Sheridan Mission Zero / ZERO WASTE Sheridan

Waste Audit Results – April 2013

Executive Summary

As part of Sheridan College's overall journey towards sustainability, Sheridan has established a program called ZERO WASTE Sheridan (ZWS) with its goal to be a net zero waste campus by 2020 and a goal to create and nurture a campus-wide sustainability culture.

Spinnaker Recycling Corp. was employed by Sheridan College's Office of Sustainability to perform a detailed waste audit of the B-Wing and Cafeteria areas of the Trafalgar Campus, with the goal of determining the current composition of the waste materials generated within these areas. This information would support a new 'student and staff facing' waste container initiative that is being undertaken, and provide both weights and volumes of the samples audited to aid in purchasing these containers in the appropriate number and size.

While the container initiative was the primary driver behind this project many other results and recommendations can be made, with reference to statistical information gleaned from the audit and observations of staff/student behaviors/work practices. These quantitative and qualitative points can in many cases be applied to the defined goals of the Zero Waste Sheridan initiative.

Reduce	Reduction & elimination of waste to landfill by 50% in 2013 and 75% by 2014 (against 2011 baseline)

B-Wing:

Paper Towels – 19.7% of the waste to be disposed (black bag) in the B-wing and 14.74% of the Cafeteria waste was paper toweling (includes paper napkins as well, both often contaminated by liquids). From the B-wing area this material was ubiquitous in the samples. This material is typically highest in prevalence in washroom areas that are not equipped with hand dryers. Within the B-Wing sample however paper towel showed at or near the top of the list for other areas, such as Child Care offices, 1st floor classrooms, finance and the Presidents office/Admin area. Paper towel use and possible abuse should be noted at all distribution points (please take only one – the first 'R' is Reduce). Paper

towel that is used out of necessity can be captured through some composting programs, and should be addressed in each of the high use/disposal areas.

Garbage bags – 4.3% of the overall weight of materials was garbage bags employed through the audited area. This result, while augmented slightly by residual materials that cannot be separated from the bags themselves, is surprisingly high. During the auditing of the sample many bags that had been changed out by any one of the janitorial staffers could contain as little as a single food wrapper. A dialogue with the janitorial contractor regarding the changing out of receptacles vs. the emptying of receptacles should occur to establish guidelines. The elimination of desk-side waste containers in favour of centralized diversion centres would also facilitate this change. Reductions in the cost of 'bags used' could be applied to the Zero Waste Sheridan initiative. Reductions in staff time required to change and empty receptacles could similarly be applied.

Paper cups – 6% of the waste sample consisted of paper cups. Most of these were hot drink cups. This material can be recycled through some commercial programs, or composted by introducing 'brown line product' alternatives, but should first be tackled from the Reduction point of view. While it is difficult for the food service providers to provide a 'china' alternative to the take away cups, as there is currently no controlled environment for them to work with to ensure the return of these food service wares, some other strategies might be worth considering. Incentives for the use of reusable personal carafes/insulated mugs as many firms employ, could be enhanced by giving this type of product to students and staff once per year, with the option to buy extras/replacements. Sponsorship of a program like this might offset some of the costs.

Food Waste – the Bin Trax program is an opportunity to continue reducing the amounts of waste generated from the preparation of foods within the cafeteria area. Without a collection and process protocol to handle this material it is unfortunately still destined for disposal in landfill.

Reuse	Capture 20 tons of material for reuse in the College and in the community in 2013, 30 tons in 2014

From the samples taken for both B-Wing and the Cafeteria, there were few obvious 'Reuse' opportunities observed. However, given the nature of the programs available throughout the college many materials, such as paper fibre, plastic bottles could be targets for art programs using alternative materials in design, and engineering technology programs looking at the processing of materials.

Another program which is applicable to the 'Reuse' category, is the donation of edible food product. While programs like this are effective at removing materials from the waste stream, many brand owners are challenged by the liabilities presented by such a program, and result in these materials falling under the 'Compostable' category instead.

One toner cartridge was observed within the sample that would typically be processed through the college program that is already in place.

All Reuse programs should be reviewed to measure the current throughput they generate. This should include all toner cartridge reuse programs, food service dunnage, and other products that are identified in future audits and overall reviews of the College's programs.

Recycle	Achievement of 65% waste diversion by year end 2013, 85% by year end 2014

26.8% of the sample audited was 'Recyclable' as defined by the current acceptable materials listing provided by the current hauler.

The 'bins' initiative is being undertaken to capture much of this material.

