Waste Audit Report

Queen's University
John Deutsch Centre
University Avenue
Kingston, Ontario

March 26, 2014

Submitted by:

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EXECUTIVE SUMMARY

OVERVIEW

Queen's University retained GFL Environmental to conduct a solid, non-hazardous waste audit for the John Deutsch University Centre (JDUC) located at University Avenue in Kingston, Ontario. A collective waste audit was performed for the building on March 26, 2014.

PURPOSE

The purpose of the waste audit was to identify, quantify and analyze the composition of the waste stream generated by the collective functional areas within the building, and also to ensure compliance with the requirements outlined in The Ministry of the Environment Ontario (MOE) Regulations 102/94 and 103/94. The waste audit is also used to determine the ability to reduce, reuse and recycle materials from the existing waste stream on a go forward basis. The audit aims to pinpoint new recycling opportunities, and to enhance and strengthen the existing recycling initiatives currently in place. This analysis will also contribute to the formation of a waste reduction work plan for the facility; a plan to go forward with the building of a successful diversion program will draw from the audit results and the subsequent diversion recommendations made by GFL Environmental Corporation, in partnership with input and insight from Queen's University.

WASTE AUDIT METHODOLOGY

The JDUC currently utilizes 1, 8 cubic yard front end container for all solid, non-hazardous waste disposal and removal. To collect an appropriate sample of waste for the audit, facility cleaning employees were required to collect all bags of waste from the facility over a 24 hour period, and place all bags in a designated area. After the 24 hour collection period, the bags were removed from the holding area and brought to an on site location for audit and analysis. An overall survey was completed by the GFL Environmental audit team; bags of waste material were opened and separated into commodity type (paper, plastic, metal, glass, organic and 'other') and the resulting sub categories (as listed in Appendix I, page 12). Each commodity type and sub category was weighed individually and photographs were taken for inclusion in the waste audit report.

REPORT

The information contained in this waste audit report was gathered from the on site collective waste audit, discussions with Queen's University Facility Services personnel, and an analysis of the current waste management handling practices used on site at the JDUC.

CURRENT WASTE HANDLING PROCESSES AND CONTAINERS

- Facility Services collects waste from all functional areas within the building.
- Wastes are then transferred into the 8 cubic yard waste container for disposal. The waste container is emptied six days per week by a private contractor.

CURRENT RECYCLING INITIATIVES AND DIVERSION PROGRAM

The current recycling and diversion program in place at the JDUC includes:

- Corrugated Cardboard (OCC) and Mixed Paper Fibres
- Co-Mingled Recyclables (Glass, Plastics, Aluminum Cans/Steel Cans)
- Mixed Paper Fibres
- Organics (food waste, paper towel)

- Corrugated cardboard is deposited into a designated 8 cubic yard front end container for recycling. The container is emptied six days per week by a private contractor.

- Co-mingled recyclable containers (plastic, metal, glass) are collected and deposited into 5, 95 gallon containers. The containers are emptied for recycling once per week by a private contractor.

- Mixed paper fibres are collected and deposited into 5, 95 gallon containers. The containers are emptied once per week by a private contractor.

- Organics are collected from designated collection containers and food service areas and placed into 16, 32 gallon totes for recycling. The organics totes are emptied two times per week by a private contractor.

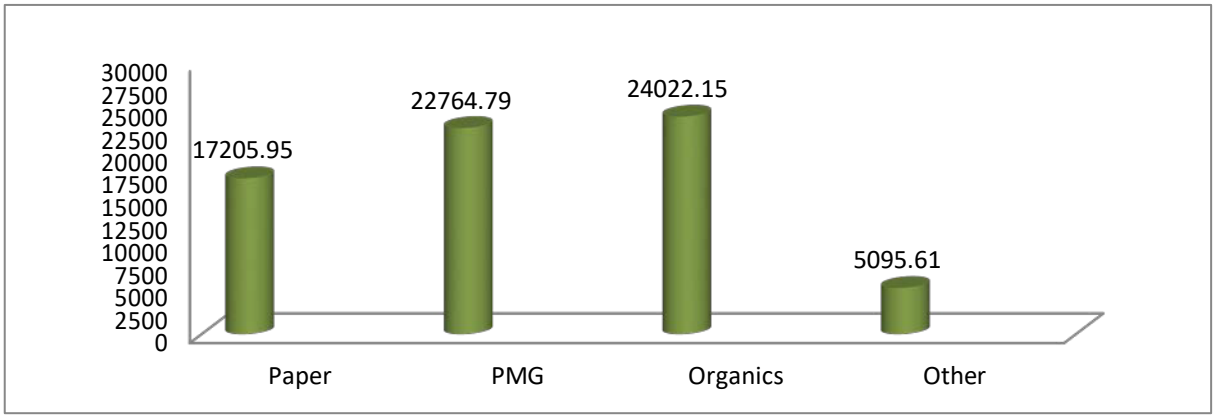
SUMMARY OF WASTE AUDIT FINDINGS

Based on the sample of waste removed from the JDUC at the time of the waste audit, the total amount of solid, non-hazardous waste generated at the facility is estimated to be 69,088.50 kilograms (kg) or 69.08 metric tonnes (t) annually. From the audited waste sample, organics represent 34.77%; plastics, metals, and glass food and beverage containers represent 32.95%; paper fibres represent 24.90%, and 'other' waste materials represent 7.38% of the total annual waste disposed and sent to landfill.

