

Connecticut College

Waste Material Disposal and Recycling Report

Fiscal Year 2008-2009

Sally Zuar  
Summer Sustainability Intern  
Goodwin-Niering Center for Conservation Biology  
and Environmental Studies

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## **Introduction**

### **Waste Disposal and Recycling Requirements**

Connecticut College is a small, liberal arts college in New London required by the Environmental Protection Agency, the Department of Environmental Protection, and the Consumer Product Safety Commission to maintain a safe and healthy environment, promote environmental stewardship, and conserve natural resources. The college is run as an environmental model and strives to exceed expectations, such as the sharp reduction of greenhouse gas emissions or the safe disposal of hazardous materials.

### **Waste Disposal and Recycling Services**

Connecticut College waste disposal and recycling services are provided by Physical Plant. Waste disposal at the college is managed by Tinnerello, a private contractor, and the City of New London. Employees of Physical Plant transfer regular trash, cans, bottles, mixed paper, cardboard and tires to the City of New London Transfer Station on a weekly basis where they are either burned in the Preston incinerator or recycled. According to Connecticut state law, all municipal solid waste (MSW) that cannot be recycled must be incinerated. Solid waste is compacted for delivery to the Resource Recovery Facility in Preston. This facility is a 690-tons-per-day mass-burn trash to energy plant. Employees of Physical Plant transfer trash and recyclables placed outside of residence halls, academic buildings, and administrative offices by janitorial services. In general, the most substantial waste comes from Harris Refractory, the Plex, and Crozier-Williams. The most substantial recycled material comes from the residential halls.

The New London Transfer Stations is located on Lewis Street. Upon arrival, the truck and its load are weighed on a Fairbanks scale and the waste and recyclables are disposed of separately. The amount of waste disposed of is recorded on a ticket that is later stored in Physical Plant records. In the past, the college was only charged \$70 per ton of waste disposed of while recyclables were free of charge. However, the college is now billed a flat rate of \$90 per load of recyclables. During the academic year, employees of Physical Plant make the trip to the New London Transfer Station five times a week. During the summer months, the employees go only three times per week.

The college has a five-year contract with Tinnerello and calls on them various times per month (depending on how quickly the dumpsters fill) to remove bulky waste and metal. There are currently three Tinnerello compactors on campus: one for cardboard and mixed paper, one for metal, and one for bulky waste. The Tinnerello bulky waste is taken to a facility just outside of New London where it is sorted by hand into recyclables and municipal solid waste. Mixed paper is baled and sold to recycling centers such as the Willimantic Waste Paper facility. Bottles and cans are sent to the Material Recovery Facility in Groton. Tinnerello charges a fixed fee of \$90 for metal and cardboard/mixed paper removal and charges \$70 per ton of bulky waste removed. The compactor rental fee is \$125 per month and a fuel surcharge for waste and recyclables are added to the bill each month.

Waste removal and recycling services for the New London community and nearby towns are overseen by the Southeastern Connecticut Regional Resources Recovery Authority (SCRRA).

## New London Transfer Station: Waste and Recyclables

364.77 tons of waste, 53.95 tons of bottles and cans, and 179.3 tons of mixed paper were taken to the New London Transfer Station during the fiscal year of 2008-2009. Waste makes up approximately 61% of the material discarded. The two months that represent the highest amounts of waste discarded are December and May where 49.75 and 51.51 tons of trash were discarded respectively. This high waste stream can be attributed to dorm residents moving out at the end of the semester and dumping unwanted material. It is interesting to note that the national inter-collegiate competition, RecycleMania took place from January 18<sup>th</sup> 2009 to March 28<sup>th</sup> 2009. The amount of waste discarded during these three months is relatively low compared to other months. During the month of March, a mere 25.44 tons of waste was disposed of. Perhaps this occurred because the heat of the competition really inspired students to cut down on waste disposal. A total of 20.37 tons of bottles and cans and 23.81 tons of mixed paper were recycled during the months of the competition. Connecticut College ranked fourth in the Targeted Material-Bottles and Cans and twenty-first in the Targeted Material-Paper categories.

