

2008 -  
2009

Radford University Annual  
Recycling Report



## Executive Summary

Radford University started recycling operations in the early 1990's. In an effort to place greater emphasis on Sustainability at Radford University, President Penelope Kyle dedicated three positions in the fall of 2008; Sustainability Coordinator, Recycling Coordinator, and Recycling Technician.

In recent years an increase in construction waste has directly contributed to a rise in recycling rates. Another area affecting higher rates is the increased media support provided by the University Relations Department. This department worked closely with the Recycling Department this year to enhance and promote recycling. Their role has proved to be a very valuable asset to the Recycling Department, directly impacting the recycling efforts put forth by the campus and local communities. Some of their mechanisms to promote recycling included the RU Today and the RU website. RU's recycling efforts were also showcased in local and student newspapers and also the RU Magazine. Their support is extremely valuable to our overall efforts to reduce, reuse, and recycle.

New buildings and building renovations on campus include the new Covington Fine Arts Center, Young Hall renovation, and the Heth Hall renovation. New recycling receptacles have been set-up in these sites.

Below is the Radford University final recycling statistics for fiscal year 2009:

<b>Annual Recycling Rate:</b> 26.46%*	<b>Total Recyclables:</b> 568.24 Tons	<b>Total Solid Waste:</b> 1,579.14 Tons
<b>Containers:</b> 10.67 tons	<b>Mixed Paper:</b> 68.91 tons	<b>Corrugated Cardboard:</b> 74.41 tons

The following snapshot derived from the Environmental Protection Agency's (EPA) WASTE Reduction Model (WARM) Calculator reflects figures specifically from RU's three main recycling categories (Containers, Mixed Paper, and Corrugated Cardboard):

- Total Change in Green House Gas (GHG) Emissions: -471 MTCO<sub>2</sub>E (Metric Tons of CO<sub>2</sub> Equivalent)\*\*
- Total Change in Energy Use: -2,369 million BTU\*\*

(This is equivalent to 22 households' Annual Energy Consumption; 409 Barrels of Oil; or 19,065 Gallons of Gasoline)

*\*Note: Recyclable construction waste may cause the overall annual recycling percentage rate to significantly fluctuate from year to year based on high tonnages recorded.*

*\*\*Note: A negative value indicates an emission reduction; a positive value indicates an emission increase.*

(See appendix 1 for a breakdown of recycling categories and weights)

### **Waste Minimization - Why is it important?**

Waste minimization is defined as a means of reduction of any solid or hazardous waste that is generated or subsequently treated, stored, or disposed of. The first priority should be to reduce waste on the front end, basically alleviate the need to recycle in the first place. The next priority should be to reuse material, and last, to recycle materials and keep them from ending up in the landfill.

### **Recycling - Why is it important?**

Before you know about the importance and benefits of recycling and its relationship to a better environmental condition, it is essential to understand what recycling is. Recycling refers to the process of collecting used materials which is usually considered as 'waste' and reprocessing them. In this process these used materials are sorted and processed to be used as 'raw materials' for the production of new products. Recycling varies from 're-use' in the sense that while re-use just means using old products repeatedly, recycling means using the core elements of an old product as raw material to manufacture new goods. Recycling is good for the environment, saves energy, and creates jobs.

### **Current Accomplishments and Improvements**

With the new recycling positions created and an effort to increase awareness across campus, many updates and new initiatives were created. Many of the accomplishments and process improvements are discussed below:

### **Recycling Stream Conversion**

RU converted from individually categorized recycling streams (e.g. newspaper, colored paper, magazines, etc.) into one co-mingled (consolidated) recycling stream which is referred to as mixed paper recycling. Another co-mingled stream is the container (glass, aluminum/metal cans, and plastic resin codes #1 & #2) recycling category. These new recycling formats streamline the entire process and take much of the guess work out of the recycling process, thus enhancing recycling opportunities for staff and students alike. Recycling at RU is

accomplished in all facilities, in administrative buildings, dining halls, and residential halls.

### **Recycling Website**

New improvements were made this year to the [RU Recycling website](#). Additional front page headers and categories were added. New recycling guidelines are now available for download and printing from the website as well. A newly revised recycling percentage rate tracker was also developed. This new recycling rate tracker was converted from a calendar year to a fiscal year tracker to become more inline with academic operations. This new tracker was also built to automatically calculate recycling figures, thus saving administrative time.