At present, the waste stream at the JDUC contains recyclable materials for which programs for diversion are currently available:

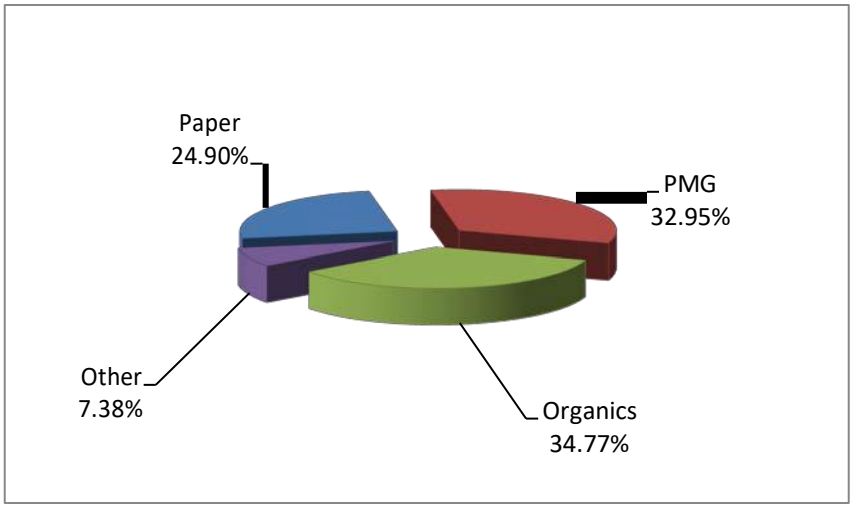
QUEEN'S UNIVERSITY- JDUC

Audited Waste Stream 2014



Annual Waste Disposed= 69,088.50 kg*

AUDITED WASTE COMPOSITION 2014



based on waste audit sample

ANNUAL DIVERSION RATE AND PERCENTAGE

Based on industry standards, service information and monthly data reporting, 272,670.00 kilograms or 272.67 metric tonnes of materials are removed and recycled from the JDUC on an annual basis.

Material Diverted from Landfill:

Material Destination	Weight Generated (kg)	Weight Generated (t)
Landfill	69,088.50	69.08
Recycled	272,670.00	272.67
Total Material Generated	**341,758.50**	**341.75**

Current Annual Diversion Rate Percentage

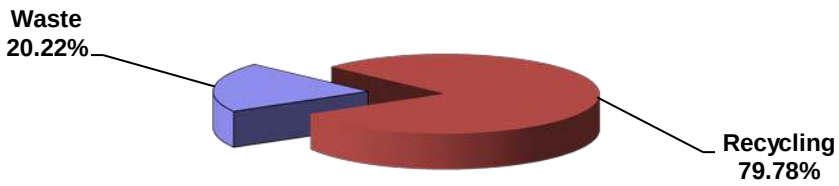
The annual waste diversion percentage rate is calculated as follows:

(waste + recycling=generated; recycling/generated x 100= diversion percentage)

Diversion Rate 79.78%

Therefore the current annual diversion rate percentage when all initiatives are accounted for is estimated to be 79.78%.

Annual Diversion Rate Percentage 2014



RECOMMENDATIONS

In order to improve the effectiveness of the recycling program at the JDUC building at Queen's University, there are several initiatives to take into consideration. To divert as much material from landfill as possible it would be beneficial for the facility to direct all recycling efforts towards further source separating recyclable materials. The two main categories of material to focus greater efforts towards are recyclable plastic/metal/glass food and beverage containers and organics.

1. IMPROVE PLASTIC/METAL/GLASS RECYCLING

32.95% of the landfill waste sample was found to be mostly recyclable, plastic/metal/glass mixed food and beverage containers. Recyclable food and beverage containers accounted for 36.05% of the subcategory of plastics, metals, and glass. Non-recyclable items such as Styrofoam food packaging (2.33%) and non-recyclable plastic film and packaging (60.17%) were also found in the audited waste sample, which is fine, as these materials are not currently accepted in the recycling program available. To reduce this waste, however, consider green purchasing strategies when ordering food products and consider the packaging that these materials are supplied in. It was observed that while Styrofoam is not used on campus by any food services outlets, there are mobile food trucks that park throughout the campus, and those food trucks often use Styrofoam packaging. Consider reaching out to these food trucks to see if they would be willing to change their packaging in correlation to the overall diversion objectives of the campus.

For the purpose of ensuring that more recyclable food and beverage containers are captured and diverted to recycling systems, ensure that container signage is clear and detailed, and posted in appropriate locations where recycling containers are stationed.

2. IMPROVE EFFICIENCY OF ORGANICS RECYCLING PROGRAM

As organics are the heaviest contributor to overall disposal figures, diverting as much organic food waste from the waste stream as possible will greatly increase the diversion rate and reduce the amount of waste sent to landfill annually. 88.43% of the classified organic materials consisted of food waste material. Assessing generation areas for additional bin placement and estimating waste levels should be the first step to implementing these solutions. Ensure that food service employees are utilizing the program as much as possible.

Also, consider expanding organics recycling to a post-consumer audience (students and staff). Try testing one part of the building as a pilot area for organics collection, and monitor the containers regularly to see what volumes of organics are being included in the program, and to determine if contamination is an issue.

Inquire with current waste and recycling provider to see if paper towel can also be included in the organics collection. If this is feasible, adding paper towel to the organic recycling program will help to divert this material from landfill as well (29.62% of overall paper fibres disposed), although this program may not be available in the service area.