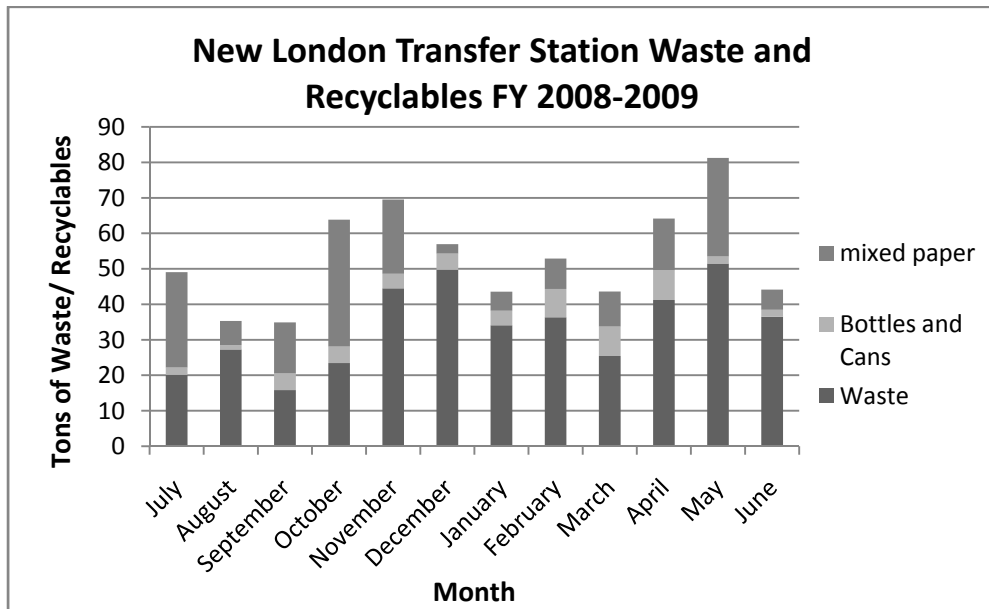


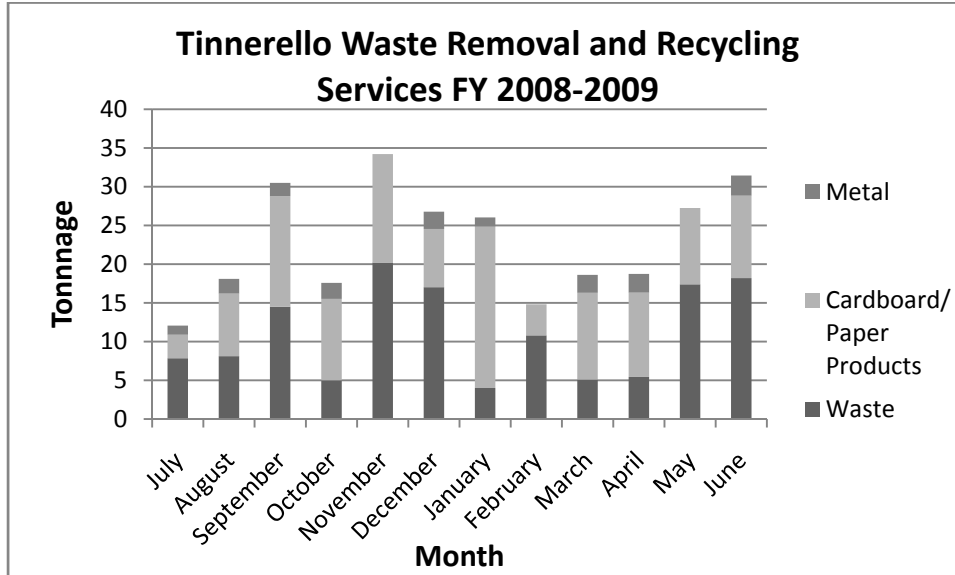
Figure 1. New London Transfer Station Waste and Recyclables FY 2008-2009.

