

University of Toronto Scarborough Waste Reduction Work Plan

Prepared by Tim Lang

for the Ontario Ministry of Environment, as required under Ontario Regulation 102/94.

Table of Contents

Introduction.....	2
1 :: Current Campus Waste Management Practices	3
1.1 :: Overview.....	3
1.2 :: Garbage.....	3
1.3 :: Cans/Bottles/Glass (CBG).....	4
1.4 :: Paper	4
1.5 :: Cardboard.....	5
1.6 :: Scrap Metal	5
1.7 :: Wood	6
1.8 :: Electronic Waste (E-Waste)	6
1.9 :: Organic Waste	6
1.10 :: Yard Waste	7
1.11 :: Light Bulbs	7
1.12 :: Confidential Paper Shredding.....	7
2 :: Current Campus Waste Profile	8
2.1 :: Overview.....	8
2.2 :: Campus Waste Profile by Waste Type	8
2.3 :: Landfilled Waste Profile by Area.....	9
3 :: Analysis of the Current Situation	10
3.1 :: Interpretation of Campus Waste Profile	10
3.2 :: Reporting & Auditing Requirements.....	10
3.3 :: Comments on Diverting Recyclable Waste	10
4 :: Action Plan.....	11
4.1 :: Overview.....	11
4.2 :: Conduct Waste Audit.....	11
4.3 :: Post Waste Audit & Waste Reduction Work Plan and Their Summaries	11
4.4 :: Conduct Financial Analysis of Comingled Recycling	11
4.5 :: Acquire & Install Infrastructure for Comingled Recycling.....	12
4.6 :: Comingled Recycling Public Awareness Campaign.....	12
4.7 :: Source Reduction Activities.....	12

Introduction

Under Ontario Regulation 102/94, all educational institutions with enrollments greater than 350 students (full-time or part-time) are required to undertake a waste audit and create a waste reduction work plan, both of which are to be updated on an annual basis. As such, University of Toronto Scarborough is subject to this regulation, and this report has been produced to bring U of T Scarborough in compliance with it. This report is also documentation of U of T Scarborough's commitment to sustainability, as it pertains to waste management, which exists independently of any requirements to do so. The format of this report is based on the Ontario Ministry of Environment's guide to creating a waste reduction work plan.

1 :: Current Campus Waste Management Practices

1.1 :: Overview

U of T Scarborough currently collects 11 waste streams, listed in Table 1.1, with each one being managed differently. Almost all waste streams are brought to the service tunnel, from where they are either hauled by U of T Scarborough staff, or picked up by contractors. Rob Sarson, Supervisor, Landscaping & Grounds Maintenance, coordinates the hauling and pick-ups, but does not oversee the collection of waste from various locations on campus.

Table 1.1: Waste Streams at U of T Scarborough
Garbage
Cans/Bottles/Glass
Paper
Cardboard
Scrap Metal
Wood
E-Waste
Organic Waste
Yard Waste
Lamps
Confidential Paper

Table 1.2: Waste Stream Details
What is collected
From where it is collected
How it is collected
When it is collected
Who collects it
Who oversees the collection
Where it is sent
How it is shipped to the processor
What costs are associated

1.2 :: Garbage

What is collected: Everything deposited into garbage receptacles around campus

From where it is collected: Everywhere: indoor & outdoor public areas, offices, classrooms, kitchens, etc.

How it is collected: Black plastic bags filled with garbage are removed from receptacles around campus and brought to 20 cu.yd. bins in the service tunnel.

When it is collected: Garbage is collected from public areas twice daily (once on the day shift and once on the night shift), and from offices every other day. Garbage is brought down to dumpsters from cafeterias and kitchen facilities as necessary.

Who collects it: Caretaking staff collect garbage from public areas, classrooms, offices, etc., and food service providers' staff take care of cafeteria and kitchen garbage.

Who oversees the collection: Wayne Painter, Supervisor of Caretaking; Homer Jung, Food Service Director, Aramark; Guy Brisebois, Business Manager, Scarborough Campus Students' Union.

Where it is sent: City of Toronto's Scarborough Transfer station.