3. SIGNAGE AND EDUCATION

EMPLOYEE/STUDENT EDUCATION:

All educational information should be displayed via an internal web portal intranet system and frequently updated to encourage and engage staff and student participation. While education and training on waste reduction should be ongoing, formal education should take place sporadically (for example, 1-2 times per year). Consider holding regular 'Green Team' meetings to discuss concerns surrounding the waste and recycling programs, and also use this time to reflect on the success of the recycling program and the efforts of the employees and student. Have the team be more involved in special events on site, such as Earth Day and Waste Reduction Week, as their involvement will encourage other, fellow employees to participate in the waste diversion and recycling culture at the facility.

VISITOR EDUCATION:

Clear, visible guidelines and signage are very important to the success of the recycling program. All areas of the facility are currently equipped with appropriate signage to clearly indicate to visitors which materials are accepted in the receptacles and to remind them of the importance of their involvement in the recycling program. Recycling guidelines are clearly posted wherever receptacles and collection containers are stationed, in both the hallways and common areas (cafeteria, meeting rooms, etc.).

4. MONITORING AND EVALUATION

One of the keys to a successful recycling program is gathering quantifiable results to follow the progress of the program over the course of time. Ensure that a waste audit continues to be completed as required, and keep track of the data results year to year to compare disposal and recycling rates. Continue to receive monthly diversion reports and display results on online, public portals to reach all employees and students, and to pinpoint where improvements can be made.

Using the sustainability team to monitor waste diversion and waste management activities can help to engage employees and students and ensure that waste diversion is being monitored at the same time. It is important to have members of different campus departments share the responsibility of reviewing waste diversion, overseeing program development, and continuously monitoring the efficiency of the recycling programs in place to help ensure input is received from all areas of the facility. The team may also develop new goals and strategies for the facility and provide an outlet for environmental awareness.

Clear bags should be used on all receptacles, for both recycling and waste. This helps when custodians are identifying bags for recycling and analyzing levels of contamination within the streams. Continue to maintain up-to-date records of waste diversion initiatives (e.g. diversion charts, educational or promotional efforts etc.) to see if changes need to be made to the recycling program.

5. CONTINUAL PROGRAM REVIEW

The success of the existing recycling program should be continually reviewed by the facility services, the sustainability team and/or management in order to establish goals and monitor improvement over time. This should include but not be limited to:

- The adequacy and accessibility of available bins.
- The disposal methods used by all parties, and the location of signage or labels on bins.
- The assessment of how materials are being sorted and the potential for new materials to be recycled as the hauler systems and industry changes.

CONCLUSIONS

In order to address and monitor the effectiveness of the recycling program at the JDUC building at Queen's University, consider the following suggestions to improve the existing program and efforts of employees and visitors:

- No Excuses!!! Provide recycling receptacles wherever garbage bins exist so that there are no excuses for not participating in the recycling program.
- Ensure that adequate signage is placed on or above all recycling receptacles and that the signage remains consistent throughout the building.
- Education throughout the facility can be promoted through contests and promotional events (especially during Earth Month in April and Waste Reduction Week in October).
- Provide employees and students with information on recycling procedures and services in employee and/or student handbooks and in refresher training sessions for facility services.
- Implement a system of positive reinforcement through rewards and prizes for employee/student participation in the recycling programs (host a waste-free BBQ or lunch for good practices and participation of employees/students in the recycling programs).

The success of these initiatives depends on the involvement of all parties, from students, to staff and facility and food services employees, as well as any others who have a stake in the success of the program. The more involved all parties are in the waste reduction goals of Queen's University, the greater the success of the program.

APPENDIX I- TABLE OF WASTE AUDIT DATA

CUSTOMER NAME:	Queen's University- JDUC						
BLDG NAME/ADDRESS:	University Ave., Kingston, ON	AUDIT DATA					
DATE OF REPORT:	26-Mar-14			(KGS)	(KGS)	(KGS)	(KGS)
1. Paper Fibres		**%**	**%**	**Annual Waste**	**Monthly**	**Weekly**	**Daily**
Newspaper	ONP, inserts		8.46%	1455.89	121.32	28.00	4.00
Magazines	OMG		0.00%	0.00	0.00	0.00	0.00
Cardboard	OCC		3.46%	595.59	49.63	11.45	1.64
Boxboard	OBB		9.23%	1588.24	132.35	30.55	4.36
Mixed Papers	Junk mail, fine papers		9.62%	1654.42	137.87	31.82	4.55
Molded Pulp	Egg Cartons, Trays		0.00%	0.00	0.00	0.00	0.00
Kraft Paper	Fast food bags, Paper Bags		5.00%	860.30	71.69	16.55	2.36
Coffee Cups	Paper Coffee Cups		10.38%	1786.77	148.90	34.36	4.91
Tissue/Toweling	Tissues, Napkins, Paper Towels		29.62%	5095.61	424.63	98.00	14.00
Other Paper	Multi-layered, waxed, wrapping		21.92%	3772.07	314.34	72.55	10.36
Gable Top Cartons	Milk & Juice		1.54%	264.71	22.06	5.09	0.73
Aseptic Containers	Tetra type packages		0.77%	132.35	11.03	2.55	0.36
Total Paper		**24.90%**	**100.00%**	**17205.95**	**1433.83**	**330.91**	**47.27**
2. Plastics, Metal, Glass							
Rigid Plastics	Non-Recyclable Rigid Plastics		1.45%	330.88	27.57	6.36	0.91
Recyclable Food and Bev.	Plastics, Metal, Glass		36.05%	8205.91	683.83	157.82	22.55
Styrofoam	Styrofoam Food Packaging		2.33%	529.41	44.12	10.18	1.45
Non-Recyclable Plastic Film	Garbage bags, chip bags, shrink		60.17%	13698.58	1141.55	263.45	37.64
Total Plastics		**32.95%**	**100.00%**	**22764.79**	**1897.07**	**437.82**	**62.55**
6. Organics							
Food Waste			88.43%	21242.73	1770.23	408.55	58.36
Compostable Packaging	Cups, take out containers		11.57%	2779.42	231.62	53.45	7.64
Wood			0.00%	0.00	0.00	0.00	0.00
Total Organics		**34.77%**	**100.00%**	**24022.15**	**2001.85**	**462.00**	**66.00**
7. Other Waste Materials							
Textiles	Clothing, Cloths		2.60%	132.35	11.03	2.55	0.36
Scrap Metals	Scrap Printer Parts		5.19%	264.71	22.06	5.09	0.73
Electronics/Appliances	Small appliances, Computers		2.60%	132.35	11.03	2.55	0.36
Ceramics	Broken Toilet		61.04%	3110.31	259.19	59.82	8.55
Print Shop Wastes	Paper Dust		28.57%	1455.89	121.32	28.00	4.00
Other Waste	Non-Classified Wastes		0.00%	0.00	0.00	0.00	0.00
Total Other		**7.38%**	**100.00%**	**5095.61**	**424.63**	**98.00**	**14.00**
Total Annual Waste		**100.00%**		**69088.50**			

