

Lakeland Community College
RECYCLING/DIVERSION REPORT 2014

Prepared By Susan Walker-Meere, September 3, 2014

Data for this report was collected from a variety of sources to determine: a picture of the amount of total waste that is generated by Lakeland and then the percentages that are recycled and diverted. These different streams are added as one because of the recent movement of institutions toward Zero Waste. AASHE - Stars program defines these materials as diverted: recycled, composted, reused, donated, re-sold, or otherwise diverted from the landfill or incinerator measured in short tons.¹

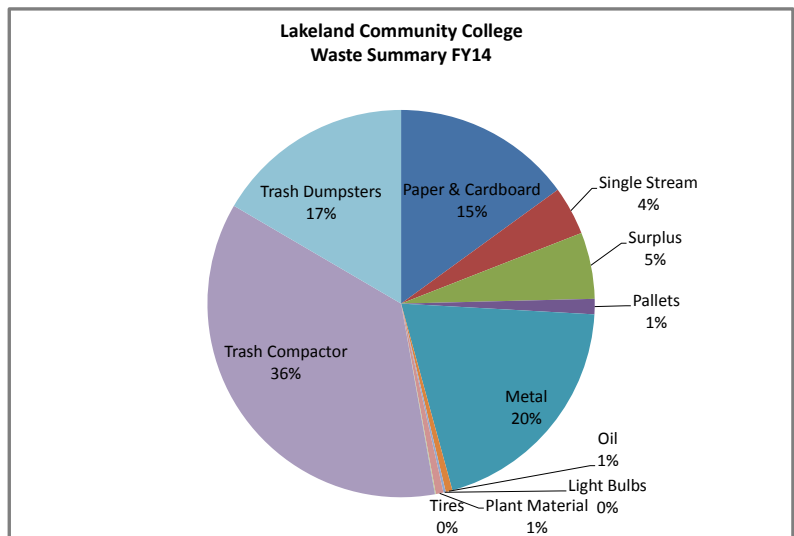
This report details the streams of recycling, diversion and trash collection that Lakeland presently uses for refuse disposal. Data was collected and charts were generated for each category to establish baselines and track annual progress. The comparisons were made apples to apples by converting all volumes to their weights using established conversion guidelines.

Once a comprehensive process is established for tracking and quantifying hard to measure streams, we may then further explore areas to expand upon, improving the program in line with our college's philosophy of continual improvement. With this, we will not only practice stewardship of resources and teaching by doing, but also support the local community in meeting its recycling goals. Ultimately, as a consumer, we recognize the need to take responsibility for the life-cycle impacts of things we use.

¹ http://www.aashe.org/files/documents/STARS/2.0/stars_2.0.2_credit_op_23.pdf

REPORTING Streams:

1. Paper & Cardboard
2. Trash Compactor
3. Dumpster
4. Single Stream
5. Surplus Auction
6. Metal
7. Tires
8. Kitchen Oil
9. Light Bulbs
10. Composting
11. Pallets
12. Plant Material



Summary of Report FY14	
Total Tons of all Categories which reflects approximate Total Annual Waste	234
Total Tons Recycled and Diverted	111
Total Percent Recycled/Diverted	47%

Summary if Composting Was Re-established	
The Recycling rate would increase markedly if we were to reinstate the composting program and include both the kitchen and dining areas - pre and post consumer diversion.	
Total Tons of all Categories including Composting	301
Total Tons Recycled and Diverted including estimated compost	177
Total Percent Recycled/Diverted	59%

Summary of Income and Costs for Recycling

Income for College	\$35,739.31
Cost to College	\$1,392.32
Total Income from Recycling	\$34,346.99

Lbs/yr of Waste/FTE Students*	53
Lbs/yr Recycled & Diverted/FTE Students*	25

*FTE Students 8,852

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AASHE STARS:

The data compiled in this report meets the requirements of and will be used for the Association for the Advancement of Sustainability in Higher Education (AASHE) STARS (Sustainability Tracking, Assessment & Reporting System) credit OP23-Waste Diversion. We will attain 1.19 pts out of a possible 3.

OP 23: Waste Diversion STARS Worksheet						
Factor	Multiply	Recycled/Diverted	Divide	Total Waste	Equals	STARS Points
3	x	81	/	205	=	1.19

STARS is a transparent, self-reporting framework for colleges and universities to gauge relative progress toward sustainability.

WASTE AUDIT REPORT CONDUCTED SPRING FY14:

We performed our first **Waste Audit** during FY14 Earth Week with 20 students participating. This audit gives a general summary of the amount of both Single Stream and Paper/Cardboard that remains in the general trash and could be recycled. The value of this audit was not only in identifying and measuring recycling in the waste stream, but also in connecting the students to the larger picture of why we recycle. We talked about resource conservation and closed loop systems, about human and environmental health, and about the reality of the challenges of changing individual's behavior. The Earth Week Events Team plans to conduct the next audits in the Fall and Spring of FY15, expanding the areas surveyed to get more accurate understandings of which areas and individuals on campus may need to improve their recycling habits. We will continue to communicate information about the program itself with seasonal reminders to the campus community.