How it is taken off campus: A 20 cu.yd. bin is loaded onto the campus's Ford F250 and hauled to the transfer station twice daily by the campus's utility driver.

What costs are associated: The transfer station charges a \$100/tonne tipping fee.

1.3 :: Cans/Bottles/Glass (CBG)

What is collected: All recyclable plastic, glass, and aluminum (e.g. cans, bottles, glass, food containers, etc).

From where it is collected: Indoor public areas (in three-stream – garbage, CBG, paper – receptacle banks), cafeterias, and kitchen facilities.

How it is collected: Clear plastic bags filled with these recyclables are removed from receptacles around campus and brought to 95 gallon totes in the service tunnel. In the Student Centre, these recyclables are brought to a recycling room there, from which the recyclables are eventually taken to the service tunnel.

When it is collected: These recyclables are collected from public areas twice daily (once on the day shift and once on the night shift), and brought down from cafeterias and kitchen facilities as necessary.

Who collects it: Caretaking staff collect these recyclables from public areas, and food service providers' staff take care of cafeteria and kitchen garbage. Caretaking staff also bring recyclables from the recycling room to the service tunnel.

Who oversees the collection: Wayne Painter, Supervisor of Caretaking; Homer Jung, Food Service Director, Aramark; Guy Brisebois, Business Manager, Scarborough Campus Students' Union.

Where it is sent: BFI Waste Systems processing facility, Courtice, through Waste Reduction Group (Tullio Bugada).

How it is taken off campus: 6 totes (95 gallons each) are picked up from campus twice weekly by a BFI Waste Systems vehicle and crew.

What costs are associated: The service is provided for approximately \$550/month.

1.4 :: Paper

What is collected: All forms of long-fibre, non-soiled paper.

From where it is collected: Indoor public areas (in three-stream – garbage, CBG, paper – receptacle banks), cafeterias, offices, classrooms, etc.

How it is collected: Clear plastic bags filled with paper are removed from receptacles in public areas, offices, and classrooms and brought to the service tunnel, where they are emptied into a 20 cu.yd. bin. In the Student Centre, paper is brought to a recycling room there, from which it is eventually taken to the service tunnel.

When it is collected: Paper is collected from public areas twice daily (once on the day shift and once on the night shift), from classrooms once daily, and from offices every other day. It is brought down from cafeterias and kitchen facilities as necessary.

Who collects it: Caretaking staff collect these recyclables from public areas, offices and classrooms, and food service providers' staff take care of cafeteria and kitchen garbage. Caretaking staff also bring paper from the recycling room in the Student Centre to the service tunnel.

Who oversees the collection: Wayne Painter, Supervisor of Caretaking; Homer Jung, Food Service Director, Aramark; Guy Brisebois, Business Manager, Scarborough Campus Students' Union.

Where it is sent: Hannah Papers, Markham.

How it is taken off campus: The 20 cu.yd. bin is loaded onto the campus's Ford F250 and hauled to Hannah Papers once every two weeks by the campus's utility driver.

What costs are associated: Hannah Papers pays approximately \$50/tonne for paper.

1.5 :: Cardboard

What is collected: Cardboard.

From where it is collected: Cafeterias & kitchens, shipping & receiving, on campus vendors, any receiving shipments regularly, random locations on campus.

How it is collected: Cardboard is collapsed and brought down from various locations on campus to the service tunnel and put it into a 20 cu.yd. bin.

When it is collected: Bundles are brought down as necessary.

Who collects it: Personnel from campus outfits that generate waste bring their own cardboard to the service tunnel. Random cardboard left in hallways around campus by outfits that do not generate cardboard on a regular basis is collected by caretaking staff.

Who oversees the collection: Wayne Painter, Supervisor of Caretaking; Homer Jung, Food Service Director, Aramark; Guy Brisebois, Business Manager, Scarborough Campus Students' Union; Ed Leybovich, Manager, Central Stores; any campus vendor.

Where it is sent: Atlantic Packaging, Scarborough.

How it is taken off campus: The 20 cu.yd. bin is loaded onto the campus's Ford F250 and hauled to Atlantic Packaging twice weekly by the campus's utility driver.

What costs are associated: The campus receives approximately \$300/month from Atlantic Packaging for its cardboard.