**HIGHLIGHTED ITEMS ARE MATERIALS THAT SHOULD BE DISPOSED OF AS WASTE.*
ALL OTHER MATERIALS ARE CURRENTLY RECYCLABLE THROUGH EXISTING PROGRAMS.

APPENDIX II- DEFINITION OF WASTE CATEGORIES

Paper	Fine Paper	Office paper, photo copier paper, envelopes
	Cardboard	Banker boxes, all other non-waxed cardboard
	Boxboard	Tissue boxes, food packaging boxes (cereal, granola bar boxes, etc.)
	Newsprint	Newspapers
	Magazines and Flyers (Glossy)	Brochures, pamphlets
	Kraft Paper	Brown wrapping paper, food takeout bags
	Aseptic Containers	Juice boxes, Tetra Paks
	Moulded Pulp	Beverage cup holders, egg cartons
	Paper Towel, Tissue	Paper hand towels, napkins and tissues
	Gable Top Cartons	Milk Cartons, Juice Cartons
	Spiral Wound Containers	Juice Cans; nut and chip containers
	Other paper	Coffee cups, waxed paper
Plastic	PET or PETE #1 (polyethylene terephthalate)	In most water and pop bottles, and some packaging
	HDPE #2 (high-density polyethylene)	Hard plastic containers. Commonly used in milk, detergent and oil bottles.
	LDPE #4 (low-density polyethylene)	Soft plastic. Commonly used in plastic bags, shrink wrap, garment bags (for dry cleaning)
	PP #5 (polypropylene)	Yogurt tubs, margarine containers, ketchup/mustard containers
	PS #6 (polystyrene)	Plastic cutlery, food trays, Styrofoam. May leach into food packaging, therefore, difficult to recycle.
	Recyclable Plastic Film	Stretch Film, clean plastic films
	Non-Recyclable Plastic Film	Candy bar wrappers, cookie bags, garbage bags, etc.
	Non-Recyclable Rigid Plastics	Plastic straws, cutlery, packaging, etc.
Metal	Aluminum Cans	Pop, juice cans
	Aluminum Foil, Trays	Foil wrap, food trays
	Steel Cans	Food and beverage steel cans
	Aerosol Cans	Spray Cans, empty
	Other Metals	Scrap metal
Glass	Clear and coloured	Beverage and food bottles/containers
	Other Glass	Tempered, light bulbs, ceramics
Organics	Food Waste	Food scraps
	Yard Waste	Plants, trimmings
	Wood	Un-treated wood products
Other Materials	Rubber	Gloves, rubber bands, hose, etc.
	Textiles	Clothing, Linens
	Construction & Demolition	Drywall, concrete, etc.
	Latex/Nitrile/Plastic Gloves	Medical Gloves; disposable
	Furniture	Mattresses, chairs, office furniture, etc.
	Diapers/Absorbent Pads	Disposable Diapers and Absorbent Pads
	Electronic Waste	Telephones, ink cartridges, IT equipment, etc.
	Other	Un-categorized waste materials

Ministry of the Environment Waste Form

Report of a Waste Audit

Industrial, Commercial and Institutional Establishments

As required by O. Reg. 102/94

This report must be prepared 6 months after becoming subject to O. Reg. 102/94 and retained on file for at least five years after it is prepared, and be made available to the ministry upon request.

GENERAL INFORMATION

Name of Owner and/or Operator of Entity(ies) and Company Name: Queen's University				
Name of Contact Person: Llynwen Osborne		**Telephone #:** 613-533-3396	**Email address:** lrao@queensu.ca	
Street Address(es) of Entity(ies) John Deutsch University Centre- 87 Union Street				
Municipality: Kingston, Ontario				
Type of Entity (check one)				
Retail Shopping Establishments		Hotels and Motels		
Retail Shopping Complexes		Hospitals		
Office Buildings		Educational Institutions		X
Restaurants		Large Manufacturing Establishments		

Note: O. Reg. 102/94 does not apply to multi-unit residential buildings.