FINDINGS OF THE WASTE AUDIT FY14

34% of all the trash in the audit was recyclable material

- 9% was Recyclable Paper and Cardboard
- 25% was Single Stream: plastic, metal and glass.

GENERAL SUGGESTIONS FOR IMPROVEMENT:

1. We should request that any event that rents space participate in recycling their waste. Any cardboard, plastic table cloths etc. should make it into our recycling. Any items that are supplied for food or beverages, by Lakeland or outside renters, should be recyclable and then be recycled at the event. We could add recycling to a general informational handout that Lakeland events coordinators give out to customers.
2. Set a standard for Building Services to place a 32 gallon container with the pedestal display signs, for Single Stream and Paper/Cardboard at every event that will use recyclable items. Determine who would be responsible for set up and break down of these containers and signs.
3. Continue to look for a source that will compost organic materials.
4. Increase communication by adding information about recycling in New Student and Employee orientation. Seek out Faculty and Departmental Representatives who will champion recycling options to faculty, staff and students at the beginning of each semester. Add informational signs in Breakers.
5. Add exterior recycling containers at selected entrances to the buildings.

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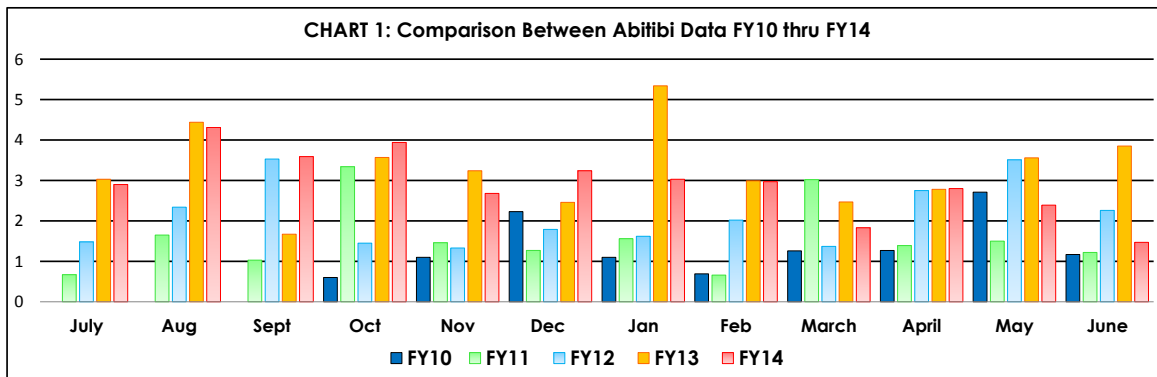
1 Paper and Cardboard

By charting the Abitibi paper retriever report, which tracks the tons of paper/cardboard picked up each month, we can see that there has been an increase in the amount of paper recycled by 52% from FY11-FY14 and 35% from the previous year indicating progress in this area. (CHART 1)

There are currently 78 containers for paper and cardboard placed across campus in public areas and in the printing areas of each Department.

ABITIBI Paper Recycling Data Report

	FY10	FY11	FY12	FY13	FY14	FY15
July		0.67	1.48	3.03	2.90	
Aug		1.65	2.34	4.44	4.31	
Sept		1.03	3.53	1.67	3.59	
Oct	0.6	3.34	1.45	3.57	3.94	
Nov	1.1	1.46	1.33	3.24	2.68	
Dec	2.23	1.27	1.79	2.46	3.24	
Jan	1.10	1.56	1.62	5.34	3.03	
Feb	0.69	0.66	2.02	2.99	2.97	
March	1.26	3.02	1.37	2.47	1.83	
April	1.27	1.39	2.75	2.78	2.80	
May	2.71	1.5	3.51	3.56	2.39	
June	1.17	1.22	2.26	3.85	1.47	
Total Annual Tons	12.13	18.77	25.45	39.4	35.15	0
Income for College	\$60.65	\$93.85	\$127.25	\$197.00	\$175.75	
Increase from previous year		35%	26%	35%	-12%	
Increase from FY11			26%	52%	-19%	



There is a noted decrease in FY14 recycling in this stream from the previous year FY13. One questions if it is from a falling off of recycling efforts or if we are reducing the amount of paper used in general.