1.6 :: Scrap Metal

What is collected: All non-aluminum metal (eg. big food cans, separated old furniture, renovation waste, etc).

From where it is collected: Cafeterias & kitchens, campus renovation sites, random locations on campus.

How it is collected: Scrap metal is brought to the service tunnel and placed in a 20 cu.yd. bin. Large cans from the Student Centre is brought to the recycling room there and then transferred to the bin in the service tunnel.

When it is collected: Individual pieces or bundles are brought down as necessary.

Who collects it: Cafeteria & kitchen staff bring their scrap metal. Caretaking staff transfer large cans from the Student Centre to the service tunnel. Contractors bring their own scrap metal from renovation sites. Maintenance staff bring random pieces not brought by others.

Who oversees the collection: Wayne Painter, Supervisor of Caretaking; Homer Jung, Food Service Director, Aramark; Guy Brisebois, Business Manager, Scarborough Campus Students' Union; Mike Richard, Campus Project Manager; Des Behan, Supervisor, Maintenance & Carpentry.

Where it is sent: Triple M Metal, Scarborough.

How it is taken off campus: The 20 cu.yd. bin is loaded onto the campus's Ford F250 and hauled to Triple M Metal approximately once every two weeks by the campus's utility driver.

What costs are associated: Triple M Metal pays roughly \$200 per load.

1.7 :: Wood

What is collected: Wood (e.g. separated furniture, skids, etc.), drywall, and pressed board.

From where it is collected: Shipping & receiving, renovation sites, random locations on campus.

How it is collected: Pieces and bundles of wood are brought to a 20 cu.yd. bin in the service tunnel.

When it is collected: Individual pieces or bundles are brought down as necessary.

Who collects it: Shipping & receiving staff and grounds staff bring their skids, contractors bring their renovation waste, maintenance staff bring random scrap wood (e.g. from furniture, etc).

Who oversees the collection: Ed Leybovich, Manager, Central Stores; Mike Richard, Campus Project Manager; Des Behan, Supervisor, Maintenance & Carpentry.

Where it is sent: MegaCity Recycling, North York.

How it is taken off campus: The 20 cu.yd. bin is loaded onto the campus's Ford F250 and hauled to MegaCity Recycling approximately once every two weeks by the campus's utility driver.

What costs are associated: MegaCity Recycling pays roughly \$65/tonne.

1.8 :: Electronic Waste (E-Waste)

What is collected: All used electronics.

From where it is collected: Offices, Information & Instructional Technology Services (IITS).

How it is collected: Any used equipment is brought to the service tunnel and bundled onto skids.

When it is collected: Pieces are brought as needed.

Who collects it: Caretaking staff collect it when called.

Who oversees the collection: Wayne Painter, Supervisor of Caretaking.

Where it is sent: Electronics Recycling Canada, Scarborough.

How it is taken off campus: Electronics Recycling Canada comes and picks up the bundled e-waste when we have generated a truckload – roughly 6 skids – and brings it to their facility for processing.

What costs are associated: Electronics Recycling Canada picks up our e-waste free of charge.

1.9 :: Organic Waste

What is collected: All organic waste (as specified by the City of Toronto).

From where it is collected: Aramark food service outlets, Bluff's Restaurant.

How it is collected: Filled 64-gallon totes are brought to two locations: the Student Centre loading dock and a storage room in the service tunnel.

When it is collected: Brought down daily as needed.

Who collects it: Aramark and Bluff's staff.

Who oversees the collection: Zalia Conde, Manager, Bluff's Restaurant; Homer Jung, Food Service Director, Aramark.

Where it is sent: Planet Earth Recycling, Ajax, through Waste Reduction Group (Tullio Bugada).

How it is taken off campus: Planet Earth Recycling vehicles and crew pick up 16 filled 64-gallon totes on Wednesday and Friday mornings, leaving 16 fresh 64-gallon totes, and hauls the organic waste to their facility.

What costs are associated: Planet Earth Recycling Charges \$13 per tote.

1.10 :: Yard Waste

What is collected: All waste from Landscaping & Grounds Maintenance Activities.

From where it is collected: Around campus.