DESCRIPTION OF ENTITY

Provide a brief overview of the entity(ties):
Queen's University is a post-secondary education institution located in Kingston, Ontario. The campus is located centrally in down town Kingston. The John Deutsch University Centre (JDUC) is located on Union Street and is home to student offices, campus services, a food court, classroom space, and faculty offices.

HOW WASTE IS PRODUCED AND DECISIONS AFFECTING THE PRODUCTION OF WASTE

For each category of waste that are produced at the entity(ies), explain how the waste will be produced and how management decisions and policies will affect the production of waste.

Categories of Waste	How Is the Waste Produced and What Management Decisions/Policies Affect Its Production?
Example: Disposable Food Packaging	Generated by customers eating inside restaurant. Food packaging is used for health reasons. Reusable mugs for customers consuming coffee/tea inside restaurant are being reviewed.
Corrugated Cardboard (OCC)	Generated by employees, packaging. Material is deposited into designated container for recycling.
Newsprint	Generated by employees; students. Material is deposited into designated container for recycling.
Magazines	Generated by employees; students. Material is deposited into designated container for recycling.
Boxboard	Generated by employees, students, packaging. Material is deposited into designated container for recycling.
Fine paper	Generated by employees, students. Material is deposited into designated container for recycling.
Molded Pulp	Generated by employees, students, packaging. Material is deposited into designated container for recycling.
Kraft Paper	Generated by employees, students, packaging. Material is deposited into designated container for recycling.
Gable Top Containers	Generated by employees, students, packaging. Material is deposited into designated container for recycling.
Aseptic Containers	Generated by employees, students, packaging. Material is deposited into designated container for recycling.
Paper Coffee Cups	Generated by employees, students, packaging. Material is deposited into designated container for waste.
Other Paper	Generated by employees, students, packaging. Material is deposited into designated container for waste.
Aluminum Food and Beverage Cans, Trays	Generated by employees, students, packaging. Material is deposited into designated container for recycling.
Aluminum Foil	Generated by employees, students, packaging. Material is deposited into designated container for waste.
Steel Food and Beverage Cans	Generated by employees, students, packaging. Material is deposited into designated container for recycling.
Glass food and beverage bottles/jars	Generated by employees, students, packaging. Material is deposited into designated container for recycling.
PET (#1) plastic food and beverage bottles	Generated by employees, students, packaging. Material is deposited into designated container for recycling.
HDPE (#2) plastic jugs, crates, totes and drums	Generated by employees, students, packaging. Material is deposited into designated container for recycling.
LDPE/PP (#4, #5) plastic film, containers	Generated by employees, students, packaging. Material is deposited into designated container for recycling.
Polystyrene (#6) Styrofoam	Generated by employees, students, packaging. Material is deposited into designated container for waste.
PS (#6) clear clamshells, coffee lids	Generated by employees, students, packaging. Material is deposited into designated container for recycling.
Recyclable Plastic Film (stretch wrap, clean film)	Generated by employees, students, packaging. Material is deposited into designated container for recycling.
Non-Recyclable Rigid Plastics	Generated by employees, students, packaging. Material is deposited into waste container for disposal.
Non-Recyclable Film	Generated by employees, students, packaging. Material is deposited into waste container for disposal.
Food Waste	Generated by employees, food services, students. Material is deposited into designated containers for organic recycling.
Paper Towel, Tissue	Generated by employees, students. Material is deposited into designated containers for waste.
Compostable Packaging	Generated by employees, students. Material is deposited into designated containers for waste or organics recycling.
Wood	Generated by shipping; employees. Material is placed in designated area for recycling.
Textiles	Generated by employees, clients, visitors. Material is deposited into designated container for waste.
Ceramics	Generated by employees, students. Material is deposited into designated container for waste.
E-Waste, Electronics	Generated by employees, students; old equipment. Material is collected and removed for recycling and proper handling.
Batteries	Generated by employees, students. Material is collected and removed for recycling and proper handling.
Scrap Metals	Generated by employees, students. Material is collected and removed for recycling.
Print Shop Wastes	Generated by students. Material is deposited into designated container for waste.

Note: When completing this form, write "n/a" in the columns where the entity will not produce any waste for a category of waste.

MANAGEMENT OF WASTE

For each category of waste listed below, indicate which waste items will be disposed or reused/recycled and how each item will be managed at the entity(ies).

