the community, a new audit category was created in 2015 titled 'Food Waste'.

This audit found a total of 93.18 kgs of Food Waste in the waste stream for all 4 sites. There was an equivalent of 120 households of waste collected from the sites. When 93.18 kgs is divided by 120 then 0.78kg per household per week is Food Waste. In Trent Lakes according to household data from the Municipal Property Assessment Corporation, there are 2,361 permanent households and 3,726 seasonal households. As there was only 16% participation of seasonal households for this audit only 596 seasonal households or 16% of 3,726 was utilized in this calculation. The total households are then 2,361 plus 596 for a total of 2,417 households.

If 2,417 households dispose of 0.78kg of Food Waste per week then there is the potential for 98 tonnes or more, of Food Waste to go to the landfill every year.

During the audit, hazardous waste was found in the garbage bags that were collected.

## Conclusions and Recommendations

Table 1 illustrates the composition of waste at the sites. The categories of 'Organics' and 'Other Recyclables' have the potential to increase diversion and reduce the amount of waste going to landfill.

Organics is divided into the sub-categories of Backyard Composting, Food Waste, Organics, Leaf and Yard and Pet Waste. The results of this audit shows that 54% of the Garbage was Organic materials.

Type of Organics	% of Garbage
Backyard Composting	12%
Food Waste	15%
Organics	18%
Leaf & Yard	0%
Pet Waste	9%

The County and Trent Lakes already actively promote and sell backyard composters and digesters to residents. The County is also continuing the Garbage to Garden composter installation program where residents purchase a composter and/or digester and County staff deliver and install them.

The County and Trent Lakes staff may work together to promote the use of the Buckhorn Moloks. There is the potential to draw attention County wide to the issue of Food Waste. Although the Molok system could handle this material it is an expensive alternative to residents just buying and eating their food rather than paying to dispose of it as well.

Other Recyclables is another category that Trent Lakes may wish to expand services to residents. As indicated below the categories of Construction and Demolition and Textiles were the largest contributors to garbage in the larger category of Other Recyclables.

Other Recyclables	% of Garbage
Construction and Demolition	7%
Textiles	7%
Media (cd's, dvd's, tapes)	0.5%
WEEE	0.5%
Hard Plastics	0.5%

The County provided a pilot program through the summer of 2015 collecting hard plastics at the Buckhorn and Bobcaygeon sites collecting over 7 tonnes of materials in 3 months. The County is hopeful that a viable market is established prior to the summer season to continue this program in 2016.

As shown in Table 2 and 3, there is opportunity to capture more recycling particularly glass, plastic water and pop bottles, yogurt containers, milk and juice cartons, paper take out cups, boxes and paper tubes, paper and plastic bags.

There is an opportunity for Trent Lakes and the County to educate staff and residents on Blue Box recycling and how to use the current recycling system. The County will be offering training in Spring and Fall 2016 to all Townships.

In particular, the high contamination rates shown in Table 2 indicate that there is some education to be done at the Buckhorn and Crystal Lake sites in relation to what can go into the containers bins with an emphasis on reducing the amount of MHSW, fibres and garbage in the container bins. This will help create a more safe, efficient, and cost effective recycling system.

It is important that residents be screened when entering the waste sites to ensure that there is no MHSW in the recycling or garbage. Residents have access year round to the MHSW facility operated by the City of Peterborough at 400 Pido Road. There are locations scattered throughout the County and City of Peterborough for dropping off household batteries. The County operates an MHSW facility at the Buckhorn Transfer Station from June 1 to Thanksgiving each year.

As was noted earlier, the actual levels of cross contamination may be lower. However, given the high amount of fibre materials in the container bins, cross contamination is likely still an issue. Both depot attendants and residents may be educated on what can and cannot go in the container and fibre bins. County staff may provide a training session to Trent Lakes staff as part of a regular meeting. This information may then be provided to residents on an on-going basis as they visit the sites.

The County is also in the process of updating the labels on the container and fibre bins at the sites in Trent Lakes. This is a project scheduled for 2016 pending budget approval.

The Deposit Return program implemented by Trent Lakes should be expanded, if possible, in 2016 to include all 4 sites. This will allow for the opportunity to promote to all residents the program available at the sites and/or for residents to take their materials back on their own.

The County and Trent Lakes have an opportunity to work together on many initiatives to reduce waste and to improve the recycling systems already in place.