



# WASTE AUDIT REPORT

Lakeland Community College

April 23, 2015

Data Collected by: **Green TEAM**

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## Introduction

Choosing to throw something away that might be recycled may seem like an action with little negative consequence, but those individual choices aggregate into large environmental issues. An example of this is the [Great Pacific Gyre, or Garbage Patch](#), which is one of many pelagic (ocean) concentrations of plastics. These plastics break down and enter the food chain both by animals ingesting the broken down 'confetti' particles and from the further breakdown of the plastics into polymer molecules and leached chemical toxins like biphenyl A, PCB's and polystyrene that bio-accumulate up the food chain.

In an article by John Flesher (2015), printed in Huffington Post, research has found an abundance of microfibers of plastics in the Great Lakes and that these fibers find their way into the



*In this July 28, 2014 photo provided by Rachel Ricotta are microfibers, exceedingly fine plastic fibers that were taken from inside the body of a Great Lakes fish. Scientists who have reported that the Great Lakes are awash in tiny bits of plastic are raising new alarms about a little-noticed form of the debris turning up in sampling nets: synthetic fibers from garments, cleaning cloths and other consumer products. (AP Photo/Rachel Ricotta) | ASSOCIATED PRESS*



*Lakeland's GIS Program and Center for International Education hosted the presentation 'Ghost Debris', bringing to Lakeland a firsthand account of the effects of human pollution on the ocean ecosystem.*

water we drink. In fact, these filaments were found in a study of samples of beer too (Liebezeit, Gerd, and Elisabeth Liebezeit 2014).

In an effort to act responsibly, Lakeland placed single stream Plastic/Metal/Glass – green, and Paper/Cardboard - blue containers at 88 locations across campus with the hope of increasing awareness of recycling and offering the opportunity to participate in the process of resource conservation, and ecosystem preservation through recycling, for the entire campus. The single stream was given a green top with the single stream opening, while the paper and cardboard was given the slit top to encourage placing of the correct items in the correct containers.

In the fall of 2015 as the result of the competitive bid process, Lakeland signed a new contract with Kimble waste haulers to pick up recycling as a 'truly' single stream. This combines the paper and cardboard with the plastic/metal/glass. In the past we had Abitibi containers for the paper and cardboard as a separate collection. Although new bins could have been placed, or new signs put on the old bins to reflect the 'mixed' all inclusive nature of the Kimble single stream programs, Facilities Management decided to not change the way the bins are set up as separate green (plastic/metal/glass) and blue bins (paper & cardboard). It was decided to keep the program consistent from year to year, and to make communication of the program to the campus community recyclers as simple as possible by not changing the existing set-up. This too helps the custodial staff who pick up the recycling from encountering paper and cardboard that has been spoiled by recyclers throwing in coffee, drink cups and bottles with liquids still in them.

For the program to be successful the correct materials must be put into the recycling containers. The [LCC Recycling Guidelines](#) was posted on the newly updated [Sustainability website](#), which clearly outlines the program. It is important not to contaminate the recycling stream with either trash, unrecyclable items or with containers that are not emptied or rinsed. We encourage students, staff and instructors to relay the information to each other by telling about Lakeland's website, and to follow the guidelines when recycling.

## **Waste Audit Goals**

The Earth Week 2014 organizing team of Lakeland was looking for a way to support sustainability at Lakeland and bring attention to Earth Week. In a team group discussion the suggestion was made that conducting a waste stream audit to help the college identify how much paper, cardboard

and single stream recycling is still ending up in the waste stream might be a good project for a student team. This would benefit the ongoing efforts of the college for evaluation of existing projects and continued improvement of efforts to 'green' the college as well as communicate and educate about the existing programs and global issues of sustainability to a student/staff/faculty participant group. It would also give these participants a 'real world' experience of the realities we face in changing ingrained cultural norms and also in how to conduct a comprehensive survey, while working as a team and engaging multiple stakeholders. The goal is to show the transdisciplinary nature of sustainability.

There is not only a benefit to human and environmental health, but also Lakeland saves money by recycling, acts as a responsible community member, and teaches by example!

