

# **Waste Reduction Plan**

**University of Illinois  
Urbana-Champaign**

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# WASTE REDUCTION PLAN

## SECTION 1 - BACKGROUND

### 1.1 Institution Identification

1. University of Illinois at Urbana-Champaign  
Board of Trustees  
506 S Wright  
Urbana, IL 61801
2. Submission date of plan: \_\_\_\_\_
3. Signature and title of person who can attest to accuracy of information contained in plan,

\_\_\_\_\_  
Tim Hoss  
Recycling Coordinator, UIUC

4. *Short description of institution and its mission:*

The University of Illinois at Urbana-Champaign is the state's largest and most comprehensive public university campus serving more than 39,000 undergraduate, graduate, and professional students each year. The campus offers bachelor's, master's, professional, and doctoral degrees. Its faculty conducts basic and applied research in a broad array of fields. Many of the campus' colleges and departments are recognized nationally for both instruction and research. The majority of undergraduate and graduate students attending the University of Illinois at Urbana-Champaign are of traditional age, enroll full time, and live on or near the campus. In addition to pursuing statewide goals and priorities, the University of Illinois at Urbana-Champaign:

-carries out its traditional land grant mission by focusing on instruction, research, and public service in engineering, agriculture, business, and comprehensive programs in the arts, sciences, and humanities;

-offers professional education in law, medicine, veterinary medicine, business and architecture; and

-provides off-campus continuing education programs and public service activities statewide in engineering and agriculture as well as fields not generally available at other universities.

## 1.2 Contacts

1. *Plan coordinator:*  
Mr. Tim M. Hoss  
Recycling Coordinator – F & S Division  
University of Illinois  
1501 South Oak Street  
Champaign, Illinois 61820
2. *Recycling Coordinator:*  
Tim M. Hoss  
Recycling Coordinator – F & S Division  
1501 S Oak Street  
Champaign, Il 61820  
(217) 244-7283
3. *Procurement official: (if more than one, only report paper procurement officials)*  
Michal McPheters  
Purchasing Division  
Office Supplies and Furnishings Section  
616 E Green, Suite 212 C  
Champaign, Il 61820  
(217) 333-3586
4. *Recycling Committee:*  
None

## 1.3 Student/Staff Population

1. Full-time equivalent enrollment is 38,555 students (fall 2004).
2. Total students, full and part-time, enrolled is 39,626 (fall 2004).
3. Number of staff, administration, employees (including teachers) is 13,643 (fall 2004).

## 1.4 Buildings/Grounds

1. Off-site facilities and/or satellite campuses operated by the institution that are accounted for in the plan. NONE
2. Off-site facilities operated by the institution which are not accounted for in the plan. N/A
3. Number of institution-occupied buildings accounted for in the plan: 225

4. Number of incineration facilities: 2

*Materials incinerated:*

Type 4 waste, animal carcasses, and type 7 waste, laboratory/medical waste, are incinerated. The University has a type 4/7 incinerator at the Veterinary Medicine Basic Sciences Building and a type 4 incinerator at the Plant and Animal Biotechnology Laboratory.

*Maximum capacity of each:*

The type 4/7 incinerator can accommodate 400 lbs. per hour and the type 4 incinerator has a capacity of 500 lbs. per hour.

*Average daily throughput:*

In FY2004 the type 4/7 incinerator incinerated 67,112 lbs. of material over 518 hours for a throughput of 129.6 lbs. per hour. The type 7 incinerator incinerated 51,507 lbs. over 273 hours for a throughput of 188.7 lbs. per hour.

*Is energy recovered? No*

## 1.5 Funding/Budget

1. *Sources of funding:*

Funding for the Academic/Administrative and Housing recycling programs is from different sources. First, the Academic / Administrative recycling budget is part of the Facilities and Services Transportation Department's Recycling and Waste Management budget which also supports waste disposal expenses. Housing's budget is generated from student fees and is budgeted separately.

The cost for the recycling program in FY2004 was \$355,985. This includes other recycling-related expenses such as labor of building service workers to remove materials from buildings and transportation charges for collection of material plus material processing (baling).

2. *Cost of solid waste collection and disposal for both recyclable and non recyclable material during fiscal year 2005:*

Recycled	\$355,985
Landfilled	<u>\$722,644</u>
Total	<u>\$1,078,629</u>

3. *Total approximate net cost of recycling-related activities during fiscal year 2005. Address both revenues and expenses.*

Total Expenditures	\$355,985
Revenues	<u>\$361,415</u>
Net Recycling Cost	\$ < 5,430 >
Cost avoidance, (all activities)	<u>\$190,840</u>
Net Avoidance	<u>\$196,270</u>

The net recycling cost avoidance is the savings to the University from not landfilling recyclables and other diverted material such as landscape waste. Without the recycling program, campus waste collection and disposal costs would be over \$1,000,000. However, \$196,270 net avoidance does not represent a "cash balance." Funding for waste collection/disposal and recycling is substantially less than the \$1,079,000 cost.

4. *Budget for Recycling:*

The total budget for recycling related activities in the institution's fiscal year 2004 was \$355,985. Future funding is unknown but should be consistent with the last five years.

## **SECTION TWO - EXISTING RECYCLING AND COMPOSTING ACTIVITIES**

### **2.1 Survey of Recycling/Composting Activities (see Appendix i)**

### **2.2 Current Recycling Methods**

1. *Materials in question:*

Materials recycled on campus through various means include: Paper (all types), cardboard, cans (aluminum, bi-metal and tin), plastics (PET, and HDPE), pallets, scrap metals, tires, motor oil, lead acid batteries, landscape waste, animal bedding, Freon, hazardous wastes, and construction and demolition (C&D) waste.

2. *This section will include Question 2, start date for method; Question 3, collection process; Question 4, self-processing of materials and Question 5, transportation of materials, for each material type.*

The Housing Recycling Program has been in existence since February 1989. Recycling containers for paper only, plastic, and cans are located on each floor of University Residence Halls. There are approximately 170 floors. Additionally, bins for aluminum cans, paper and plastic bottles are located throughout the Residence Halls in "common areas" such as lounges, vending rooms, TV rooms, computer rooms, libraries, lobby areas and laundry areas as well as in employee offices and employee break rooms.