### **New Student Move-In**

During the Fall 2008 student move-in, new improvements were implemented to capture and recycle cardboard on a much larger scale. Various cardboard drop sites were designated outside all residence halls; each site was identified with a new banner type sign. Hauling trailers were used to move the cardboard to the compactors for recycling. This improvement at this year's move-in yielded an approximate 29% rise in cardboard recycling over the previous year. Additionally, new mobile outdoor recycling bins were provided at move-in to recycle drink containers.

2007 - Cardboard recycled: 5.22 Tons    Landfill waste: 9.62 Tons

2008 - Cardboard recycled: 6.74 Tons    Landfill waste: 6.64 Tons

### **Recyclemania 2009**

Radford University competed in Recyclemania for the first time ever. Recyclemania is a friendly competition between colleges and universities nationwide (and Canada) designed to promote waste reduction and recycling habits. The competition spanned a 10-week period from January 18<sup>th</sup> through March 28<sup>th</sup>. The main goal is to reduce waste generated on campus, reuse, and recycle. Another area of focus is to gain increased participation among faculty, staff, and the student body, ultimately resulting in a life-style change toward sustainability. Schools report waste and recycling data on a weekly basis and are then ranked nationally. This year, 510 colleges and universities participated in Recyclemania. Radford University competed against 15 other schools within the state of Virginia. Overall, the total amount of recyclables for this year's competition by all schools equaled 69.4 million pounds. Below are the specific statistics for RU:

- **Grand Champion Competition** (which is the combined total of waste reduction and recycling weight) – RU ranked 12<sup>th</sup> out of 13 schools in Virginia (at **11.62%** cumulative recycling rate)
- **Per Capita Classic Competition** (Largest amount of recyclables per person) – RU ranked 14<sup>th</sup> out of 18 (cumulative rate of **6.49 lbs.** per person)
- **Gorilla Prize Competition** (Highest gross tonnage of recyclables) – RU ranked 9<sup>th</sup> out of 18 schools (with a cumulative recyclable weight of **65,900 lbs.**)
- **Waste Minimization Category** – RU ranked 4<sup>th</sup> out of 8 schools in Virginia (Cumulative waste reduction rate of **55.89 lbs.** per person)
- **Targeted Paper Category** – RU ranked 12<sup>th</sup> out of 18 schools in Virginia (Cumulative rate of **2.36 lbs.** per person)
- **Corrugated Cardboard** – RU ranked 11<sup>th</sup> out of 18 schools in Virginia (cumulative rate of **3.18 lbs.** per person)
- **Containers (Aluminum, glass, plastic)** – RU ranked 9<sup>th</sup> out of 18 schools in Virginia (cumulative rate of **0.95 lbs.** per person)

(See Appendix 2)

## Y-TOSS

In coordination with the local YMCA, Radford University launched the first Y-TOSS operation during the Spring 2009 move-out. Y-TOSS is a program designed to collect unwanted items from students when they vacate their residence hall rooms at move-out. These items typically include rugs, clothes, cleaning supplies, non-perishable foods, furniture, electronic devices, and so on. These items are then sold at the YMCA Thrift Stores or donated to various charities. Also, certain household items unique to student move-in are warehoused and then sold to inbound students in the fall to set up their dorm rooms. This year's program yielded a total of 15,228 lbs. (7.61 tons) of donated items. Our collective goal is to continue and expand this successful program in years to come. (See Appendix 3)

## **Outdoor Recycling at Sporting & Special Events**

The Recycling Department was proactive in supporting RU sporting events at the Dedmon Center, Cupp Stadium, and alternate athletic sites. Recycling opportunities were offered at various sporting events including, Basketball, Track & Field, Tennis, Baseball, Hardball, and Soccer. Specific events included the Dedmon Center Reopening Celebration, VA High School League's Spring Jubilee (hosting high school athletic tournaments), Homecoming, Highlander Fest, and Fall Move-In.

## **Earth Day**

On April 22<sup>nd</sup>, 2009, Radford University recognized "Earth Day". Many departments on campus participated. The recycling and sustainability staff set up various informational tables and provided related information to students and staff. A recycling contest was held and prizes were awarded. A tree was also planted on the Heth lawn in commemoration of this special day. A sustainability-themed movie titled "The 11<sup>th</sup> Hour" was also viewed.

## **Student & Staff Support**

A recycling competition was launched by Residence Director Jessica Abarquez between individual floors in Draper Residence Hall to promote recycling among residents. Both the recyclables and solid waste were weighed daily for one week. Then at the end of the week, the bags for solid waste were consolidated and opened to see how many recyclables were discarded into the solid waste stream. The floor with the highest amount of recycling and waste reduction won the competition. The second floor residents won the competition and were awarded a free pizza party.