Category	Waste to be Disposed	Reused or Recycled Waste
Example: Beverage cans	Staff/ clients may place in garbage cans (labelling will be in place to discourage this)	Staff/ clients place cans in recycling receptacles. Collection staff later collect cans. Those in garbage are disposed; those in recycling receptacles are recycled.
Corrugated Cardboard (OCC)		Participants place in collection containers provided, items captured and recycled.
Newsprint		Participants place in collection containers provided, items captured and recycled.
Magazines		Participants place in collection containers provided, items captured and recycled.
Boxboard		Participants place in collection containers provided, items captured and recycled.
Fine Paper		Participants place in collection containers provided, items captured and recycled.
Molded Pulp		Participants place in collection containers provided, items captured and recycled.
Kraft Paper		Participants place in collection containers provided, items captured and recycled.
Gable Top Containers		Participants place in collection containers provided, items captured and recycled.
Aseptic Containers		Participants place in collection containers provided, items captured and recycled.
Paper Coffee Cups	Participants place in waste containers.	
Other Paper	Participants place in waste containers.	
Aluminum Food and Beverage Cans, Trays		Participants place in collection containers provided, items captured and recycled.
Aluminum Foil	Participants place in waste containers.	
Steel Food and Beverage Cans		Participants place in collection containers provided, items captured and recycled.
Glass Food and Beverage Bottles/Jars		Participants place in collection containers provided, items captured and recycled.
PET (#1) Plastic Food and Beverage Bottles		Participants place in collection containers provided, items captured and recycled.
HDPE (#2) Plastic Jugs, Containers		Participants place in collection containers provided, items captured and recycled.
LDPE/PP (#4, #5) Film, Containers		Participants place in collection containers provided, items captured and recycled.
PS (#6) Styrofoam	Participants place in waste containers.	
PS (#6) clear clamshells, coffee lids		Participants place in collection containers provided, items captured and recycled.
Recyclable Plastic Film, Stretch Wrap		Participants place in collection containers provided, items captured and recycled.
Non-Recyclable Rigid Plastics	Participants place in waste containers.	
Non-Recyclable Plastic Film	Participants place in waste containers.	
Food Waste		Participants place in collection containers provided, items captured and recycled.
Paper Towel, Tissue	Participants place in waste containers.	
Compostable Packaging		Participants place in collection containers provided, items captured and recycled.
Wood		Participants place in collection containers provided, items captured and recycled.
Textiles	Participants place in waste containers.	
Ceramics	Participants place in waste containers.	
E-Waste, Electronics		Participants place in collection containers provided, items captured and recycled.
Batteries		Participants place in collection containers provided, items captured and recycled.
Scrap Metals		Participants place in collection containers provided, items captured and recycled.
Print Shop Wastes	Participants place in waste containers.	

Note: When completing this form, write "n/a" in the columns where the entity will not produce any waste for a category of waste.

ESTIMATED QUANTITY OF WASTE PRODUCED ANNUALLY

	Estimated Amount of Waste Produced (t)											
	Generated			Reused			Recycled			Disposed		
MATERIAL CATEGORIES	Base Year (A)	Current Year (B)	"C" Change (A-B)	Base Year (A)	Current Year (B)	"C" Change (A-B)	Base Year (A)	Current Year (B)	"C" Change (A-B)	Base Year (A)	Current Year (B)	"C" Change (A-B)
Corrugated Cardboard (OCC)		63.00			0.00			62.40			0.60	
Newsprint		9.75			0.00			8.30			1.45	
Magazines		3.20			0.00			3.20			0.00	
Boxboard		5.33			0.00			3.75			1.58	
Fine Paper		10.67			0.00			9.02			1.65	
Molded Pulp		0.20			0.00			0.20			0.00	
Kraft Paper		1.83			0.00			0.97			0.86	
Gable Top Containers		1.46			0.00			1.20			0.26	
Aseptic Containers		0.79			0.00			0.66			0.13	
Paper Coffee Cups		1.78			0.00			0.00			1.78	
Other Paper		3.77			0.00			0.00			3.77	
Aluminum Food and Beverage Cans		1.71			0.00			0.75			0.96	
Aluminum Foil, Trays		0.00			0.00			0.00			0.00	
Steel Food and Beverage Cans		4.11			0.00			3.10			1.01	
Aerosol Cans		0.00			0.00			N/A			0.00	
Glass Food and Beverage Bottles/Jars		4.16			0.00			2.06			2.10	
PET #1 Plastic bottles		1.52			0.00			0.90			0.62	
HDPE (#2) Plastic Jugs, Crates, Totes, Drums		0.92			0.00			0.60			0.32	
LDPE/PP (#4, #5) Plastic Film, Containers		2.92			0.00			0.75			2.17	
PS (#6) Styrofoam		0.53			0.00			0.00			0.53	
PS (#6) Clear clamshells, coffee lids		1.01			0.00			0.06			0.95	
Recyclable Plastic Film (stretch wrap, clean film)		0.15			0.00			0.03			0.12	
Non-Recyclable Rigid Plastics		0.33			0.00			0.00			0.33	
Non-Recyclable Plastic Film		13.70			0.00			0.00			13.70	
Food Waste		195.96			0.00			174.72			21.24	
Paper Towel, Tissue		5.09			0.00			0.00			5.09	
Compostable Packaging		2.78			0.00			N/A			2.78	
Wood		0.00			0.00			N/A			0.00	
Textiles		0.13			0.00			0.00			0.13	
Ceramics		3.11			0.00			0.00			3.11	
E-Waste, Electronics		0.13			0.00			N/A			0.13	
Batteries		0.00			0.00			N/A			0.00	
Scrap Metals		0.26			0.00			N/A			0.26	
Print Shop Wastes		1.45			0.00			0.00			1.45	
Other, Non-classified wastes		0.00			0.00			0.00			0.00	
Total		341.75			0.00			272.67			69.08	
Percent Change (total C ÷ total A x 100)												

EXTENT TO WHICH MATERIALS OR PRODUCTS USED OR SOLD BY ENTITY CONSIST OF RECYCLED OR REUSED MATERIALS OR PRODUCTS

1. Do you have a management policy in place that promotes the purchasing and/or use of materials or products that consist of recycled and/or reused materials or products? If yes, please describe.

2. Do you have plans to increase the extent to which materials or products used or sold* consist of recycled or reused materials or products? If yes, please describe.

***** Information regarding materials or products "sold" that consist of recycled or reused materials or products is only required from owner(s) of retail shopping establishments and the owner(s) or operator(s) of large manufacturing establishments.