Building Services Workers empty floor and public area recycling bins into 64-gallon tote containers located in a main collection site within each Residence Hall. From there, the

material is collected and transported by the Facilities and Services Transportation Department (F&STD) to the University's Waste Transfer Station (WTS) for processing and marketing.

Annually, the Housing Recycling Office (HRO) coordinates a telephone book drive. At the end of each semester, HRO also conducts a salvage drive designed to divert clothing and other usable goods from the waste stream and the material is donated to local charities. In FY04 the HRO collected 16,940 pounds of clothing and food.

HRO is also responsible for a recycling program for Family Housing. Family Housing has 2 apartment sites, one consisting of 201 units and the other of 780 units. Residents recycle cans, all types of paper, plastics #1 and #2, and cardboard. Materials from the larger sites are recycled using 22-yard roll off containers at four drop off sites.

Recycled materials from the smaller sites are collected using 64-gallon tote containers. Cardboard is collected at all sites, too. In all, there are 5 sites that are available to the residents on this 100-acre tract. Again, all recycled material is collected and transported to the University's WTS for processing and marketing.

HRO has recycling programs at 4 other Housing buildings that are not used for residence purposes. Though cardboard is a majority of the material recycled at Housing Food Stores, Housing Inventory, and the Illini Orange, all types of paper, and cans are also recycled. The Family Housing Office mainly collects paper and cans.

**Paper** from the academic and administrative buildings is collected by two different methods. At approximately 145 campus buildings paper is collected using 90 gallon Toters (Housing uses 64 gallon Toters) and is picked up by the F&STD. Another 80 of the largest campus buildings utilize 2 and 3 cubic yard front load containers that are picked up by F&STD as well. Paper collected by either means is hauled to the University's WTS for processing and marketing. Paper and other materials have been baled at the University's WTS since the new addition began operation in November 1997.

The Toter route was implemented in 1995 and replaced 55 gallon drums that had been used since before the official announcement of the University's Campus-Wide Program in February, 1989. The use of front loader containers to collect paper began in the Fall of 1992.

Housing Division uses 64-gallon tote containers to collect recycled paper, and other recyclable materials. Campus custodians haul all recycled materials from inside campus buildings and dump into outside containers. F&STD hauls all Housing recyclables including paper to the University WTS for processing and marketing.

**Cardboard** is collected three different ways from campus. In the first method of collection, the campus uses trash pans that are designated for cardboard only and F&STD operates a cardboard only collection route daily. Secondly, the campus uses 30-yard roll-

off pans that have been partitioned to accept cardboard only on one half of the pan and trash on the other. The third method of cardboard collection is by simply placing cardboard in with the regular trash and the cardboard is then recovered from the waste at the WTS by Developmental Services Center (DSC) Sorters working the sorting line at the WTS.

Recycling cardboard at the Transfer Station began in the fall of 1988. Two small horizontal balers were later added in 1989 and 1991. In 1996, construction began on an addition to the WTS to include a new state of the art material recovery and processing facility. Cardboard has been baled in the new facility since it opened in November 1997.

**Aluminum cans** are recycled on campus using two methods. Housing collects cans at centrally located collection points and building service workers then haul them to a loading dock. F&STD collects bags of cans and transports them to the WTS for processing and marketing.

Cans from the rest of campus are collected using approximately 1,400, 35-gallon Rubbermaid containers. These containers are usually located in vending rooms, break rooms, or lounge areas. The building service workers simply remove the bag of cans from these containers and place the bag in with the regular trash. The bags of cans are then recovered by Developmental Services Center sorters at the WTS and baled for marketing. Aluminum cans have been baled at the WTS since the new facility opened in November 1997.

**Plastics**, HDPE and PET are recycled on campus. Housing accounts for the majority of the plastics recycled. HDPE and PET are recycled from the residence halls using 64-gallon tote containers. This material is hauled by the building service workers to dock areas and then transported by F&STD to the WTS for processing and marketing. Plastics have been recycled since the program began in February 1989, and baled in the new facility since November 1997.

**Pallets** - Approximately half of all the pallets generated on campus are reused by trucking companies, local moving and storage companies and others. The remaining pallets are either collected from the campus and hauled to the WTS or retrieved from campus waste stream at the WTS. Since March of 1999, a central Illinois firm back-hauls, at no charge, approximately one trailer load every two weeks from the WTS for reuse.

**Scrap metals** have been recycled from campus for many years. Three methods are used to recycle scrap. Twin City Recycling picks up most of the scrap directly from campus buildings and Residence Halls. This occurs once items are taken off inventory and approved for scrap by Accounting Division's Property Control Department. Metal is also hauled from various campus locations to a bin behind the Physical Plant Services Building where Twin City Recycling picks it up. Typically 500 tons of metals are recycled from campus this way per year.



The University also recovers scrap metal from the waste stream at the Transfer Station by manually sorting it from the waste. Typically 250 to 300 tons of scrap metals are recycled annually this way. This method of retrieval was first implemented in 1992.

**Motor oil** has been recycled on campus for many years. Currently, Safety Clean, Urbana, IL. collects University motor oil for re-refining. Approximately 4,000 gallons are re-refined each year. The University buys back recycled oil from the same company that re-refines our old oil. This is essentially a true complete recycling loop.

**Landscape waste** was routinely landfilled prior to the State ban in 1991. Since the ban the University has been chipping it's landscape waste and reusing it as mulch or a soil amendment. Landscape waste that is either too large or small to mulch is taken to a composting site at the Nursery Warehouse and is hauled to and processed by Onyx Waste, PO Box 980, Decatur, IL. 62525. Onyx hauls approximately 40-40 cubic yard roll off containers from campus to their facility for processing per year.

**Animal bedding** from the College of Veterinary Medicine was landfilled prior to 1991 because of possible contamination from pathogens or biohazardous material. In recent years the University's Environmental Health and Safety Department, now called Division of Research Safety, launched a significant sharps program campus wide which resulted in safer bedding waste. The sharps program eliminated syringes, broken glass and other sharp items from the bedding waste.

Since 1995 bedding from Veterinary Medicine has been composted on campus. Approximately 10,000 to 11,000 loose cubic yards of bedding per year are composted at a separate compost site for Veterinary Medicine. An estimated 500 tons of bedding is diverted from the landfill each year.