## Tinnerello Waste Removal and Recycling Services

133.66 tons of waste, 96.47 tons of mixed paper, and 17.57 tons of metal were hauled by Tinnerello during the fiscal year of 2008-2009. Of this material, waste represents 54% while mixed paper represents 39% and metal represents 7%. The Tinnerello service deals with all of the cardboard, paper products, metal and provides additional waste removal services for the college. The months with the highest totals of waste and recyclables were November, with 34.21 tons hauled, and June with 28.84 tons hauled. November exhibits higher totals because there are fewer vacation days compared to other months, meaning students are on campus throughout the entire month and generating waste. The June totals are most likely high because the month sees a significant amount of summer guests, such as summer camps, Bible studies, summer music festivals, as well as students completing internships and research.

The effect of the RecycleMania competition is even more evident in Figure 2, which shows the total waste and recyclables hauled by Tinnerello during the fiscal year of 2008-2009. During

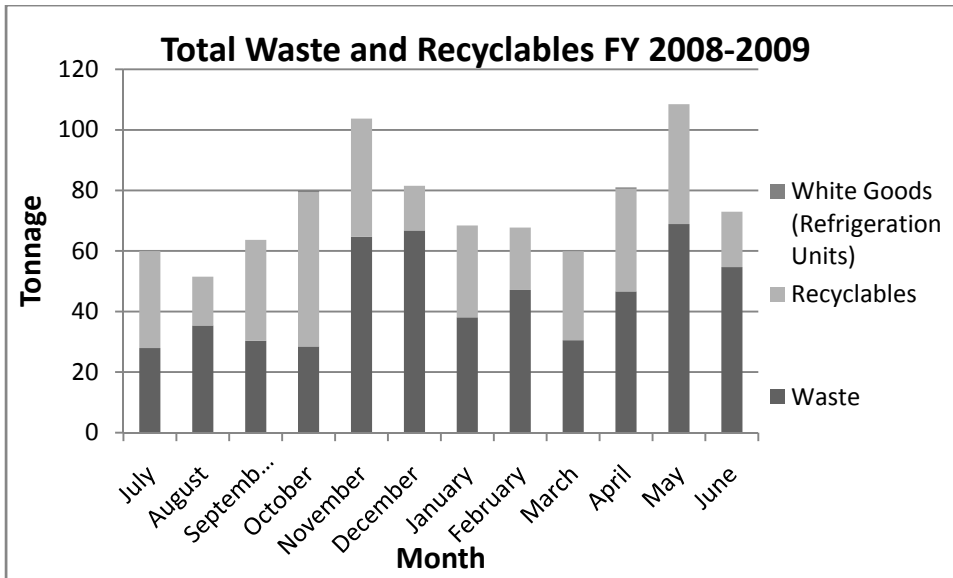
RecycleMania, students were encouraged to discard less waste and recycle more. During the months January, February and March, a mere 19.91 tons of trash was hauled. Consequently, these months exhibit some of the highest totals of recyclables. 36.06 tons of cardboard and paper products were hauled. Connecticut College ranked eleventh in the Targeted Material-Corrugated Cardboard category of the RecycleMania competition.