Please attach any additional page(s) as required to answer the above questions

I hereby certify that the information provided in this Report of Waste Audit is complete and correct.		
Signature of authorized official:	**Title:**	**Date:**

REPORT OF WASTE REDUCTION WORK PLAN- GENERAL INFORMATION

Name of Owner and/or Operator of Entity(ies) and Company Name: Queen's University			
Name of Contact Person: Llynwen Osborne		**Telephone #:** 613-533-3396	**Email address:** lrao@queensu.ca
Street Address(es) of Entity(ies): John Deutsche University Centre- 87 Union Street			
Municipality: Kingston, ON			
	Type of Entity (check one)		
Retail Shopping Establishments		Hotels and Motels	
Retail Shopping Complexes		Hospitals	
Office Buildings		Educational Institutions	√
Restaurants		Large Manufacturing Establishments	

DESCRIPTION OF ENTITY

Provide a brief overview of the entity(ties):
Queen's University is a post-secondary education institution located in Kingston, Ontario. The campus is located centrally in down town Kingston. The John Deutsch University Centre (JDUC) is located on Union Street and is home to student offices, campus services, a food court, classroom space, and faculty offices.

PLANS TO REDUCE, REUSE AND RECYCLE

For each category of waste described in Part V of "Report of a Waste Audit" (on which this plan is based), explain what your plans are to Reduce, Reuse and Recycle the waste, including: 1) how the waste will be source separated at the establishment, and 2) the programs to reduce, reuse and recycle all source separated waste.

Waste Category	Source Separation and 3Rs Program
Cardboard (OCC)	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
Boxboard (OBB)	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
Mixed Paper Fibres	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
Newsprint	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
Magazines, Catalogues	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
Kraft Paper	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
Molded Pulp	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
Gable Top Containers	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
Aseptic Containers	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
Paper Coffee Cups	Material is not currently recyclable. Ensure staff members and students understand current recycling programs and initiatives.
Other Paper	Material is not currently recyclable. Ensure staff members and students understand current recycling programs and initiatives.
Aluminum Food and Beverage Cans	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
Aluminum Foil, Trays	Material is not currently recyclable. Ensure staff members and students understand current recycling programs and initiatives.
Steel Food and Beverage Cans	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
Glass Food and Beverage Containers	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
PET (#1) plastic food & beverage	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
HDPE (#2) plastic jugs, crates, totes	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
LDPE/PP (#4, #5) plastic film, containers	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
Polystyrene (#6) Styrofoam	Material is not currently recyclable. Ensure staff members and students understand current recycling programs and initiatives.
PS (#6) clear clamshells, coffee lids	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
Recyclable Plastic Film	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
Non-Recyclable Rigid Plastics	Material is not currently recyclable. Ensure staff members and students understand current recycling programs and initiatives.
Non-Recyclable Plastic Film	Material is not currently recyclable. Ensure staff members and students understand current recycling programs and initiatives.
Organics, Food Waste	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
Paper Towel, Tissue	Material is not currently recyclable. Ensure staff members and students understand current recycling programs and initiatives.
Compostable Packaging	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
Wood	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
Textiles, Clothing/Linen	Material is not currently recyclable. Consider donating salvageable items to community donation programs.
Ceramics	Material is not currently recyclable. Ensure staff members and students understand current recycling programs and initiatives.
Electronic, E-Waste	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
Batteries	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
Scrap Metals	Program already in place. Enhance staff and student education; ensure all staff members and students understand current recycling programs and initiatives.
Print Shop Wastes	Material is not currently recyclable. Ensure staff members and students understand current recycling programs and initiatives.

RESPONSIBILITY FOR IMPLEMENTING THE WASTE REDUCTION WORK PLAN

Identify who is responsible for implementing the Waste Reduction Work Plan at your entity(ies). If more than one person is responsible for implementation, identify each person who is responsible and indicate the part of the Waste Reduction Work Plan that each person is responsible for implementing.

Name of Person	Responsibility	Telephone #
Llynwen Osborne	Staff communication	613-533-3396

PLAN COMMUNICATION TO STAFF, CUSTOMERS, GUESTS, ETC.

Explain how the Waste Reduction Work Plan will be communicated to employees, customers, tenants, guests/visitors and students:

Written communication will be distributed or posted for all staff and students to read, detailing the audit results and the plan to increase and continue with recycling initiatives for all functional areas of the campus. The communication will speak to the Work Plan action items and objectives, and will provide the vehicle necessary to continue towards greater diversion success.

Follow up communications will be provided to inform staff and students of program success, challenges and/or improvements required on a continual basis. Include recycling handling and protocols for the use in new staff and student orientation programs.