How it is collected: Transported from landscaping and grounds maintenance work sites to empty property beyond the outer parking lots. It is dumped, spread out, mulched, and integrated into soil.

When it is collected: Dumped beyond the outer lots as it is generated – from May to November.

Who collects it: Landscaping & Grounds Services staff.

Who oversees the collection: Rob Sarson, Supervisor, Landscaping & Grounds Maintenance.

Where it is sent: n/a (treated on campus).

How it is taken off campus: n/a (treated on campus).

What costs are associated: n/a (treated on campus).

1.11 :: Light Bulbs

What is collected: All types of light bulbs used on campus (e.g. fluorescent tubes, CFLs, incandescents, etc).

From where it is collected: All lighting fixtures on campus.

How it is collected: As light bulbs are changed, used bulbs are brought to the second level of the service tunnel and stored.

When it is collected: As lights are changed.

Who collects it: Maintenance staff.

Who oversees the collection: Des Behan, Supervisor, Maintenance & Carpentry.

Where it is sent: Fluorescent Lamp Recyclers (FLR), Ayr.

How it is taken off campus: FLR picks up our stock of used bulbs approximately twice per year and brings them to their processing facility in Ayr.

What costs are associated: FLR charges: fluorescent tubes ,12¢/ft; incandescent & compact fluorescent bulbs, 30¢ each; metal halide & high pressure sodium lamps \$1.50 each.

1.12 :: Confidential Paper Shredding

What is collected: Confidential paper documents.

From where it is collected: Offices.

How it is collected: Boxes of confidential documents are stored locally, then brought to the Food & Retail Services Office, where they are transferred into 95-gallon totes.

When it is collected: On a continual basis locally, and transferred to Food & Retail Services twice per year.

Who collects it: Sylvia Dalchand, Food & Retail Services, with the help of maintenance staff.

Who oversees the collection: Sylvia Dalchand, Food & Retail Services.

Where it is sent: Hannah Paper, Markham (ultimately).

How it is taken off campus: Super-Shred Mobile Shredding Services cross-shreds the paper on site, after which it is treated as normal paper to be recycled (see above).

What costs are associated: Super-Shred charges \$20 per 96-gallon tote.

2 :: Current Campus Waste Profile

2.1 :: Overview

The last waste audit conducted for U of T Scarborough was prepared in March 2007 by RPSS Limited (now Waste Reduction Group). In March 2008, the Ministry of Environment, informed U of T Scarborough that that waste audit, along with the accompanying waste reduction work plan, was deficient in many respects, especially regarding the documentation pertaining to how the audit was conducted. Given the date and deficiencies of the audit upon which this profile is based it is not to be taken as a rigorous account. One of the items in the action plan below is to conduct a satisfactory audit in April 2008.

