



WASTE AUDIT REPORT

Lakeland Community College

April 17, 2014

Green TEAM



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ACKNOWLEDGEMENTS

For their assistance with this project, thanks and appreciation is extended to:

Siemens International sponsorship
Michael Mayher, Senior VP for Administrative Services
Lakeland Building Services Department

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 http://en.wikipedia.org/wiki/Great_Pacific_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 effort to act responsibly, Lakeland has recently increased the number of both Plastic/Metal/Glass- Green as single stream and separate Paper/Cardboard- Blue containers across campus with the hope of increasing awareness of recycling and offering the opportunity to participate in the process of resource conservation 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.

For the program to be successful the correct materials must be put into the recycling containers. The Recycling Guide was posted on the Energy & 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 students by telling them about **Lakeland's Energy & Sustainability website** <http://lakelandcc.edu/about/es.asp> and to follow the Guidelines when recycling.

In addition to the new containers, everyone is encouraged to bring their household paper to the Abitibi Bins located between A & E buildings at the Shipping/Receiving dock. We have been gradually increasing the amount we recycle annually and hope to see those numbers raise even further. Lakeland receives a modest remuneration for recycled paper, and pays a discounted rate for single stream recycling compared to regular trash, which ultimately supports our students.


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. It would also give students a 'real world' experience of the realities we face in changing ingrained cultural norms and in conducting a comprehensive survey while working as a team.

There is not only a benefit to human and environmental health, but also Lakeland saves money by recycling.

Existing Program Information and Cost Benefit to Recycle

The recycling containers are located across campus.

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

 **GREEN TOP** **Plastics** #1-7 in symbol 



Glass (unbroken)

Metal (Aluminum & Steel) & **Drink boxes**-Juice Milk type

NO Styrofoam, Coffee Creamers, Stir Sticks, Straws, Condiment or Vending Machine Packaging.

*Bring your **Paper and Cardboard** from home too!*

The Bins are located at Shipping & Receiving drive near A and E buildings.

A. Chart showing the Tons of paper/cardboard recycled over the last four years.

	2010	2011	2012	2013	2014
Jan	1.10	1.56	1.62	5.34	3.03
Feb	0.69	0.66	2.02	2.99	2.97
Mar	1.26	3.02	1.37	2.47	1.83
Apr	1.27	1.39	2.75	2.78	0.00
May	2.71	1.50	3.51	3.56	0.00
Jun	1.17	1.22	2.26	3.85	0.00
Jul	0.67	1.48	3.03	2.90	0.00
Aug	1.65	2.34	4.44	4.31	0.00
Sep	1.03	3.53	1.67	3.59	0.00
Oct	3.34	1.45	3.57	3.94	0.00
Nov	1.46	1.33	3.24	2.68	0.00
Dec	1.27	1.79	2.46	3.24	0.00

17.62	21.27	31.94	41.65
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TONS/YEAR

\$88.17	\$106.28	\$204.03	\$304.74
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INCOME GENERATED

B. NOTE: the cost to dispose of Single Stream is less than that of regular trash.

Audit Process and Procedure

A random sample of general waste was collected from four areas to represent the college: the AFC (athletic) area, E/T buildings, A & C buildings, Breakers and The Children's Learning Center (TLC).

Four (3) bags from each of the 4 representative areas were collected and brought to the shipping and receiving area by building services staff prior to the meeting of the audit team.

Safety and PPE

- Sample will be collected by building services staff
- All audit team members will wear proper PPE (rubber 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)
- Tarps (3- 5' x 7') to empty trash bags on
- PPE – Plastic Gloves

Action Plan

- Building Services staff will pull a representative sample from the select areas and label them with tape and marker. 3-4 from each area. These should be full bags to keep an apples to apples approach.
- Areas will include:
 1. TLC
 2. A, C and E,T Buildings
 3. Breakers
 4. AFC
- Audit will take place on Thurs. 4/17 starting at 1:30 p.m. until 3:00 p.m.

Procedure for Audit

- Weigh all bags and record data on spreadsheet as a total amount for each dumpster
- Empty bags for each area onto tarps
- Divide trash samples into
 1. paper/cardboard
 2. single stream
 3. actual trash
- Weigh and log each of the separated groups and log as total amount of each type: paper/cardboard, single stream and actual trash.
- Calculate percent of total recyclables that were found in trash.
- Place all recyclables separated out of trash into their proper recycling containers at Receiving.

Data Collection, Recording and Analysis

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

	AFC	A	C	TLC	E	Breakers	Totals Average
Weights in Lbs.							
Unsorted Trash	18.5	19	13	28	22	20.5	121
Paper/Cardboard	1.5	2.5		4.5		2.5	11
Single Stream (plastic, metal, glass)	7	4	7.5	0.5	7.5	4	30.5
Electronics	None from this group of note						
Food	Not enough time to separate this group out from main trash						
Paper from RRms	Not enough time to separate this group out from main trash						
Trash after sorting	5	12.5	8	23.5	12.5	14	75.5
Total after sorting *	13.5	19	15.5	28.5	20	20.5	117

* Note: the difference in total trash and totals from all areas is predominantly because some the recyclable plastics had liquid in them that were emptied before being weighed.

% Of Recyclables Found in the Trash

% of total recyclables	46%	34%	58%	18%	34%	32%	34%
% of Paper/Cardboard	8%	13%	0%	16%	0%	12%	9%
% of Single Stream	38%	21%	58%	2%	34%	20%	25%

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. Communicating this preferred option to the campus community each semester might be helpful.

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

FINDINGS

The following is a list of findings on average from the audit:

- **9% was Recyclable Paper and Cardboard**
- **25% Single Stream items including plastic, metal and glass**
- **34% of the trash was recyclable.**

Notes and Recommendations

Although some of the areas surveyed seemed to have small amounts of recycling in the trash, there is still room for improvement overall.

1. Common waste did contain organic waste that might be composted in the future though the percent was not measured in this audit.
2. There were quantities of waste paper from the rest rooms that could potentially be composted.
3. There was shredded paper that could have been put in a clear plastic bag to be recycled.
4. There were plastic table clothes that might have been recycled but the recycle number wasn't indicated on it.
Recommend finding a brand that can be recycled and make sure that it is put in the proper recycling containers when thrown out.



There were numerous plastic ½ gallon juice bottles that could easily be recycled in the future.

5. There was shredded aluminum from Engineering that could have been recycled.

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 to both human health, economic benefits and environmental impacts. 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. Other options were discussed, like systems that do total trash recycling at a recycling site, instead of depending on the individual to recycle.

The next audit might collect data on the waste as separate between public areas and staff/faculty offices to be able to identify areas of challenge and communicate such to those individuals.



Photos of Audit Team 2014 and Things Found in Trash