On another occasion, the Recycling Department assisted an RU professor; Dr. Judith Guinan with a student behavior study project for class credit, recycling was used as the catalyst to study human behavior in a controlled and uncontrolled environment. The Recycling Department along with Mr. James Blevins from the Housekeeping Department provided guidance and logistical support for this project.

## **Community Support**

Our goal is to continually network and provide recycling guidance and support to local municipalities, businesses, and others, to build solid relationships with other entities with a common goal toward sustainability. This year we provided

guidance and support to various off-campus entities as they started their first recycling operations or looked to enhance existing operations.

### **Labeling and Signage**

The Recycling Department worked closely with the Facilities Management Sign Shop to develop recycling labeling for the new comingled recycling streams and informational recycling wall guides. This new labeling was updated campus wide during the winter break. There are individual recycling containers in certain areas of campus that still need to be updated to the most current recycling streams. Additionally, banners and informational signs were created to provide general guidance and support promotional events. By updating the labeling and signage, staff and students are better informed, taking the guess work out of recycling and directly improving recycling rates.

### **Composting**

In April, Dining Services & Chartwells in coordination with the Recycling Department conducted a pilot composting project in Dalton Hall. Food waste and some paper items that were not otherwise recyclable were diverted from the landfill and sent to a local composting facility. This project not only helped create valuable compost but also reduced harmful methane emissions from the landfill. Another version of the pilot project will be implemented in the Fall of 2009. If this pilot program proves to be successful, the goal will be to expand this operation to other parts of the campus. In April, Dining Services produced approximately 1,400 lbs. of food waste daily.

### **Logistical Enhancements / Supplies**

Two electric vehicles were utilized to support recycling operations. These vehicles are primarily utilized to pick up and deliver recyclables to staging areas prior to transport to off-campus recycling facilities. These vehicles will run over 20 miles on a single charge for a full day, produce no tailpipe emissions, and have a very minimal impact on energy and the environment when compared to gasoline vehicles.

Recycling supplies were procured this school year to support recycling efforts campus wide. Mobile outdoor recycling receptacles were also available to support various outdoor events. Additional recycling receptacles were made available to support both mixed paper and container recycling throughout campus. Six permanent outdoor waste/recycling receptacles were also placed across campus.

## **Waste Minimization**

A major milestone was accomplished when a redundant influx of campus directories and off-campus phonebooks were highlighted. Collective measures were taken to reduce the number of off-campus phonebooks and eliminate hardcopy campus directories and promote electronic directories to offset financial and environmental impact through waste reduction.

## **Recycling Policy Development**

The Recycling Working Group, a part of the larger Sustainability Steering Committee, developed a Recycling Policy to better clarify and document recycling operations on campus. This was sent to the campus Sustainability Steering Committee for review and was approved. This policy awaits formal approval by the President and the Board of Visitors. (See Appendix 4)

## **Construction Waste / Recycling**

The Recycling Department served as a liaison between designated contractors and various recycling vendors to recycle a large amount of annealed glass and scrap metal removed from a greenhouse renovation project on campus. This coordination resulted in tons of glass and scrap metal being recycled that would have otherwise been sent forward to local landfills.

## **Recycling Shredded Paper Products**

With the increased awareness across campus, there has been better tracking and reporting of recycled materials. The Recycling Department canvassed off-campus vendors that provide shredding services to campus departments to obtain recycling credit. By canvassing these vendors, this credit was documented and uploaded to the newly developed recycling tracker.

## **Future Plans**

A number of first time initiatives have occurred this past academic year, the coming years will focus on improving on those successes and creating additional initiatives. Initiatives and opportunities will continue to evolve as increased awareness contributes to the amount of materials recycled and as the recycling market provides additional recycling streams. Some of the future initiatives being considered:

- Expand from recycling only plastics resin codes #1 and #2 to plastics #1 through #7.