2.2 :: Campus Waste Profile by Waste Type

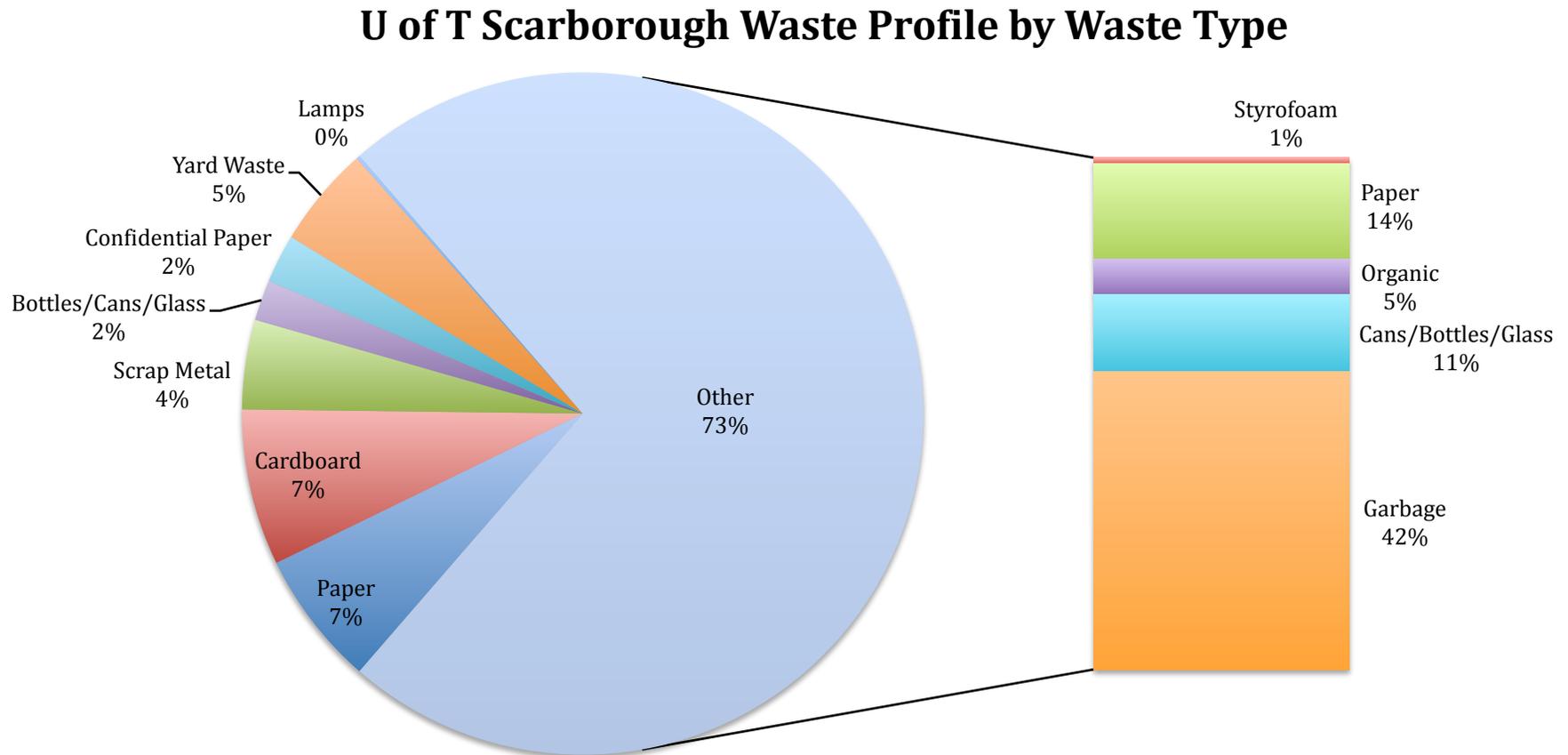


Chart 2.2.1. U of T Scarborough Waste Profile by Waste Type. The data for this chart was taken from the Solid Non-Hazardous Waste Audit Prepared by RPSS Limited in March 2007. The large blue section labeled “Other” represents the waste sent to landfill, and the bar inset on the right represents the profile of this landfilled waste. All percentages are fractions of total campus waste generated, which is 520,000 kg/yr.

2.3 :: Landfilled Waste Profile by Area

Outdoor Landfilled Waste Profile

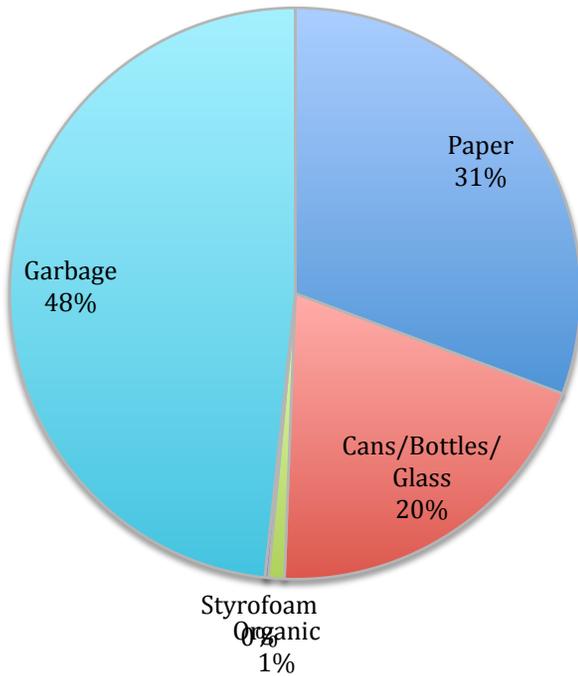


Chart 2.3.1. Outdoor Waste Profile by Waste Type.