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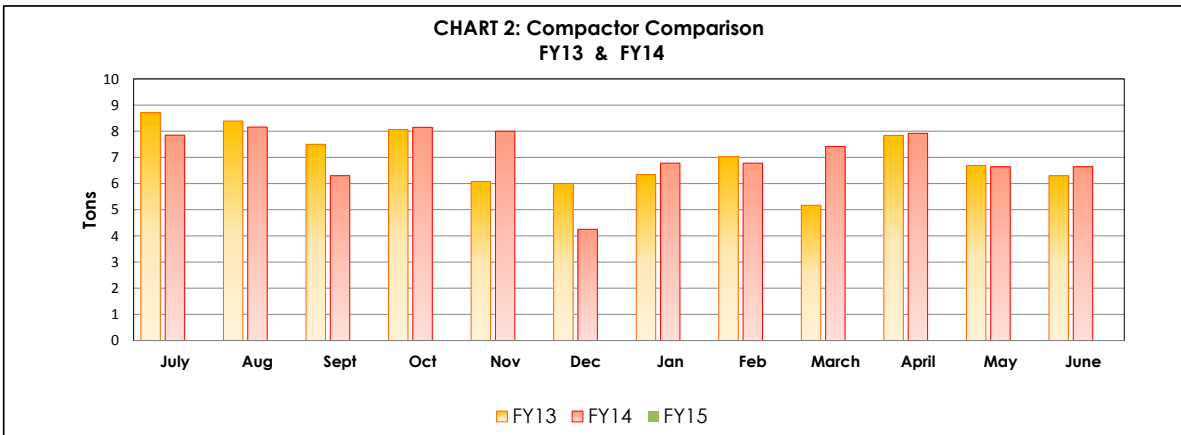
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2 Trash Compactor

By charting the monthly tonnage collected from the **Trash Compactor** a graph has been compiled for the dates 6/12 thru 5/14 which shows that there has been an increase by 1% in the amount of trash that is disposed of in the compactor.

Compactor Tonnage at Pick-up Data

Pick-up month	FY13	FY14	FY15		
	Tons				
July	8.71	7.85			
Aug	8.39	8.16			
Sept	7.50	6.30			
Oct	8.06	8.15			
Nov	6.08	8.00			
Dec	6.00	4.25			
Jan	6.34	6.78			
Feb	7.03	6.78			
March	5.17	7.42			
April	7.84	7.92			
May	6.69	6.64			
June	6.30	6.64			
Total Annual Tons	84.11	84.89	0	0	0
Increase from previous year		1%			



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3 Trash Dumpsters

These are not weighed at pickup (like Abitibi). Building Services estimates each dumpster to be on average 1/3 full. Recyclemania volume conversions suggest that 1 cy trash = 90#.

Location	Bins	Yrds. ³	Pick-up Schedule
AFC	1	8	Mon./Fri.
Engineering	2	8	Mon.
Service Garage	1	8	Mon.
Mooreland	1	3	Mon. April to Oct. 31
	1	3	Mon. Nov. to March 31
Total cy/wk		16.6	
Total Lbs/yr.	77688		
Total Tons/yr. Based on 1/2 filled dumpsters	38.84		

<http://www.recyclemaniacs.org/sites/default/files/documents/Volume-weight-conversions.pdf>

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4 Single Stream

A. This information is based on an average between all 52 - 23gallon containers located across campus. Building Services estimates how full each container is on average and how often they are collected. This allows a look at the efficiency and possible need to replace existing containers in some areas of high use with a larger size or possibly eliminate areas of low use to reduce man-hours spent collecting. The information from the kitchen is an estimate.
B. This information is based on a visual estimate of how full the 2 - 2cy containers are that are picked up 2x a week from shipping and receiving by Waste Management.

A Total Number of Single Stream containers including HUC	52
Times collected per week	1
Number of gallons each pick-up (2/3full average)	15.33
Total number of gallons/week	797 ²
Total Lbs./week (.3#/gallon ³)	239

Total Lbs/wk. from 2 - 55 gallon at Breakers	99
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Picked up 3x/week

Total Lbs/wk from Kitchen	28
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B Total Lbs WM picks up/wk**	366
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Total Tons/yr. of Single Stream Recycling	10
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**Note: each 2 yd (cy) Waste Management bin at Receiving Dept. = 404 gallons of mixed plastic, metal, glass. These are picked-up 2x/wk and are 3/4 full at pick-up time. The amount of glass is minimal.

202 gallons = 1cy = 61lbs. 2cy x 4 x .75 full/week = 6 cy collected/week x 61lbs. = 366 Lbs/wk

² Total gallon capacity of 2-2yd bins picked up 2x/week =	1616
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or = 1212 gallons

Calculation of 61#/cy is based on the Recycle Bowl conversions.