**Figure 2.** Total Waste and Recyclables hauled by Tinnerello Services FY 2008-2009.

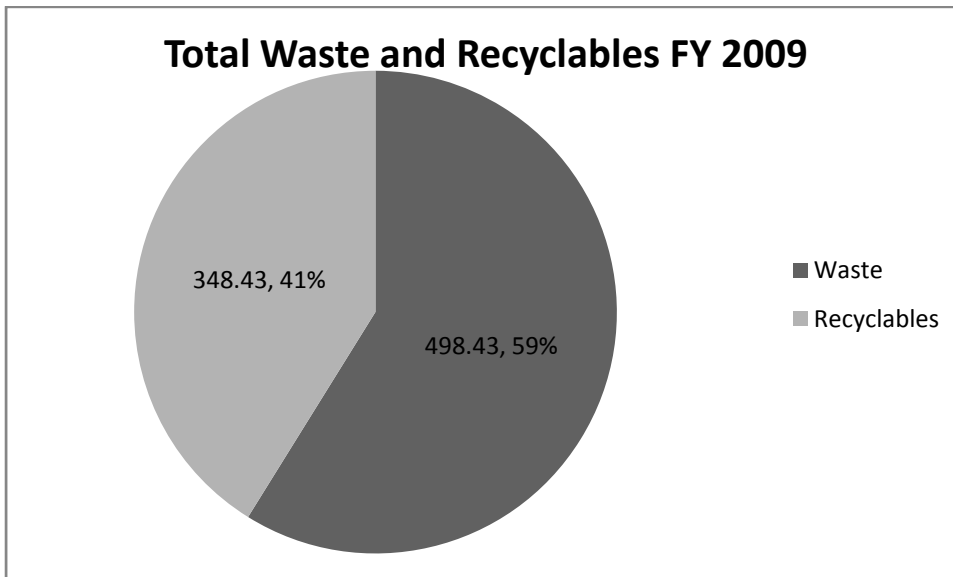
### Total Waste and Recyclables

498.43 tons of waste and 348.43 tons of recyclables were generated on campus during the fiscal year of 2008-2009. The highest total of waste generated was in May with 68.91 tons of waste, representing 14% of the total waste. The highest total of recyclables was also in May with 39.57 tons, representing 11% of the total recyclables. The month of May represents 13% of the total waste and recyclables generated at the College. The months with the lowest totals of waste and recyclables were July and August with 59.95 and 51.5 tons of waste and recyclables respectively. In addition to waste and recyclables, the College also deals with refrigeration units, or white goods. During the fiscal year, 1.14 tons of refrigeration units, such as refrigerators and air-conditioners, were recycled. 20 refrigeration units were recycled in October, and 15 refrigeration units were recycled in April. These refrigeration units are discarded throughout the year, but the employees of Physical Plant store the units until they have a full truckload.



**Figure 3.** Total Waste and Recyclables generated on campus FY 2008-2009

A total of 846.86 tons of trash and recyclables were disposed of by Connecticut College Physical Plant employees and Tinnerello services. Waste represents 59% of the total, and recyclables represent 41%.



**Figure 4.** Total Waste and Recyclables in tonnage and percentiles.

## Cumulative Representation of Waste and Recyclables

This year, the College dealt with 70% of the waste and recyclables generated on campus while Tinnerello dealt with the remaining 30%. The material hauled to the New London Transfer Station consisted of 61% waste, 39% recyclables. Of the material that Tinnerello handled, waste made up 54%, and the remaining 46% included recyclables.