This chart displays the profile of waste sent to landfill from outdoor garbage receptacles, which are the only type of receptacles outdoors. The data for this chart was taken from the Solid Non-Hazardous Waste Audit Prepared by RPSS Limited in March 2007.

10.2% of total landfilled campus waste.

Indoor Landfilled Waste Profile

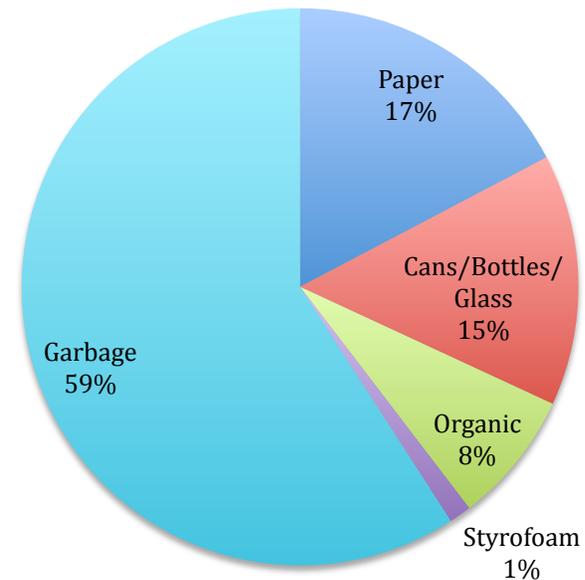


Chart 2.3.2. Indoor Waste Profile by Waste Type.

This chart displays the profile of waste sent to landfill from indoor garbage receptacles; it does not display fractions of total waste collected indoors. The data for this chart was taken from the Solid Non-Hazardous Waste Audit Prepared by RPSS Limited in March 2007.

89.8% of total landfilled campus waste.

3 :: Analysis of the Current Situation

3.1 :: Interpretation of Campus Waste Profile

The first observation from chart 2.2.1, is that U of T Scarborough has the potential to reach roughly a 60% diversion rate from landfill, without modifying its waste generation profile. This scenario would assume a 100% diversion rate of recyclable materials, where realistically that rate would peak at 90% to 95%. So, realistically speaking, U of T Scarborough is probably looking at a peak diversion rate of 50%-55%, without changing its waste generation profile.

Second, looking at charts 2.3.1 and 2.3.2, the majority of recyclable material being lost to the landfill – paper and CBG – could be recycled elsewhere. Styrofoam, a material that can be recycled but is not recycled on campus, represents less than 1% of campus waste, and organic waste recycling has been implemented in some areas since March 2007, when this audit was done. So beyond green waste, the campus would do much better to undertake measures that increase their capture rate of currently recycled materials than to try and introduce new recycling streams.

The final important observation to draw from the campus waste profile is that over 40% of waste generated at U of T Scarborough was categorized as non-recyclable garbage. If U of T were to mirror the City of Toronto's Target70 (70% diversion rate by 2010), it would have to convert at least 25% of its non-recyclable material consumption to recyclable material consumption, or reduce material consumption altogether by just over 35%, *in addition to* diverting 100% of recyclable materials in the waste stream.

3.2 :: Reporting & Auditing Requirements

As mentioned in section 2.1, the campus waste profile presented above is based on an audit that is both out of date and lacking in many areas. Regardless of any waste reduction strategies that are employed, U of T Scarborough needs to undertake a new waste audit with improved documentation and description of sampling methods. With respect to reducing the use of non-recyclable materials on campus – and their presence in the campus waste stream – the campus would also benefit from profiling the non-recyclable garbage fraction. Such a source analysis of garbage is necessary to inform decisions about potential recyclable replacement products.

3.3 :: Comments on Diverting Recyclable Waste

As mentioned in section 3.1, besides reducing the amount of non-recyclable waste and waste in general, the other main challenge for U of T Scarborough is increasing the diversion rate of recyclable materials. One solution is to extend the coverage of our current programs (e.g. initiating an outdoor recycling program), and another is to increase the rate at which users recycle properly when faced with the option of recycling.