³ <http://your.kingcounty.gov/solidwaste/business/documents/Conversions.pdf>
<http://recycle-bowl.org/wp-content/uploads/Estimating-Data-Fact-Sheet-2012.pdf>

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5 Surplus Auction Program

There was no formal accounting of item weights of Surplus is in place at the time of this report. An items list was furnished by the Assistant Director of Purchasing. Weights were primarily determined from the EPA conversions chart. Other weights were estimated by shipping and receiving staff and other weights by web search references when necessary.

Items measured in total Tons from the Surplus Auction Program	13
College Income	\$29,746.54

<http://your.kingcounty.gov/solidwaste/business/documents/Conversions.pdf>

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6 Metal

Data was requested from DiMilta Scrap Yard and from tickets from pick-up truck loads that Building Services dropped off at Willoughby Iron & Waste

Total Tons from E Bldg. dumpsters & drop-offs ⁴	41.4	\$5,570.02
Total Tons from FM dumpsters ⁵	1.5	\$46.00
Total Tons from pick-up truck drop offs FM ⁶	3.60	\$111.00

Total Tons/yr.	46.5
Income for College	\$5,727.02

⁴ Data is from E Bldg. Offices and weights of containers emptied each semester.

⁵ Data is from DiMilta and requesting ticket weight info on containers FM requests occasionally.

⁶ Data is from the Building Services Coordinator weight tickets.

Area

7 Tires

Having taken a five year average of vehicle tire replacement the data here will be used annually.

Number of tires recycled annually on average *	16
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Total Tons/yr.**	0.176
Cost to College	\$80.00

** Based on <http://your.kingcounty.gov/solidwaste/business/documents/Conversions.pdf> 20#/tire for cars and 60# for trucks.

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8 Kitchen Oil

The oil used in the kitchen is recycled for use as biofuel by Organicorp Inc.

Total gallons/yr.	350
Total Tons/yr. @ no cost to the college	1.3195
Income for College	\$90.00

Data from Organicorp Inc. - Innovative Grease Solutions for the Food Service Industry
 250 Monroe NW, Suite 400, Grand Rapids, MI 49503
 (cell) 440.669.6682 (best way), (v) 616-717-5806 , (f) 616-717-5701, www.organicorpinc.com

Weight of 1 gallon = 7.54 lbs.

<http://your.kingcounty.gov/solidwaste/business/documents/Conversions.pdf>

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9 Light Bulbs

Unit Type	Lbs. each	# Units	Total #
4ft	0.625	901	563.125
8ft	1	75	75
Compact	0.25	772	193
HID	1	46	46
U-bent	0.5	56	28
Circular	0.5	8	4
Total Lbs.			909.125

Total Tons	0.45
Cost to College	\$1,312.32

Approximate Lamp weights: 8'=1lb, 4'=½ lb, U-tube/Circular=1/2 lb, Compact=¼ lb, HID=1lb, I-CAD=1/4lb.
 Data from the Director of Maintenance - Luminaire Environmental & Technologies invoice

https://www.wmlamptracker.com/v2/bulktracker_packaginginstructions.cfm

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10 Composting

From 2010 through 2013 we were successfully composting organic waste from the kitchen of Breakers Dining (pre consumer) with Rosby Recycling. We lost this vendor due to 'not in my backyard' actions against this site so do not have a vendor that accepts composting at this time.

At the same time that Rosby discontinued our service, Lakeland was poised to expand this program to include the Dining Rooms (post-consumer) also. New recycling stations were planned to accommodate the 1st and 2nd floor dining areas. The Director of Dining Services, Facilities Management and Rosby estimated what our capacity would be if we were to offer this service to the college. This estimate has been added to this report to show how much more could be recycled/diverted if we were to reinstitute this program. Lakeland is looking for other composting company options at this time.

Estimate of total Tons */year for future set-up at S/R @ 9 Totes (64 gallons) emptied 2x/wk.	66.6432
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* 4.45 lbs/gallon is used as the conversion.
 This estimate was given by the Director of Dining Services and Rosby Recycling.

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11 Pallets

Pallets are used to transport items purchased by the college. The shipping and receiving department keeps a list of outside recycling groups who will take and recycles/reuse/repurpose them at no cost to the college.

Total Pallets accumulated by Grounds Dept.	50
Total Pallets accumulated by Receiving	100

Total Tons Recycled @ no cost to college	3
Cost or Income for College	0

One pallet weighs approx. 40 lbs per

<http://your.kingcounty.gov/solidwaste/business/documents/Conversions.pdf>

Area

12 Plant Material

This is based on an estimate of landscape debris that the Grounds Dept. composts instead of adding to the solid waste stream. It includes tree limbs, grass clipping and prunings.

Total Tons Plant material waste	1.5
Cost or Income for College	0



Analysis of Recycling/Diversion Program through FY14
Compiled By: Susan Walker-Meere
Dept. for Facilities Management of Lakeland Community College
For information please contact: swalker-meere@lakelandcc.edu or (440) 525-7152