Sheridan College should be aware of other initiatives that are present in the marketplace which might further the 'bins' initiative:

Sponsored recycling containers – referencing http://www.wasterecyclingnews.com/article/20130423/NEWS03/130429986/coca-cola-gives-chicago-2-59m-for-recycling-carts?utm_campaign=daily_newsletter&utm_medium=daily_email&utm_source=daily_20130423&utm_content=article2

RecycleBank – a rewards driven program that recently has included 'kiosk' type systems to reward users. https://www.recyclebank.com/

Programs such as current electronic waste, and battery recycling programs were not a part of this audit.

Organics	100% separation and processing of organics by end of 2013 (on site by end of 2014)

46.6% of the materials sampled overall, with 75% of the cafeteria sample alone, were compostable. This includes food waste, coffee grinds and paper towels.

While in the greatest prevalence in the cafeteria area, the materials are ubiquitous throughout the areas sampled.

As pointed out in the section on Reduce, paper towel use is a predominant component of this waste class.

Food service wares, which include items such as hot and cold paper drink cups, plastic cutlery, straws, plates, and many other 'single service' items such as hot drink and cold drink lids, sauce cups and lids, fry cups, and tray liners are considered waste materials. To simplify future programs the introduction of 100% compostable food service wares might be considered. Creating a '2-stream' program in the student eating and staff lounge areas is possible with the implementation of this type of program.

> Reference:
> http://www.ecosafezerowaste.com/_blog/EcoSafe_zero_waste_blog/post/BrownLine_Products_for_easy_identification_and_true_compostability/

Hot and cold drink cups are currently a waste as well, but have been referred to within the 'recyclable' heading as there are some commercially viable outlets for this material.

Paper	10 million sheet paper reduction by end of year 2013

6.9% of the materials generated through the B-Wing black bag system (non recyclables) were mixed paper.

Higher percentage generators of paper within their waste included:

Grenville	48%
1st Floor Classrooms	14.3%
1st Floor Hallways	11.1%
HR	20.7%
Purchasing	35.6%

These areas should be of particular focus for the 'bins' initiative, in particular for paper recycling.

The Grenville operation is currently clear bagging all of their material, and staff is depositing large quantities of waste in with otherwise clean recyclables.

While these are 'mixed paper' statistics, the generation of 'fine paper' within these areas did contribute to these percentages.

Concepts to consider:

Paperless classrooms
Double siding of all printing

Financial Savings	**Through combined ZERO WASTE efforts, Sheridan will save $250,000 annually by end of 2013, $400,000 by end of 2014**

Not within the scope of this study.

Carbon	**Through combined ZERO WASTE efforts, Sheridan will eliminate 200 metric tons of carbon emissions annually by end of 2013, 333 metric tons by end of 2014**

Not within the scope of this study, however:
Based on 150 operating days 100% diversion of compostables from the sample area would generate approximately 25 tonnes of diversion by weight, and a reduction of 22mT of carbon emissions. (WARM calculator)
Based on 150 operating days 100% diversion of mixed recyclables from the sample area would generate approximately 14 tonnes of diversion by weight, and a reduction of approximately 42mT of carbon emissions (WARM calculator).

Campuses	**All Sheridan campuses will be designated ZERO WASTE by end of 2013**

Not within the scope of this study.

Dumpsters	**All Sheridan campuses will be dumpster-free by end of 2015**

Not within the scope of this study.

Methodology

Spinnaker Recycling Corp. performed an on-site waste audit and capacity review of 24 hours waste accumulation of the cafeteria material and a 72 hour sample of the various classrooms, admin areas and common areas, having a sampling period of April 8, 9 and 10. The audits took place on the 10th and 11th. The methodology employed was designed to identify and quantify elements of the facility's waste stream that can be effectively reduced, recycled or eliminated, with a particular focus on the interaction between these materials and future 'Zero Waste Sheridan' containerized collection systems.

Spinnaker Recycling Corp. provided a comprehensive memo (appendix 'a') for circulation to staff and stakeholders in advance of the audit to facilitate communication. In association with the Office of Sustainability, a labeling protocol addressing the various generation points was established, and the labels delivered to the management team responsible for the janitorial services through the campus contractor, Unicco. The purpose of breaking a facility down by area is to determine where, and in what quantities, waste is being produced. It also assists in identifying the effectiveness of diversion programs in specific areas, and the volumes generated in these areas.