6. *Markets for materials:*

**Animal bedding** - Animal Bedding from the College of Veterinary Medicine is used by a local farmer as a soil amendment.

**Landscape waste** - Landscape waste is ground up, composted and used in campus projects.

**Motor oil** - Motor oil is collected at the Garage and Car Pool Building and various other campus locations by Safety Clean, 500 W. Anthony Drive, Urbana, IL. Safety Clean charges fee per gallon for their collection service.

**Scrap metals** - Scrap metals are recycled through Twin City Recycling, 2808 N. Lincoln, Urbana, IL. Twin City pays the State of Illinois Department of Central Management Services a per ton fee for University scrap. Twin City provides pick up service to all campus buildings. Additional scrap recovered at the WTS is hauled by Marco Steel, to their recycling facility, 302 S. Market, Champaign. Twin City and Marco Steel accept all types of metals.

**Plastics** - Plastics #1 and #2 are baled commingled at the WTS. Trailer loads of this mixed material are shipped to Quincy Recycling, Quincy, Illinois for further processing and baling. The price of plastics fluctuates with regional and national market prices.

**Aluminum cans** - Trailer loads of cans, 37,500 pound minimum, are brokered through Anheuser-Busch Recycling Corporation (ABRC). ABRC determines which mills our loads are shipped to. The mills are usually located in Kentucky and Tennessee. Specifications for contaminants and moisture are very stringent at the mills and are carefully analyzed before accepting. The market price is tied to national market prices.

**Cardboard** - Cardboard is baled at the WTS. Trailer loads, 40,000 pound minimum, are brokered through Bill Augustine, ROCK-TENN, 82 Krista Ann Court, Bloomington, IL 61704. Since 1991, semi-trailer loads of campus cardboard have been brokered and shipped to Premier Boxboard Limited formerly Inland Container Corporation in Cayuga, Indiana. The advantage of marketing through a broker instead of mill direct is that a broker can guarantee the mill a larger volume and as a result get a higher price. The price paid to the University is based on the price quoted in the bi-weekly publication *Official Board Markets*.

**Paper** - Since the opening of the material processing addition of the WTS in November 1997, campus waste paper has been sold to a Kimberly Clark mill in Owensboro, Kentucky, and brokered through Bill Augustine, ROCK-TENN. The Kimberly Clark arrangement couldn't have been possible without the help of our broker. Paper specifications at Kimberly Clark are more lenient than most paper mills for an office pack grade of paper. Kimberly Clark accepts trailer loads, 40,000 pound minimum, of baled material only.

#### 7. *Education/promotion:*

Campus Recycling writes articles for various campus publications and departmental newsletters, buys advertisements in the campus newspaper, posts large reflective signs on trash and recycling pans and buses, and distributes brochures, bookmarks, posters, and developed a web site. It appears that this type of promotion has been successful.

Education is the main focus of the Housing Recycling Office (HRO). This is accomplished through various methods such as welcoming programs for both students and staff. The second aspect of education involves developing posters, door hangers and flyers. In the last ten years, over 25 signs have been developed to inform residents and staff on how to recycle. The HRO also utilizes established forms of communication such as Residence Hall welcome books, desk blotters and the Housing Division newsletter to draw attention to the campus wide recycling effort. The third aspect is training. The HRO focuses its attention on training staff on how to recycle. Ten years ago, the Housing Food Service created a videotape on recycling cardboard which is currently being shown to kitchen staff and building service employees.

While the building services staff is responsible for material removal, the HRO recruits student volunteers to inspect the recycling bins and initiate educational activities

designed to increase resident awareness about recycling and environmental issues in general.

8. *Results/evaluation of method:*

In the first Solid Waste Plan submitted January 1995, the recycling and diversion rate for campus was 45% and increased to 46.8% in FY99. **The current campus recycling/diversion rate is 48.8% for non-C&D waste and 41.1% when including C&D waste.**

**Materials Recycled in FY1994, FY1999 and FY2004**

	<u>FY94</u>	<u>FY99</u>	<u>FY04</u>
Paper	2,274,928	3,377,690	2,915,360
Cardboard	1,045,620	1,054,780	1,208,860
Glass*	308,881	0	0
Cans	45,373	70,950	75,200
Plastic	11,222	16,580	75,720
Landscape	2,600,000	2,600,000	2,600,000
Scrap metals**	1,100,000	1,688,280	1,245,360
Scrap wood***	764,000	0	0
Animal bedding****	650,000	650,000	1,000,000
<u>Pallets</u>	<u>386,000</u>	<u>650,000</u>	<u>650,000</u>
<b>Total</b>	<b>9,186,024</b>	<b>10,108,280</b>	<b>9,770,500</b>
Diversion Rate	<b>45.0%</b>	<b>46.8%</b>	<b>48.8%</b>

\* Glass recycling was discontinued in 1997.

\*\* Scrap metal recycling does not include equipment shipped to CMS, Springfield.

\*\*\* Scrap wood used to be burned as a fuel source for the Fire Training Institute. This was discontinued in 1998.

\*\*\*\* The estimate of animal bedding density was increased from 65 lbs per yard to 100 lbs per yard in FY04.

9. *Future changes/enhancements:*

In the past the major goal of the recycling program was to control more of the recycling process thus enabling the University to be less dependent on the local private sector for hauling and processing services. Currently, all facets of the campus-recycling program, that is collection, processing, baling and marketing, are done in house by the University. Back in 1995, the campus investigated building a new addition to the WTS. Later, it was decided that the investment, \$1.3 million, was necessary to protect the campus program from potentially fatal interruptions relying on local material processors. This proved to be a good move as the only two local processors capable of handling campus material and volume closed in late 1996 and early 1997. As a result the campus was forced to haul office paper to Bloomington for a year at great expense to keep the program going and to keep recyclables out of the landfill.

No major changes are currently planned for the campus waste management program over the next five years. However, the emphasis for the next five years will be to continue to upgrade existing programs in 225-campus building while improving collection and processing efficiencies. With continued improvement the University could surpass 50% for recycling and waste reduction activities, in the next five years.

## 2.3 Current Composting Methods

### 1. *Material in question:*

Landscape waste-leaves, brush, tree limbs, etc.