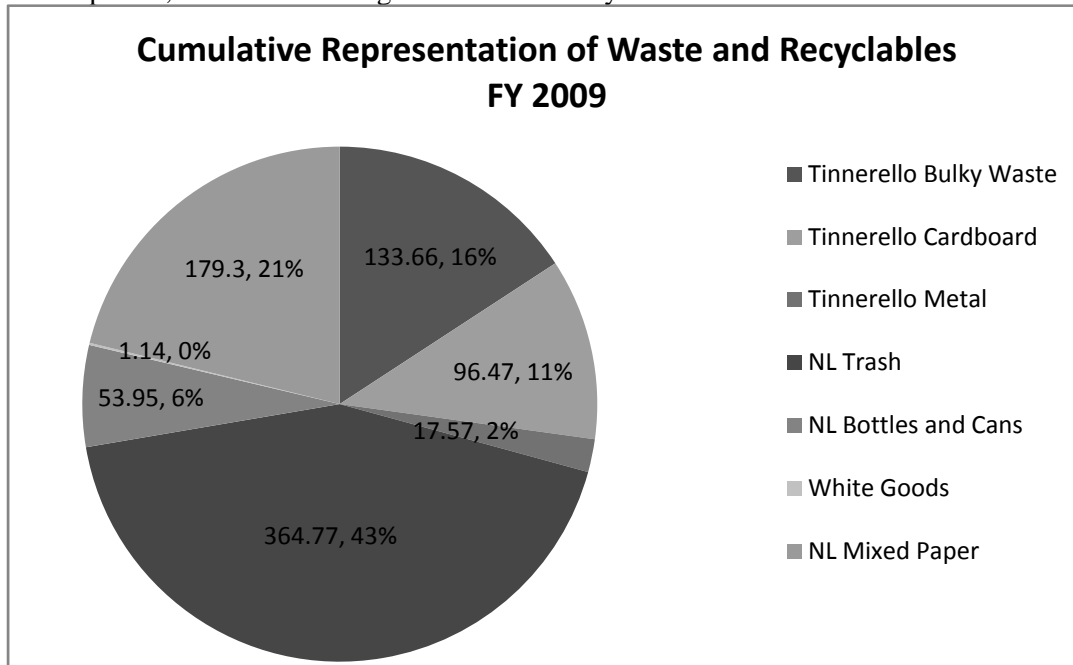


Figure 5. Cumulative Representation of Waste and Recyclables FY 2009.

## Trash and Recyclables Generated Over the Summer

During the summer of 2009, a new Fitness Center was constructed in the Athletic Center. Tinnerello was contracted by the College to deal with the construction waste. Data received from the College's construction management company, KBE Building Corporation, indicates that about 80 to 85% of the waste generated is being diverted.

## Recycling and Waste Minimization

### Compost Bins and Compost Distribution

Two composting bins, or 'Earth Tubs,' were purchased in 2007 via a generous donation from an alumnus to manage the sizeable amount of food waste from the five dining halls. Each bin is capable of holding up to 500 pounds of food waste. Pre- and post-consumer food waste are collected from the Freeman, JA, Smith, and Knowlton dining halls while only pre-consumer food waste is collected from the Harris Refractory due to the limited capacity of the compost bins.

During the fiscal year of 2008-2009, about 31 short tons of food waste and 300 short tons of landscaping waste were composted.<sup>1</sup> This alone offset about 5.52 metric tonnes of carbon dioxide!

All of the compost generated by the Earth Tubs has been used in the Sprout organic garden. The compost is spread in the early spring before planting and in the late fall after the last harvest. Vegetables grown in the Sprout organic garden are sold to Dining Services and offered in the Harris Dining Hall. There is talk of selling the compost to other local organic farms, but thus far there has not been enough compost to sell.

## **Saccarelli Farms**

When the college is in session, the dining halls produce anywhere from 3,000 to 3,500 pounds of food waste per week. Nearly all of the food waste that doesn't get composted ends up at Saccarelli Farms in Norwich to feed their pigs. Post-consumer food waste is tossed in a trough, washed in a grinder, and ground up in the dish room. The ground waste ends up in 55 gallon drums that are put in a steel shed outside of Harris for pick up by Saccarelli Farms. Dining Services does not monetarily profit from this process. In fact, the College pays for the pickup of these drums. However, Connecticut College as a whole benefits as bills from waste disposal are decreased significantly.

## **May Move-Out**

Before the end of the Spring 2009 Semester, students were encouraged to leave furniture and other useful items that they would otherwise discard at drop-off points throughout the College to be taken to the New London Homeless Hospitality Center. Due to a lack of awareness and some coordination problems between the Center and the College, only half of a sixteen-foot box truck was taken to the Center. The fact that the most trash was generated during the month of May indicates that there may be more reusable materials that could be diverted from the waste stream.

## **Reuse Programs**

### **College Computer Lease Program**

About 300 to 400 new machines were put on lease during the fiscal year of 2008-2009. This means that roughly 300 to 400 machines were either added or replaced. All of the computers purchased through this program are Energy Star computers. Both the Apple and Dell computers have commendable power-saving features, such as a setting that powers down the machine after fifteen minutes on non use.

The computers go back to the leasing company at the end of the term. However, if Connecticut College ends up owning the computer at the end of the lease and needs to dispose of it, Steve Langlois and a company called WE RECYCLE properly dispose of the machine and send all of the functional parts out for reuse in other applications.

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<sup>1</sup> "Air Emissions and Greenhouse Gas Inventory." Connecticut College Environmental Sustainability Baseline Audit. Woodard & Curran, June 2009.