Materials in labeled bags from the B-Wing area were collected by the contract staff at Unicco and delivered to room BB14 for storage throughout the day on April 8, 9 and 10. Spinnaker Recycling Corp. staff attended to the samples on the evening of the 8th and 9th to organize the materials collected during the day. This also presented the chance to assess any collection challenges faced by staff, and to meet with the night staff and supervisor.

On April 10th, materials collected in the cafeteria/kitchen and student eating area that were transferred to the groundskeeping building were audited. Volumes of materials generated were assessed for each area, and subsequently weighed and organized. These bags of materials were then broken apart and separated into their various waste constituents. Two senior waste auditors and one sorter was employed for this facet of the project.

Materials generated in these areas were also evaluated on April 11th, only to confirm consistency of volume and weight for the audited sample from the day prior. No substantial differences were noted, apart from a shortfall in material volumes from the Tim Hortons in B-wing on the first day of the sample.

The materials collected on the 8th, 9th and 10th from the B-wing were similarly assessed on April 11th for each area, volumes and weights recorded, and the bags of materials broken apart and separated into their various waste constituents. This took place in the room BB14 and also in the stairwell/vestibule adjacent to this room. Two senior waste auditors and two sorters were employed for this facet of the project.

Results

1st Floor

Facility Area	Waste Classes						Total	
	Compost		Recyclable		Waste		Daily	Volume (L)
	Daily	%	Daily	%	Daily	%		
1st Flr/Security/Grassroots	4.2	29.3%	6.8	47.1%	3.4	23.6%	14.4	529
1st Floor Hallways	6.0	51.9%	3.7	32.3%	1.8	15.8%	11.6	219
Grenville	.5	6.5%	5.9	84.1%	.7	9.4%	7.0	176
1st Floor Classrooms	2.2	34.2%	2.4	38.2%	1.8	27.6%	6.4	161
Mailroom	.1	2.4%	5.2	95.8%	.1	1.8%	5.4	69
1st Floor Washrooms	2.3	52.1%	.9	20.5%	1.2	27.3%	4.4	101
Journalism	1.1	27.1%	1.8	43.8%	1.2	29.1%	4.1	53
Health Centre	.8	20.1%	1.9	50.3%	1.1	29.6%	3.8	115
Bookstore	.2	6.7%	1.9	59.4%	1.1	33.9%	3.3	110
Total	17.4	28.8%	30.5	50.7%	12.3	20.5%	60.2	1,533

All values in kilograms

2nd Floor

Facility Area	Waste Classes						Total	
	Compost		Recyclable		Waste		Daily	Volume (L)
	Daily	%	Daily	%	Daily	%		
Human Resources	1.9	30.2%	4.0	62.5%	.5	7.3%	6.4	144
Presidents Office	2.6	42.9%	2.6	43.2%	.8	14.0%	6.0	108
Finance	1.7	36.4%	2.2	47.8%	.7	15.8%	4.7	112
2nd Floor Washrooms	.5	56.8%	.3	31.0%	.1	12.2%	.8	24
Total	6.7	35.6%	10.0	53.0%	2.2	11.4%	19.0	388

All values in kilograms

3rd Floor

Facility Area	Waste Classes						Total	
	Compost		Recyclable		Waste		Daily	Volume (L)
	Daily	%	Daily	%	Daily	%		
Faculty of Business	1.8	13.0%	9.8	71.3%	2.2	15.8%	13.7	238
3rd Flr Classrooms	3.2	26.0%	3.8	30.7%	5.3	43.3%	12.4	253
International Centre	.8	21.0%	1.3	32.0%	1.8	46.9%	3.9	71
3rd Floor Washrooms	1.1	89.9%	.1	10.1%	.	.	1.2	20
3rd Floor Hallways	.6	73.6%	.1	9.4%	.1	17.0%	.8	19
Purchasing	.0	7.2%	.4	71.8%	.1	21.0%	.5	2
Total	7.6	23.2%	15.4	47.3%	9.6	29.5%	32.5	603

All values in kilograms

Basement

Facility Area	Waste Classes						Total	
	Compost		Recyclable		Waste		Daily	Volume (L)
	Daily	%	Daily	%	Daily	%		
Basement Classrooms	.3	6.7%	.4	8.8%	4.3	84.5%	5.1	146
Conference Services	2.7	55.7%	1.3	27.3%	.8	17.0%	4.8	98
Facilities Office	1.1	30.7%	1.5	39.9%	1.1	29.4%	3.7	57
Creative Services	1.1	35.1%	1.7	52.4%	.4	12.5%	3.2	39
Other Basement Offices	1.2	40.6%	.3	11.8%	1.4	47.7%	2.9	60
Basement Hallways	1.5	53.2%	.5	17.7%	.8	29.1%	2.7	130
Montessori	1.4	62.5%	.6	24.3%	.3	13.2%	2.3	53
Child Care Offices	1.3	79.7%	.2	15.0%	.1	5.3%	1.6	20
Basement Washrooms	.6	97.2%	.0	.9%	.0	1.9%	.6	19
Total	11.3	41.6%	6.6	24.3%	9.2	34.1%	27.1	622