### 2. *Start date of method:*

Leaves have been composted for over 50 years. Every fall, the leaves are collected and hauled to the Facilities & Services (F&S) Nursery where they are placed in windrows and periodically turned to produce compost. Eventually, the compost is reapplied on campus in various landscape projects.

Since the 1990 ban on landfilling landscape waste, the University chips most of the landscape waste and uses it as mulch. When trees are removed by F&S tree surgeons, most of the smaller branches are chipped on site and applied directly to various campus areas immediately. The larger branches are cut into smaller logs that are quickly removed by people needing firewood.

Routine grounds work like pruning or the removal of dead trees and shrubs creates large amounts of brush. This material is collected at the nursery and as needed hauled by Onyx Waste, Decatur, IL.

### 3. *Markets for finished compost:*

There is no off-campus market for our compost. Finished compost is used for site development and other campus projects.

### 4. *Results/evaluation of method:*

The composting and mulching of campus landscape waste has been an effective operation that has kept thousands of cubic yards of material out of landfills and yard waste collection areas each year. About 4,000 cubic yards of leaves are composted each year and other landscape waste is of comparable volume. Landscape waste materials are either used as mulch or soil amendments around campus.

There is no precise estimate for the volume of material tree surgeons removed. Each year about 250 trees of all sizes are removed and about half are over ten inches in diameter. This type of landscape material is more difficult to handle because of the necessary equipment needed to process it. The beauty of having this material hauled off for processing is that it is very cost effective and no further composting or handling is required.

5. *Changes/enhancements:*

Currently no further changes or enhancements are planned for the campus landscape waste program.

## SECTION 3 - SOURCE REDUCTION ACTIVITIES

### 3.1 Source Reduction

1. *Describe source reduction activities:*

We promote two-sided copying, reusing campus mail envelopes, buying durable goods, and using reusable/refillable items. We also encourage the campus community to write to the Direct Mail Association and request to be taken off mailing lists.

2. *Education related to source reduction. How are source reduction activities promoted and users educated?*

Source reduction is stressed in newsletters, other published articles, and through our web site. Additionally, the campus developed waste reduction policy for the Campus Administrative Manual.

3. *Evaluate how the activity has worked. Include quantitative results if feasible.*

It is difficult to quantify how much the source reduction program has contributed to the declining landfill total. However, promoting specific activities such as duplexing copies and reusing campus mail envelopes seems to have worked well.

4. *Describe future changes or enhancements:*

Source reduction is the weakest aspect of the program and will continue to be promoted.

## SECTION 4 - PROCUREMENT

### 4.1 Current Procurement Activity

1. *Procurement Survey*

(See Appendix ii)

2. *For each product in question 1 which was procured without recycled content, discuss the reasons. Include whether the constraints are related to costs, availability, specifications and/or standards.*

All paper products with the exception of a few sizes of writing tablets are available with recycled content. Availability, specifications or standards are not a problem with recycled paper as in the past. Pricing usually determines the amount of paper with recycled content that is procured.

## 4.2 Procurement Goals

1. *Outline the goals established by the institution regarding procurement of recycled-content products.*

The University's goal is to purchase products with recycled content whenever cost, specifications, standards, and availability are comparable to products without recycled content. It is interesting to note that the University has exceeded the State goal of spending 25% of the paper budget on products with recycled content for the last 15 years.

## 4.3 Procurement Policy

1. *Supply a copy of the institution's written procurement policy:  
(see Attachment 7)*

# SECTION 5 - WASTE GENERATION & WASTE COMPOSITION

## 5.1 Waste Generation Study

1. *Total municipal solid waste generated in tons per year:  
14,006 tons, in FY2004*
2. *Initial measurement - volume or tons*

<u>Campus Waste Generation</u>		<u>Tonnage</u>
General Waste	(Landfilled)	5,139
C&D Waste	(Landfilled)	3,109
Recyclables		4,893
C&D Waste Recycled		<u>865</u>
Total Waste		<u>14,006</u>

3. *Describe the methodology employed in performing the waste generation study. Address how it was conducted, who performed it, the number of samples, when the samples were collected and when the study was completed. If a methodology other than that described in the Handbook was used, state its source:*

The waste generation study was conducted by Tim Hoss.

University waste, general waste and C&D waste, is hauled to the Brickyard Landfill in Danville, IL. Although most landfills charge by volume, most landfills also weigh every load of waste tipped. The exact tonnage of waste generated on campus is not known.

Based on FY2004 disposal records the University landfilled 5,139 tons of non-C&D waste, 3,109 tons of C&D waste, and recycled 865 tons of C&D waste. Additionally, the campus recycled or diverted 4,893 tons.

Out of the 4,893 tons of material recycled, 1,800 tons of this total are estimated. Landscape waste and animal bedding from the College of Veterinary Medicine are the only materials estimated.

Landscape waste generation can vary from year to year depending mostly on weather conditions. On average, 16,000 cubic yards of landscape waste are generated each year. Of that total, 4,000 cubic yards (350 lbs./yd) are leaves that are collected for composting each Fall. Of the remaining 12,000 yd., 10,000 yards are chipped and reduced to 1,500 cubic yards at 350 pounds per cubic yard. This material is applied to the campus as mulch. The last 2,000 yards (350 lbs./yd) is either too large or too small to be chipped and is taken to the composting site at the campus nursery for further processing. Landscape material processed on campus eventually is used as a soil amendment or in vegetative beds around campus.

Animal bedding from the College of Veterinary Medicine was landfilled for many years prior to 1991. Since then, a minimum of 10,000 loose cubic yards of bedding per year are composted at a separate compost site for the College of Veterinary Medicine. Factoring a 100 pounds per loose yard of bedding, there is an estimated 500 tons that is diverted from the landfill each year.

## **5.2 Waste Composition Study**

1. *Complete the standardized forms in Appendix IV*
2. *Describe the methodology employed in performing the waste composition study. How it was conducted, who performed it, the number of samples, when the samples were collected, and when the study was completed:*

The composition of the University's non-C&D landfill waste was determined by the spot sampling method.