## Existing Program Information

The recycling containers are at 88 locations across campus.

 **BLUE TOPS** **Paper and Cardboard** Mixed Office, Magazines & Newspaper  
No Napkins or Hardcover Books

 **GREEN TOP** **Plastics** #1-7 in symbol   
**Glass** (unbroken)  
**Metal** (Aluminum & Steel)  
NO Styrofoam (soft type ) , Coffee Creamers, Stir Sticks, Straws, Condiment, or Vending Machine Packaging

## Audit Process and Procedure

A random sample of general waste was collected from four areas that were identified as being of particular interest because of the amount of recycling that had been found in the trash dumpster located in the E Building lot. The areas of concentration were: the T Building Faculty, T Building Public, E Building Public and E Building Café (Kiosk) areas.

The goal was to collect, label, and bring to shipping and receiving three (3) full 44 gallon black trash bags from each of the 4 representative areas by building services staff prior to the meeting of the audit team. Four tarps and buckets were placed on the floor of shipping and receiving and labeled as 1 of the 4 survey areas. Additionally, a sign for trash and a sign for recycling were placed at the end of each of the 4 tarps.

Procedure Sheet used in Audit

**Waste Audit 2015 Procedures**  
You will be weighing, sorting & weighing.

1. **Weigh**: each Original Bag
2. **Open & Sort**: into 2 piles TRASH/RECYCLING
3. **Collect Liquid**: in bucket provided
4. **Weigh Sorted Trash**: total pile you created
5. **Weigh Recycling**: total pile you created
6. **Weigh Liquid**: that you collected
7. **Note**: Final; Results of this Audit. How much was actually recyclable in the trash?
8. **Comments & Lessons Learned**: to inform future actions to improve Campus Recycling and Improve the future Waste Audits.

**THANKS for Participating!**



#### Safety and PPE

- Sample will be collected by building services staff
- All audit team members will wear proper PPE (plastic gloves, long sleeve shirts & pants)
- Have First Aid Kit present for use if needed (minor cuts, scrapes, etc.)

#### Materials Needed

- Clear trash bags for single stream recycling collected from trash to put into SS recycling at end.
- Black trash bags
- Scale (at shipping and receiving department)
- Tablet with the Excel Spreadsheet, and team leader stationed near, overseeing data entry
- Tarps (4 – 8'x10') to empty trash bags and sort each area separately

## Action Plan

- Building Services staff will pull a representative sample from the select areas and label them with tape and marker. 3 from each area. These should be full bags to keep an apples to apples approach.
- Areas will include:
  1. T Bldg. Faculty
  2. T Building Public containers
  3. E Building Public containers
  4. E Building Café (Kiosk)
- Audit will take place on Thurs. 4/23 starting at 9:30 a.m. until 10:30 a.m.

## Data Collection, Recording and Analysis

The data collected during the waste audit was entered into the Microsoft Excel spreadsheets shown here.

Waste Audit 2015						
Lakeland Community College - Green Team						
Survey Focus Areas:						
	T Bldg. Faculty Offices	T Bldg. Public Areas	E Bldg. Public Areas	E Bldg. Café Area		Totals
Total # of bags of trash	1	3	3	1		8
Weight of Unsorted Trash	3.5	24.5	44	7		79
Single Stream Plastic, Metal, Glass, Paper & Cardboard	2	5	20	1.5		28.5
Liquid	0	2	2	0.5		4.5
Weight of Sorted Trash	1.5	17.5	21.5	5		45.5
Results						
Total Trash minus Liquid	3.50	22.50	42.00	6.50		74.50
% of Single Stream found	57%	22%	48%	23%		<b>38%</b>
						<b>Total % of Trash that could have been RECYCLED</b>
<p>These areas have been chosen for the audit this years because of the amount of recycling we are finding in the general trash of this area. We would like to identify how much and pinpoint where the challenge areas are so that we may then communicate and possibly add additional recycling containers.</p>						

## Summary of the Findings

### 38% of the total trash we survey was recyclable material

- 57% of T-Faculty Offices area was recyclable
- 22% of T-Public Area
- 48% of E-Public Area
- 23% of E-Cafe Kiosk Area - and of that a good portion was organic type material that had to be throw out, so this area is recycling fairly well.