All values in kilograms

Cafeteria – Patron Areas

Facility Area	Waste Classes						Total	
	Compost		Recyclable		Waste		Daily	Volume (L)
	Daily	%	Daily	%	Daily	%		
Cafeteria Eating Areaa	32.5	54.8%	16.5	27.8%	10.3	17.4%	59.3	1,170
Tim Hortons Express	20.6	95.6%	.4	1.9%	.5	2.5%	21.5	120
Staff Lounge	1.4	39.7%	1.5	44.3%	.6	16.0%	3.5	90
Total	54.4	64.6%	18.4	21.8%	11.4	13.5%	84.3	1,380

All values in kilograms

Cafeteria – Behind the Counter

Facility Area	Waste Classes						Total	
	Compost		Recyclable		Waste		Daily	Volume (L)
	Daily	%	Daily	%	Daily	%		
Kitchen	65.2	72.9%	10.6	11.9%	13.6	15.2%	89.3	1,260
Tim Hortons	42.2	79.7%	2.1	3.9%	8.7	16.4%	52.9	450
Total	107.4	75.5%	12.7	8.9%	22.2	15.6%	142.3	1,710

All values in kilograms

Total Waste Generation - Audit Results (Black & Clear Bags)

Category	Daily	Percent
Food Waste - C	111.07	30.16
Coffee Grinds - C	58.95	16.01
Paper - R	34.78	9.44
Paper Towels - C	34.30	9.31
Food Packaging - W	16.50	4.48
Mixed Paper - R	12.29	3.34
Boxboard - R	10.01	2.72
Paper Cups - W	9.64	2.62
Waste - W	8.75	2.38
Plastic Bottles #1 - R	8.43	2.29
Plastic Films - W	7.80	2.12
PS Lids/Cutlery #6 - W	5.95	1.62
Aseptic Polycoat - R	5.33	1.45
Garbage Bags - W	4.65	1.26
Water/Soda - R	4.38	1.19
Cardboard -R	4.28	1.16
Maintenance Waste - W	3.06	.83
Metal Cans - R	2.91	.79
Newsprint - R	2.68	.73
Vinyl Gloves - W	1.98	.54
Polypropylene Pails - R	1.91	.52
HDPE #2 - R	1.82	.50
Rags - W	1.33	.36
Milk Cartons - R	1.20	.32
Beverage Glass - R	1.16	.31
Aluminum Cans - R	1.15	.31
Dairy Bladders - W	1.11	.30
Office Waste - W	.98	.27
Polystyrene Trays #6 - R	.95	.26
Kraft Paper - R	.94	.25
Glossy/Magazines/Manuals - R	.71	.19
Paper Plates - W	.69	.19
J Cloths - W	.54	.15
Parchment Paper - W	.51	.14
Fibreglass - W	.41	.11
Yogurt Containers - R	.38	.10
Soap Bladders - W	.37	.10
Foreign Waste - W	.36	.097
Polystyrene Foam #6 - W	.33	.090
PETE Trays #1 - R	.32	.086
Coffee Pods - W	.30	.081
Molded Paper - R	.28	.076
Hygienic Tissue - W	.28	.076
Acetate - W	.26	.071
Wood Stir Ticks - C	.21	.057
Polypropylene - R	.20	.055
Foam Packaging - W	.192	.052
LDPE #4 - W	.177	.048
Metal -R	.174	.047
Binders - W	.166	.045
Chopsticks - C	.158	.043
Toner Cartridges - R	.146	.040
Other Pack Foams - W	.136	.037
Polystyrene Spools - W	.130	.035
Sweepings/Dirt - W	.128	.035
Stretch Wrap - W	.115	.031
Foam Boards - W	.086	.023
Courier Bags - W	.072	.020
Desicant - w	.054	.015
Non-Recyclable Paper - W	.036	.010
Compact Disks - W	.029	.008
String - W	.026	.007
Aluminum Foil - W	.013	.004
Lint Free Cloths - W	.003	.001
Total	368.28	100

All values in kilograms