Ten samples from Housing Division and fourteen samples from academic/administrative buildings were analyzed. Each sample was taken randomly from full truckloads tipped at the University's Waste Transfer Station. Each sample weighed between 200 to 300 pounds. The analysis was conducted by Tim Hoss, UIUC Recycling Coordinator and Sam Sadler, Undergraduate Student.

Garbage was sorted and weighed and percentages were determined. The following table lists the types of material, tons recycled, Tons landfilled, total tons (recycled and landfilled), percent of non-C&D waste stream, percent of non-C&D waste landfilled, and the percent of material recycled or diverted from landfilling.

<b>Waste Material</b>	<b>Tons Recycled</b>	<b>Tons Landfilled</b>	<b>Total Tons</b>	<b>% of Non C&amp;D Waste Stream</b>	<b>% of Non C&amp;D Waste Landfilled</b>	<b>Percent Recycled</b>
Aluminum Cans	37.60	36.09	73.69	0.73%	<b>0.36%</b>	51.02%
Ferrous	622.68	276.97	899.65	8.97%	<b>2.76%</b>	69.21%
Cardboard	604.43	98.10	702.53	7.00%	<b>0.98%</b>	86.04%
Food Waste	0.00	812.37	812.37	8.10%	<b>8.10%</b>	0.00%
Wood	0.00	238.05	238.05	2.37%	<b>2.37%</b>	0.00%
Glass	0.00	230.44	230.44	2.30%	<b>2.30%</b>	0.00%
Paper	1457.68	1519.16	2976.84	29.67%	<b>15.14%</b>	48.97%
PET	19.29	69.67	88.96	0.89%	<b>0.69%</b>	21.68%
HDPE	18.57	232.97	251.54	2.51%	<b>2.32%</b>	7.38%
Plastic Other	0.00	682.10	682.10	6.80%	<b>6.80%</b>	0.00%
Styrofoam	0.00	43.54	43.54	0.43%	<b>0.43%</b>	0.00%
Textiles	8.10	164.21	172.31	1.72%	<b>1.64%</b>	4.70%
Animal Bedding	500.00	0.00	500.00	4.98%	<b>0.00%</b>	100.00%
Landscape Waste	1300.00	0.00	1300.00	12.96%	<b>0.00%</b>	100.00%
Pallets	325.00	36.11	361.11	3.60%	<b>0.36%</b>	90.00%
Garbage Fines	0.00	699.35	699.35	6.97%	<b>6.97%</b>	0.00%
<b>Total Non-C&amp;D Waste</b>	<b>4893.35</b>	<b>5139.13</b>	<b>10032.48</b>	<b>100.00%</b>	<b>51.22%</b>	<b>48.78%</b>
Construction/Demo	865.00	3109.00	3974.00	0.00%	0.00%	21.77%
Total Waste Stream	5758.35	8248.13	14006.48			<b>41.1%</b>

## SECTION 6 – INVESTIGATION OF MATERIALS NOT RECYCLED/COMPOSTED

*For each recyclable material which represents 5% or more of the institution's waste stream according to the waste composition study and is not currently recycled or composted, an investigation should be conducted to determine the feasibility of recycling/composting. The existence of markets is perhaps the major factor in determining the feasibility. The Act mandates that at least corrugated cardboard, computer paper, white office paper and landscape waste are to be recycled if markets exist. Institutions should demonstrate a reasonably active investigation into the existence of markets. Answer the questions separately for each material.*

### 1. Type of material in question:

Food waste, other plastics, and garbage fines are the only material types identified in the campus waste stream that exceed 5% of the total waste stream and not recycled or composted.



2. *Material's percentage in waste stream:*

<u>Material Type</u>	<u>Percent of non C&amp;D Waste Landfilled</u>
Food Waste	8.1%
Other Plastics	6.8%
Garbage Fines	7.0%

This group comprises 21.9% of the non-C&D waste stream landfilled in FY2004.

3. *Describe the investigative process undertaken.*

Markets for the materials listed above do not exist in the Midwest.

4. *Discuss the results of the investigation including the institution's conclusion as to whether or not the institution will recycle or compost the material, and support the institution's position.*

**Food waste** is 8.1% or 812 tons of the University's non-C&D waste stream. The only alternative to landfilling this fraction of the waste stream is composting. Since the campus has been exceeding the 40% State mandated goal and waste reduction is approaching 50%, food waste composting is not a viable option due to prohibitive costs and other potential problems.

Also, feeding processed food waste to livestock is not a waste reduction option since it is against the law in the State of Illinois.

**Other plastics**, excluding HDPE and PET, comprise 6.8% or 682 tons of the University's non-C&D waste stream. Markets do not exist in central Illinois for most of these other plastics.

**Garbage Fines** comprise 7.0% or 699 tons of the non-C&D waste streams. This material consists of grit, broken glass, paper fibers, and about anything else you can imagine. Although it may be possible to compost a large portion of this material, it is currently not necessary and not being considered.

## SECTION 7 – FUTURE ACTIVITIES

*Section 7, outlines the recycling, composting and source reduction activities the institution intends to participate in between the years 2005 and 2010 to meet or exceed its target reduction. The activities cover a wide range of activities addressing either recycling, composting or source reduction: i.e., completing research on a certain topic, revisiting the waste composition study, implementing education programs and instituting a campus-wide program or program enhancement.*

*DCEO recognizes that effective plans are flexible. Activities set far into the future are more uncertain than those planned for the near future. Specific plan activities may therefore change for good reason, for example, as a response to a market situation.*

## 7.1 Outline of Activities

*For each planned recycling-related activity, discuss the following:*

1. *Activity-be as specific as possible:*

The University currently engages in five major recycling-related activities. First, the University recycles many of the materials used on campus. The materials are: paper (most types), cardboard, glass, HDPE, PET, aluminum cans, scrap metals, animal bedding, landscape waste, motor oil, tires, lead acid batteries, pallets and wood scrap, kitchen grease, animal fat, bone and offal, laboratory chemical reuse, concrete, brick and mortar.

Second, the University runs a composting program. All branches, trees, leaves, and other landscape waste generated on campus are collected then composted. Finished compost is reapplied to landscape sites. Large tree branches are cut into small logs for firewood.

Third, the University concentrates on source reduction. We encourage double-sided copying, reusing envelopes, and purchasing durable or reusable goods.