At present, there are three basic options available to the campus. The first is to increase waste management programming and marketing activities, which could involve anything from new signage to workshops. The second is simply increasing the number of recycling receptacles on campus so as to provide as many opportunities to recycle as possible. The last option is to change the waste management strategy so that it is actually easier to recycle, which in this case involves switching to a comingled recycling stream. As will be outlined below, U of T Scarborough intends to adopt some form of each of these options.

4 :: Action Plan

4.1 :: Overview

Resulting from the review of the current waste management practices at U of T Scarborough and the associated waste profile, there is a range of proposed actions aimed at reducing overall waste generated, increasing the amount of waste diverted from landfill, and coming into compliance with Ontario Regulation 102/94. These proposed actions will be presented below as a list of detailed deliverables.¹ Tim Lang, Sustainability Coordinator, Sustainability Office, will be the coordinator and generally supervise all the initiatives listed below, even though other people may ostensibly be listed as the person carrying out the task.

4.2 :: Update Waste Audit

What is to be done: Update the waste audit conducted in March 2007 to bring U of T Scarborough into compliance with Ontario Regulation 102/94. As this document outlines campus waste management practices, the audit will be an update of the waste profile from different areas of campus.

Who is to coordinate it: Rob Sarson, Supervisor, Landscaping & Ground Services, Wayne Painter, Supervisor of Caretaking.

When it is to be completed: It will be completed by April 30th, 2008.

What is the expected result: Compliance with Ontario Regulation 102/94, rigorous campus waste profile.

4.3 :: Post Waste Audit & Waste Reduction Work Plan and Their Summaries

What is to be done: Post waste audit summary and waste reduction work plan summaries in relevant locations: Grounds & Landscaping Maintenance, Central Stores, Maintenance & Carpentry, Project Management, and Caretaking workspaces. Post summaries and full versions on the Sustainability Office website; email all employees of the campus informing them that the audit and work plan can be found there.

Who is to do it: Tim Lang, Sustainability Coordinator.

When it is to be completed: Within two weeks of the completion of each publication.

What is the expected result: Compliance with Ontario Regulation 102/94; informing the campus of the Waste Reduction Work Plan and Waste Audit.

4.4 :: Conduct Financial Analysis of Comingled Recycling

What is to be done: Before comingled recycling can be implemented, a financial analysis must be conducted so that funding can be approved.

Who is to coordinate it: Carmela Mazin, Financial Services.

When it is to be completed: It will hopefully be completed by the end of April 2008.

What is the expected result: Approval to move forward with campus-wide comingled recycling.

¹ As this is the first internal waste reduction work plan that has been created at U of T Scarborough there will be no comments on the implementation of previous plans; the previous external audit presented recommendations, that were never converted into an accepted and detail waste reduction work plan.

4.5 :: Acquire & Install Infrastructure for Comingled Recycling

What is to be done: Purchase and distribute new receptacles for comingled recycling to all areas of campus. In many areas the receptacles already exist, such as offices.

Who is to coordinate it: Tim Lang, Sustainability Coordinator.

When it is to be completed: The new receptacles will be installed by the end of August 2008.

What is the expected result: Increased diversion rate, perhaps by 10%.

4.6 :: Comingled Recycling Public Awareness Campaign

What is to be done: In order for the new recycling program to work efficiently, campus community members will need to be informed how to use it properly. This will be done through the use of brochures, digital sign, and on-line messaging.

Who is to coordinate it: Tim Lang, Sustainability Coordinator.

When it is to be completed: The program will take place from September to December 2008.

What is the expected result: Proper usage of the comingled recycling system.

4.7 :: Source Reduction Activities

What is to be done: A variety of activities will be undertaken to reduce the amount of waste generated at source. This is expected to include but is not limited to: material switching for food packaging to more compostable and recyclable materials; packaging avoidance via the use of reusable mugs, etc; paper reduction initiatives.

Who is to coordinate it: Tim Lang, Sustainability Coordinator.

When it is to be completed: Ongoing.

What is the expected result: Reduction of the amount of non-recyclable waste, and waste in general.