TIMETABLE FOR IMPLEMENTING WASTE REDUCTION WORK PLAN

Provide a timetable indicating when each Source Separation and 3Rs program of the Waste Reduction Work Plan will be implemented.	
Source Separation and 3Rs Program	**Schedule for Completion**
Example: Fine Paper 3Rs Program	"Deskside receptacles and centralized containers to be purchased in March. New collection contract for recycling to be arranged for April Kick off for program and instructions to staff regarding 3Rs program to occur in April" OR "3Rs Program currently in place."
Cardboard (OCC)	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
Boxboard (OBB)	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
Mixed Paper Fibres	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
Newsprint	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
Magazines, Catalogues	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
Kraft Paper	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
Molded Pulp	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
Gable Top Containers	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
Aseptic Containers	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
Paper Coffee Cups	Material is not recyclable. Ensure staff and students understand what is accepted in the recycling program by late 2014.
Other Paper	Material is not recyclable. Ensure staff and students understand what is accepted in the recycling program by late 2014.
Aluminum Food and Beverage Cans	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
Aluminum Foil, Trays	Material is not recyclable. Ensure staff and students understand what is accepted in the recycling program by late 2014.
Steel Food and Beverage Cans	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
Glass Food and Beverage Containers	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
PET (#1) plastic food and beverage bottles	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
HDPE (#2) plastic jugs, crates, totes,	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
LDPE/PP (#4, #5) plastic film, containers	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
Polystyrene (#6) Styrofoam	Material is not recyclable. Ensure staff and students understand what is accepted in the recycling program by late 2014.
PS (#6) clear clamshells, coffee lids	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
Recyclable Plastic Film	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
Non-Recyclable Rigid Plastics	Material is not recyclable. Ensure staff and students understand what is accepted in the recycling program by late 2014.
Non-Recyclable Plastic Film	Material is not recyclable. Ensure staff and students understand what is accepted in the recycling program by late 2014.
Organics, Food Waste	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
Paper Towel, Tissue	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
Compostable Packaging	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014
Wood	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
Textiles, Clothing/Linen	Consider donating any salvageable materials through donation programs in late 2014. If not applicable, continue to dispose as waste.
Ceramics	Material is not recyclable. Ensure staff and students understand what is accepted in the recycling program by late 2014.
Electronics, E-Waste	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
Batteries	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
Scrap Metals	Program in place, ensure all staff members and students are educated on available programs for diversion; increase signage for appropriate disposal by late 2014.
Print Shop Wastes	Material is not recyclable. Ensure staff and guests understand what is accepted in the recycling program by late 2014.

ESTIMATED WASTE PRODUCED BY MATERIAL TYPE AND THE PROJECTED AMOUNT TO BE DIVERTED BY THE 3 Rs

Material Categories (as stated in Part III)	**Estimated Annual Waste Produced** (tonnes)	**Name of Proposed 3Rs Program** (as stated in Part III)	**Projections to Reduce, Reuse or Recycle Waste** (tonnes)			**Estimated Annual Amount to be Diverted** (%)
			Reduce	**Reuse**	**Recycle**	
Example: Fine Paper	1.8 t	Fine Paper 3Rs Program	200 t	100 t	1.2 t	83
Cardboard (OCC)	63.00	Cardboard Recycling Program			50.40	**80**
Boxboard (OBB)	5.33	Mixed Paper Recycling			4.26	**80**
Mixed Paper Fibres	10.67	Mixed Paper Recycling			8.54	**80**
Newsprint	9.75	Mixed Paper Recycling			7.80	**80**
Magazines, Catalogues	3.20	Mixed Paper Recycling			2.56	**80**
Kraft Paper	1.83	Mixed Paper Recycling			1.46	**80**
Molded Pulp	0.20	Mixed Paper Recycling			0.16	**80**
Gable Top Containers	1.46	Mixed Paper Recycling			1.16	**80**
Aseptic Containers	0.79	Mixed Paper Recycling			0.63	**80**
Paper Coffee Cups	1.78	Waste	0.18			**10**
Other Paper	3.77	Waste	0.37			**10**
Aluminum Food and Beverage Cans	1.71	Co-Mingled Recycling			1.37	**80**
Aluminum Foil, Trays	0.00	Waste	0.00			**N/A**
Steel Food and Beverage Cans	4.11	Co-Mingled Recycling			3.28	**80**
Aerosol Cans	0.00	Waste	0.00			**N/A**
Glass Food and Beverage Containers	4.69	Co-Mingled Recycling			3.75	**80**
PET (#1) plastic food and beverage bottles	1.52	Co-Mingled Recycling			1.22	**80**
HDPE (#2) plastic jugs, crates, totes, drums	0.92	Co-Mingled Recycling			0.74	**80**
LDPE/PP (#4, #5) plastic film, containers	2.92	Co-Mingled Recycling			2.34	**80**
Polystyrene (#6) Styrofoam	0.53	Waste	0.05			**10**
PS (#6) Clear Clamshells, plastic lids	1.01	Co-Mingled Recycling			0.81	**80**
Recyclable Plastic Film	0.15	Co-Mingled Recycling			0.12	**80**
Non-Recyclable Rigid Plastics	0.33	Waste	0.03			**10**
Non-Recyclable Plastic Film	13.70	Waste	1.37			**10**
Organics, Food Waste	195.96	Organic Recycling			156.77	**80**
Paper Towel, Tissue	5.09	Organics Recycling			4.07	**80**
Compostable Packaging	2.78	Organics/Waste			2.22	**80**
Wood	0.00	Wood Recycling			0.00	**N/A**
Textiles, Clothing/Linen	0.13	Waste/ Donation	0.01			**10**
Ceramics	3.11	Waste	0.31			**10**
Electronics, E-Waste	0.13	E-Waste Recycling			0.10	**80**
Batteries	0.00	Battery Recycling			0.00	**N/A**
Scrap Metals	0.26	Scrap Metal Recycling			0.21	**80**
Print shop wastes	1.45	Waste/ Alternative Diversion	0.15			**10**
Other- non-classified wastes	0.00	Waste	0.00			**N/A**

I hereby certify that the information provided in this Waste Reduction Work Plan is complete and correct.		
Signature of authorized official:	**Title:**	**Date:**