## Note on Paper Use

It is noted that generally the purchasing department is trying to reduce the total amount of paper the college purchases to both save money and reduce waste and associated costs like time spent picking up the recycling containers by building services personnel. The college printers are capable of printing two-sided, which reduces waste. A request has been put forward to have printers set to default accordingly to gain this advantage.

Faculty has been moving toward going paperless when possible by giving handouts to students digitally via Blackboard.

## Notes and Recommendations

Participants felt it was a useful exercise to identify areas that are not recycling as well as they might be. T-Building Faculty Offices were shown to have particular challenges with getting the recycling out of the trash, as was E-Building Public areas. It is important to note that this survey was not apples to apples because of the inconsistent amount of actual trash bags available to survey. Although the areas could not be compared to each other, they were analyzed individually as to the percentage of recycling that was thrown away in each area. In future surveys more bags will be gathered so that all represented areas are equal.



*Sample of recyclables from E-Building Public area.*

1. In future surveys the custodial staff that collects the trash needs to be consistent in collecting based on the Audit's requirements. Although this seems minor, without correct amounts from each area the value of the data collected is compromised. This glitch did act as a teaching moment to show that there are multiple stakeholders to most projects. Getting 'buy-in' from all groups involved is vital to the ultimate success of any project.

2. Common waste did contain organic waste that might be composted in the future though the percent was not measured in this audit. The E-Building Café (Kiosk) area had a noteworthy amount of organic matter. Coffee grounds, and food waste was found in abundance and increased the weight of the trash compared to recycling.

3. There were quantities of waste paper from the rest rooms that could potentially be composted.

4. A number of very usable office supplies were found that could have been offered to anyone who would want them by placing them in a location like the T, B or any other study area with a sign saying 'FREE'.

5. Use the new 4' Bi-fold display board to teach what is recyclable and what is not to the campus community by moving it around campus. Issues arise for any person wanting to recycle when they cannot decide if something like a cardboard coffee cup 'is', or 'is not' recyclable. Coffee cups are lined with a thin plastic, as are cardboard soup containers and bowls which make them not recyclable as a paper product. It is good to note though that these could be added to a composting program if the plastic liners are the compostable type.

6. The Green Group, or another interested student group, might make a short video for the could be placed on the Sustainability web site, used in New Student and Employee Orientation, or even for Faculty use in class, that acts as an easy to understand informational about Lakeland's recycling program.

7. Encourage Faculty to share information at the beginning of each semester about how to get to the Sustainability web page where the [LCC Recycling Guidelines](#) are located and segue into other Lakeland initiatives and information that they might use as reference material for class projects.

Generally it was noted by the team that there are items in the trash that could have been placed in the recycling and that it was more challenging than it seems to sort through and decide what is and what is not recyclable. There was a discussion about the cost benefits of recycling, and potential negative impacts of not, to human health and communities, to business, to the economy and to ecosystems. It was suggested that recycling and thinking about how consumer products are made and disposed of should be considered by society, and recycling taught to young children where they might grow up with it as a habit.



*Usable office supplies found in trash of the T Building.*



*A 4' Bi-fold display board showing what 'is' and what 'is not' recyclables was used since it can be hard to identify these items in the trash.*

The TLC children, under the leadership of Cris Vanek, paid a visit to the audit to see firsthand what it means to recycle. They learned that there are ways to determine if people are recycling by doing the simple processes of opening and sorting through the trash to see what you might find. The children then created 'Recycled Art' which was displayed at the Earth Day Events tables near the Bookstore where the campus community were offered information on recycling at Lakeland.



*Left: TLC children participating in Earth Day 2015 events by making and displaying recycled art.*

*Right: Tables at Earth Day event showing information to campus community about what to recycle.*



### Photos of Audit Team 2015



## References Cited

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