## **Refrigerator Lease Program for Students**

Students can rent a refrigerator during the scholastic year through The Refrigerator Company. The Refrigerator Lease Program for Students is a good way to eliminate the need for students to bring in equipment that may not necessarily comply with the College's environmental requirements. While the exact number of refrigerators leased was unavailable, it has been stated that the number has been increasing steadily each year.<sup>2</sup>

## **Hazardous Material**

Connecticut College keeps records of the amount of refrigerants that are lost during the recharging of refrigeration units along with any leaks that occur. All universities must report their fluorocarbon release to the US Environmental Protection Agency. There were a total of four chlorodifluoromethane (R-22) leaks. R-22 is a colorless gas once commonly used as a propellant in air-conditioning. Now it is being phased out because of its ozone depletion potential. Two of these leaks occurred in the Natatorium Dryotron System with 90 lbs released on January 23<sup>rd</sup> 2009 and 50 lbs released on February 17<sup>th</sup> 2009. 30 lbs were released on April 27<sup>th</sup> 2009 from the Crozier-Williams chiller. Finally, 120 lbs were released on September 17<sup>th</sup> 2008 from the Olin Science Center chiller.

In addition to R-22 leaks, there have also been numerous Freon leaks. Freon is another colorless gas used for air-conditioning and refrigeration. The majority of the Freon leaks have occurred in the Natatorium Dryotron System. A total of 367.387 lbs of Freon were released over the fiscal year of 2008-2009.

## **Conclusion**

The process of tracking waste and recyclables could be made more efficient with better labeling. For example, the tickets provided by physical plant verifying the weights of materials were labeled "recyclables." At times it was difficult to ascertain which were mixed paper and which were bottles and cans. The process could have been made smoother with proper labeling.

This year, waste generation on campus decreased by 14% and recycling increased by 2%. Even though the amount of material recycled decreased by 20 tons, the ratio of recycled material to waste material grew, most likely in response to recycling campaigns and the intercollegiate competition, Recyclemania. In order to ensure that materials are regularly recycled even during the months that the competition does not take place, bin uniformity should be achieved. Perhaps the campus could try color-coding recycling and trash bins to lessen the confusion as to which bin corresponds with which material.

The May Move-Out procedure could also be improved on to lower the considerable waste that is always generated as a result of students leaving the College. Because the New London Homeless Hospitality Center appeared to be reluctant to handle the sheer quantity of items donated by the students, perhaps the College could ask an additional organization to take the donations. Another idea practiced by a college in New Haven involved a "free yard sale" where students bring items in good condition to a central location. The college then opens the central location up to the college community, and participants are free to collect items that they can reuse.

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<sup>2</sup> Personal Communication. Maurice-Joseph Cote, Assistant Director of Residential Life.

## Appendix

### Computer Lease Program

The acquisition of printers, projectors, network gear, servers, and computers through grants and other outside funds are coordinated with Information Services. The purchase of resources that have a four year or less projected functional life span are accomplished through leasing arrangements.

### Recyclemania

Recyclemania is an international competition between colleges and universities and an opportunity to promote waste reduction activities over a period of ten weeks. Colleges are ranked according to who collects the largest amount of recyclables per capita, the largest amount of total recyclables, the least amount of trash per capita<sup>3</sup>.

515 schools participated in the 2009 Recyclemania competition and 69.4 million pounds were recycled. Connecticut College ranked:

27th in the Grand Champion

A category that combines trash and core recyclable materials to determine a school's recycling rate as a percentage of its overall waste generation.

13th in the Per Capita Classic

A category that calculates the combined amount of cans, bottles, paper, and cardboard per person.

133<sup>rd</sup> in the Waste Minimization

A category in which schools compete to generate the least amount of municipal solid waste (both recyclables and solid waste) per person.

108<sup>th</sup> in the Gorilla Prize

A category that recognizes the larger schools that recycle the highest gross tonnage of combined paper, cardboard, bottles, and cans.

21<sup>st</sup> in the Targeted Material -Paper

11<sup>th</sup> in the Targeted Material-Corrugated Cardboard

4<sup>th</sup> in the Targeted Material- Bottles and Cans

12<sup>th</sup> in the Targeted Material-Food Service Organics

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<sup>3</sup> <http://www.recyclemaniacs.org/overview.htm>.