Fourth, the University educates campus personnel on recycling several ways. The Campus Recycling office publishes and distributes newsletters, sends feedback letters to departments, submits articles to campus publications, places advertisements in campus newspapers, distributes brochures and posters, posts large signs on recycling containers and developed a web site.

Fifth, the University procurement program is designed to improve and encourage recycling by advocating the purchase of products with recycled content.

2. *Date-month and year the activity is expected to be implemented or completed:*

First, the recycling program officially began February, 1989. The program then included paper (most types), cardboard, glass, HDPE and PET and aluminum cans. In January 1991, landscape waste, animal bedding, wood scrap, pallets, concrete, brick and mortar were added to the program. Scrap metals, motor oil, tires, lead acid batteries, kitchen grease, animal fat, bone and offal have been recycled for many years. Additionally, the University's Division of Research Safety operates a hazardous waste minimization, recycling and reuse program for laboratory chemicals. The expansion of the recycling program campus wide is complete. However, upgrading existing programs will be continuous.

Second, composting has been a major part of the waste management program on campus since landfilling landscape waste was banned in 1991.

Third, source reduction activities have been in place since the recycling program officially began in 1989. The University developed a recycling, waste reduction and procurement policy in 1991. The policy is Attachment 7.

Fourth, educating the campus community about recycling and source reduction has been part of the recycling program from the beginning.

Fifth, the University recognized early in the program that procurement of materials with recycled content was necessary to complete the recycling loop. As a result, the recycled product procurement section was added to the RECYCLING, RECYCLED PRODUCTS PROCUREMENT, AND WASTE REDUCTION POLICY (Attachment iv). Since FY1990, the University's Purchasing Department set goals and created an annual report tracking their progress. The Purchasing Department purchased \$2,328,000 worth of paper with recycled content in FY1999, accounting for 46.4% of all campus paper purchases.

The five activities described above have been implemented for several years. Therefore, the University's current goal is to improve and refine these programs in order to continue to satisfactorily meet State goals.

3. *Rationale-describe how it fits into your overall waste management strategy:*

To achieve a 40% minimum recycling rate it is necessary to have a comprehensive waste management system that includes the major activities of source reduction, recycling, composting, and procurement. Current programs would be less successful without the current level of education, training, and promotion.

4. *Expected impact-discuss the expected impact of the activity. Include quantitative measures if possible:*

The impact of the five current recycling activities and waste management programs is as follows. First, the material recovery and processing facility at the WTS added significantly to the University's recycling program. In FY2004 the campus recycled or diverted 48.8% of the University's non-C&D waste stream. Including C&D wastes, 41.1% of the total campus waste stream was recycled or diverted from landfilling.

Future increases in recycling rates will have to come from improved recovery rates of paper. Increasing the recycled paper recovery by 10% would increase the campus recycling/diversion rate to over 50%.

Second, composting landscape waste is, and probably always will be, a major part of the University's solid waste management program.

Third, the impact of source reduction is difficult to quantify. However, the large number of activities occurring at the University should considerably reduce the amount of copy paper and number of envelopes being used. Through education, source reduction could still contribute significantly to the program.

Fourth, recycling education at the University has had an impact that is also hard to quantify. The campus population is still very much concerned about handling their waste in a responsible manner. The recycling office continues to receive numerous calls daily from individuals concerned about recycling activities. The University program will

continue to focus on education because it recognizes the importance of teaching students and employees about new developments in the recycling field.

Fifth, the procurement program has a minimal impact on waste generation and source reduction. Nonetheless it is an integral part of the University's solid waste management program in order to 'complete the cycle.'

A stable student population is expected throughout the forecast years in section 8.2 . Therefore, by expanding and improving existing programs, particularly the paper program, the University of Illinois at Urbana/Champaign anticipates a recycling/diversion rate greater than 50% for non-C&D campus waste by 2010. It is also likely that C&D wastes will also see a recycling/diversion rate greater than 50% by 2010.

## **SECTION 8 - TARGET REDUCTION**

*Section 8 corresponds to the 40% target reduction in the Act. For purposes of the waste reduction plans, the target reduction is achieved using the simplest and most direct method.*

*The target reduction is obtained by setting a maximum on the amount of municipal solid waste that can be landfilled and/or incinerated in the year 2000 based on the amount of municipal solid waste generated in the year 1987. It should be noted that the figures are reported on a per student basis so institutions with rising enrollment are not "penalized."*

### **8.1 Base Year (1987)**

*Complete Questions 1 through 4 by using the corresponding standardized form supplied in Appendix IV. Question 5 is not intended to be answered on the standardized form.*

- 5. Methodology employed for 1987 figures - Describe the methodology employed to calculate waste generation quantities for 1987.*

Campus records indicate that 82,000 cubic yards of waste material were tipped at the Urbana Landfill in 1987. This volume consisted of an assortment of compacted and loose loads of all campus waste. Densities for waste materials seem to vary widely from study to study . For our purposes, an average of 293 lbs. per cubic yard landfilled will be used. This figure falls within the range of compacted and loose loads of garbage tipped in landfills as per the University and College Solid Waste Reduction and Recycling publication. As a result, the weight of waste generated in 1987, 12,000 tons, is consistent with present totals.

## **8.2 Forecast (1993-2000)**

*Complete subsection 8.2 by using the corresponding standardized form supplied in appendix IV. Note, figures for 2004 represent the actual estimated figures for the year and determine whether the institution has reached the 40 percent reduction goal.*

## APPENDIX IV – STANDARDIZED FORMS

### 2.1 Survey of Recycling/Composting Activities

<u>Material</u>	<u>Recycling</u>	<u>Composting</u>
<b><i>Paper</i></b>		
White office paper	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mixed Paper	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Computer Paper	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ONP	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Magazines	<input checked="" type="checkbox"/>	<input type="checkbox"/>
OCC	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other paper (specify)	<input type="checkbox"/>	<input type="checkbox"/>
<b><i>Plastic</i></b>		
PETE (#1)	<input checked="" type="checkbox"/>	
HDPE (#2)	<input checked="" type="checkbox"/>	
LDPE (#4)	<input type="checkbox"/>	
Polystyrene (#6)	<input type="checkbox"/>	
Other plastic (specify)	<input type="checkbox"/>	
<b><i>Metals</i></b>		
Aluminum cans	<input checked="" type="checkbox"/>	
Bi-metal or steel cans	<input type="checkbox"/>	
Other metals (specify)	<input checked="" type="checkbox"/>	Scrap metals
<b><i>Glass</i></b>		
Clear	<input type="checkbox"/>	
Brown/amber	<input type="checkbox"/>	
Green	<input type="checkbox"/>	
Other glass (specify)	<input type="checkbox"/>	
<b><i>Other</i></b>		
Landscape waste	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Food waste	<input type="checkbox"/>	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	<input checked="" type="checkbox"/> Animal waste

**4.1 Survey of Recycling/Composting Activities**

*Question 1. Procurement Survey*

<u>Material</u>	<u>1. Prucured within last 12 months</u>	<u>2. Total dollar value of procurements</u>	<u>3. Total dollar value of recycled-content procurements</u>	<u>4. Percent of post-consumer materials in #3</u>
<b><i>Office Products</i></b>				
Letterhead paper	<input checked="" type="checkbox"/>	<b>See attached purchasing report</b>		
Copy paper	<input checked="" type="checkbox"/>			
Computer paper	<input checked="" type="checkbox"/>			
Newsprint	<input checked="" type="checkbox"/>			
Writing tablets	<input checked="" type="checkbox"/>			
File folders	<input checked="" type="checkbox"/>			
Report covers	<input checked="" type="checkbox"/>			
Posterboard	<input checked="" type="checkbox"/>			
Pens	<input checked="" type="checkbox"/>			
Other (specify):	<input type="checkbox"/>			
<b><i>Janitorial/Refuse/ Products</i></b>				
Toilet tissue	<input checked="" type="checkbox"/>	<b>See attached purchasing report</b>		
Paper towels	<input checked="" type="checkbox"/>			
Paper napkins	<input checked="" type="checkbox"/>			
Facial tissue	<input checked="" type="checkbox"/>			
Floor scrubbing pads	<input checked="" type="checkbox"/>			
Buckets	<input checked="" type="checkbox"/>			
Collection bins	<input checked="" type="checkbox"/>			
Trash bins	<input checked="" type="checkbox"/>			
Other (specify):	<input type="checkbox"/>			

<u>Material</u>	<u>1. Prucured within last 12 months</u>	<u>2. Total dollar value of procurements</u>	<u>3. Total dollar value of recycled-content procurements</u>	<u>4. Percent of post-consumer materials in #3</u>
<b><i>Landscape Products</i></b>				
Compost/mulch	<input checked="" type="checkbox"/>	<b>See attached purchasing report</b>		
Hydroseeding	<input checked="" type="checkbox"/>			
Landscape timbers	<input checked="" type="checkbox"/>			
Other (specify):	<input type="checkbox"/>			
<b><i>Other Products</i></b>				
Food service trays	<input checked="" type="checkbox"/>			
Bags – Paper	<input checked="" type="checkbox"/>			
Bags – Plastic	<input checked="" type="checkbox"/>			
Park benches/picnic tables	<input checked="" type="checkbox"/>			
Fencing/snow fencing	<input checked="" type="checkbox"/>			
Stadium seating	<input type="checkbox"/>			
Traffic barricades, speed bumps, parking stops	<input type="checkbox"/>			
Athletic surfacing	<input type="checkbox"/>			
Mats	<input type="checkbox"/>			
Remanufactured/retreaded tires	<input checked="" type="checkbox"/>			
Automotive/lubricating oils	<input checked="" type="checkbox"/>			
Other (specify):	<input type="checkbox"/>			
Other (specify):	<input type="checkbox"/>			
Other (specify):	<input type="checkbox"/>			
Other (specify):	<input type="checkbox"/>			



## 5.2 Waste Composition Study

### Question 1      Results of the study

<u>Material</u>	<u>Weight (tons per year)</u>	<u>Estimation Or Measurement</u>	<u>Percent of total</u>
<b><i>Paper</i></b>			
White office paper	W / MOW	M	---
Mixed Paper	W / MOW	M	---
Computer Paper	W / MOW	M	---
ONP	W / MOW	M	---
Magazines	W / MOW	M	---
OCC	604	M	7.0%
Other paper (specify): Mixed office waste (MOW)	2,977	M	29.7%
<b><i>Plastic</i></b>			
PETE (#1)	89	M	0.9%
HDPE (#2)	252	M	2.5%
LDPE (#4)	W / Other	M	---
Polystyrene (#6)	W / Other	M	---
Other plastic (specify):	762	M	7.2%
<b><i>Metals</i></b>			
Aluminum cans	74	M	0.7%
Bi-metal or steel cans	W / Other	M	---
Other metals (specify): Scrap metals	900	M	9.0%
<b><i>Glass</i></b>			
Clear	W / Other	M	---
Brown/amber	W / Other	M	---
Green	W / Other	M	---
Other glass (specify): All glass	230	M	2.3%
<b><i>Other</i></b>			
Landscape waste	1,300	E	13.0%
Food waste	812	M	8.1%
Other (specify):			
Wood	238	M	2.4%
Textiles	172	M	1.7%
Aminal bedding	500	E	5.0%
Pallets	325	E	3.6%
Garbage Fines	699	M	7.0%

**8.1 Base (1987)**

<i>Question 1</i>	Tons of municipal solid waste generated during 1987	<u>12,000</u>
<i>Question 2</i>	Students enrolled in fall 1987	<u>36,340</u>
<i>Question 3</i>	Tons of municipal solid waste generated per student enrolled in 1987 (Question #1 response divided by Question #2 response)	<u>330</u>
<i>Question 4</i>	Target – Maximum tonnage of solid waste landfillable and/or incinerated in 2000 Per student enrolled (Question #3 response multiplied by 0.60)	<u>198</u>

**8.2 Forecast (2004-2009)**

		2004	2005	2006	2007	2008	2009
Question 1	Tons of municipal solid waste generated over entire year	10,032	10,032	10,032	10,032	10,032	10,032
Question 2	Students enrolled in fall term	39,626	39,626	39,626	39,626	39,626	39,626
Question 3	Tons of municipal solid waste generated per student enrolled (Q #1 response divided by Q #2 response)	.253	.253	.253	.253	.253	.253
Question 4	Tons of materials recycled/composted	4,893	5,040	5,191	5,347	5,507	5,672
Question 5	Tons of materials recycled/composted per student enrolled (Q #4 response divided by Q #2 response)	.123	.127	.131	.135	.139	.143
Question 6	Tons of municipal solid waste landfilled and/or incinerated	5,139	4,992	4,841	4,685	4,525	4,360
Question 7	Tons of municipal solid waste landfilled and/or incinerated per student enrolled (Q #6 response divided by Q #2 response)	.130	.126	.122	.118	.114	.110



## RECYCLING, RECYCLED PRODUCTS PROCUREMENT, AND WASTE REDUCTION

These policies implement the university's commitment to recycling and waste reduction.

The University of Illinois at Urbana-Champaign implemented the University Recycling Program in February 1989 for both environmental and economic considerations. Recycling has become an important waste management activity, which conserves natural resources and landfill space and also reduces waste disposal costs. The University recognized that recycling is only one part of a complete waste reduction program and that in the long term, recycling efforts cannot be successful if there is not a strong demand for recycled products. Therefore, the program has been expanded into a Recycling and Materials Reduction Program (RMRP) to reflect a unified approach to campus waste management. The RMRP is assigned to the building operation section of Facilities and Services.

The three policies below should save resources, reduce our waste stream, and improve the market for recycled materials. Each individual's active participation is crucial if the University's program is to be successful.

### I. RECYCLING

The University continues to expand campuswide recycling collection and supports the development and implementation of recycling collection for all campus units.

To implement this policy, the campus will:

- A. Ensure that all units, including residential facilities, departments, schools, colleges, laboratories, and offices, develop programs for recycling. These programs may begin with paper and paper products and should expand to include other recyclable materials, such as cans, glass, and plastic.
- B. Educate faculty, staff, and students about recycling. University employees and students are expected to participate in and support all aspects of the RMRP.
- C. Collect and review recycling operational data. Because individual units may require various recycling strategies, operational data should establish the most acceptable and effective recycling program for each campus unit. After a recycling program is instituted in a unit, the program should be periodically reevaluated to determine its effectiveness in removing materials from the waste stream and acceptability to the employees and students in the unit.
- D. Make the program cost-effective through cost avoidance, with the ultimate goal of becoming as self-supporting as possible.

## II. PROCUREMENT OF PRODUCTS MADE WITH RECYCLED MATERIALS

The University will purchase products with recycled material content whenever cost, specifications, standards, and availability are comparable to products without recycled content. The University will identify those items that are frequently purchased for which items with recycled content can be substituted. Additional preference will be given to the specification of items with the highest content of recycled material.

Examples of products and materials covered by this policy include, but are not limited to, office supplies, paper products, building materials, lubricants of all types, reprocessed chemicals, remanufactured parts, landscape products (yard wastes), and materials used in pavement construction projects. The use of recycled materials should also be encouraged when orders are placed for brochures, catalogs, books, letterheads, business cards, etc. In addition, to ensure that a larger percentage of the University's waste stream can be recycled, the procurement policy will seek to eliminate the purchase of nonrecyclable materials when suitable substitutes exist.

To implement this policy, the campus and the Purchasing Division will:

- A. Act to identify and project needs that exist within the University for equipment, supplies, and services for which recycled and/or recyclable products might be available.
  1. By reviewing prior and current requests for equipment, supplies, and services to determine the present usage of recycled and/or recyclable products.
  2. By examining future needs to determine the extent to which they might involve requests for equipment, supplies, and services that might be met by the procurement of recycled and/or recyclable products.
- B. Actively and diligently strive to identify vendors that can competitively supply recycled products.
  1. By reviewing bid responses to determine the availability of commodities manufactured with recycled content.
  2. By utilizing commercial directories and federal, state, and local sources of information to identify marketed products that are manufactured using recycled materials.
- C. Make extra efforts to communicate to campus users the opportunities to meet requirements through the procurement of recycled and/or recyclable products, recognizing that the primary goal of purchasing such products is to reduce waste.
  1. By reviewing specifications and intended product usage to determine if recycled products are available that will competitively and adequately meet identified needs and comply with established state and campus policies and procedures.
  2. By supporting the campus Recycling and Materials Reduction Coordinator in the identification of recycled products for evaluation and testing to determine their suitability for campus use.

3. By working with the campus Recycling and Materials Reduction Coordinator to develop and publish a campus recycled products list; only products from that list will be purchased unless substantial written justification can be made for a nonrecycled product.
4. By coordinating procurement of recycled products with campus users to ensure satisfactory performance, recognizing that if recycled products do not perform satisfactorily, they become waste.

### III. WASTE REDUCTION

The first priority of waste management is volume reduction at the source, reducing the original consumption of material. Using less material will reduce material expenses and waste disposal costs and will diminish the solid waste problem. Campus waste reduction can be effected by the application of a few simple guidelines.

- A. Paper and paper products represent by far the major portion of the campus waste stream. Methods of reducing waste are:
  1. Encouraging two-sided copying and printing. All copying and printing requirements should be two-sided by default. Single-sided copying should be specifically requested.
  2. Limiting printing needs to the actual requirements for distribution. Overruns should be eliminated. Units should routinely review the distribution lists of reports and limit them to essential persons. Campus mailing lists should be continually updated to eliminate unnecessary mailings. Bulletins and brochures can often be posted in a prominent location or circulated within the unit, rather than distributed to individuals.
- B. Share magazines and catalogs so that unnecessary subscriptions can be canceled.
- C. Use reusable products if at all possible. Examples are ceramic coffee mugs, glass drinking cups, metal silverware, rechargeable batteries, and campus mail envelopes.
- D. Purchase products that have a long useful life. By design, some items have greater reliability or are easier to repair than other similar items.
- E. Whenever possible, control the packaging of purchased material. For example, units that buy in bulk quantities often can reduce packaging waste.

Further questions or suggestions concerning the Recycling and Materials Reduction Program should be directed to the campus Recycling and Materials Reduction Coordinator, (244-SAVE). Please see also [Facilities and Services](#).

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Use of Services and Stores Policies, Storerooms/Purchases, Section VII/B - 9