- Coordinate and support contractors to recycle construction materials and debris during demolition, renovations, and new building construction.
- Launching a program to recycle cell phones on campus. Support the sustainability-themed residence halls. The Residential Life Department has designated the 2<sup>nd</sup> and 3<sup>rd</sup> floors in Draper Hall and the 2<sup>nd</sup> floor in Peery Hall as sustainability-themed floors. These sites will be referred to as the “RU Greenhouses”. The goals are to possibly expand recycling opportunities, offer environmentally-preferred housekeeping supplies, and include other sustainability programs on these floors. These halls will try new products or processes and then be evaluated for possible expansion campus wide.
- Installing a pulping system to reduce the amount of water being transported to compost and/or landfill stations.
- Bulk housekeeping products:
  - Evaluate roll paper towel products to reduce the amount of paper being used (Tri-fold or Bi-fold)
  - Installing bulk cleaning solution dilution control centers to reduce the amount of individual containers being used
- Start CD / DVD recycling as a pilot project in the sustainability-themed RU Greenhouse residence hall floors.
- Continue to canvass recycling vendors to enhance the RU recycling program and offset operational expenses.
- Increase recycling visibility by improving advertisements and photo archives on the recycling website.
- Continue to solicit student involvement and maintaining an on-going volunteer list.

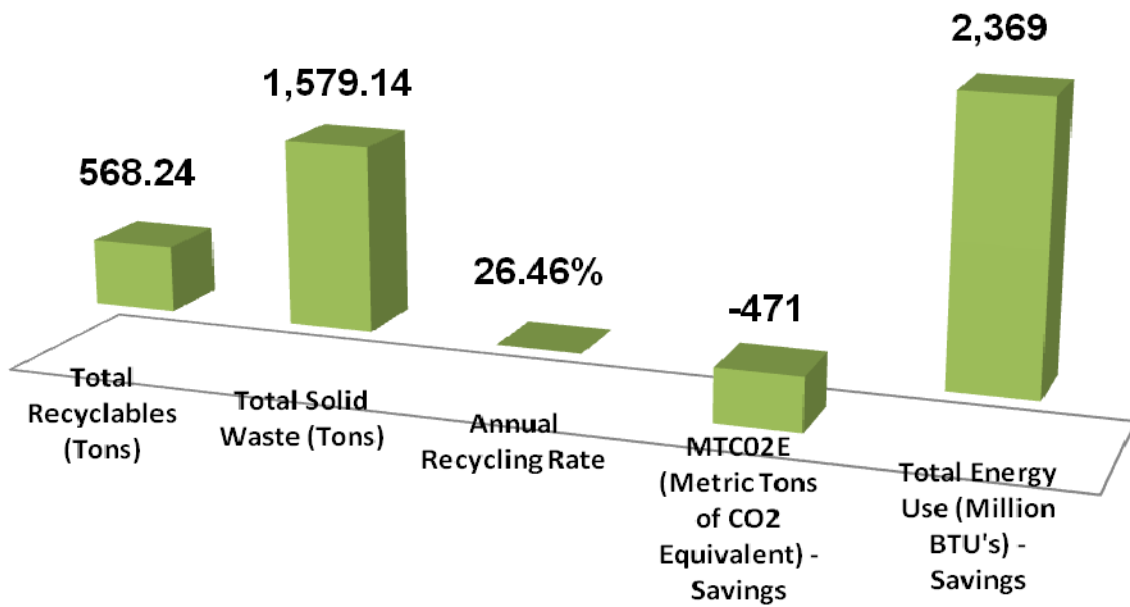
### **Closing Remarks**

This year the recycling staff attended various conferences and workshops. We subscribed to several recycling organizations in a concerted effort to network and continually find and exploit new and better recycling processes. Our overall goals are to reduce the amount of waste going to the landfill, increase the amount of materials recycled, reduce our campus carbon footprint and make Radford University the most sustainable campus in the Commonwealth.

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## Appendix 1

### 2008 - 2009 Recycling Annual Report Card



*Note: Figures reflected in categories above for "MTCO2E & Total Energy Used" are based only on RU's three main recycling categories; Containers, Mixed Paper, Corrugated Cardboard. The other categories reflect the total combined recycling categories for RU.*

Appendix 1 continued:

# Radford University Annual Recycling Rate

# 26.46%



Fiscal Year 2009 (Category Weights in lbs.) 1 Jul 08 - 30 Jun 09	Total
Cans/Glass/Plastic	21,340
Mixed Paper	137,820
Cardboard	148,820
Composting	4,660
Scrap Metal	102,752
Electronic Waste	10,000
Toner Cartridges	1,836
Fixer	500
Used Motor Oil	7,150
Used Antifreeze	1,190
Used Kitchen Grease	58,400
Auto & Misc Batteries	0
Tires-Small	1,560
Tires-Medium	2,580
Tires-Large	1,600
Fluorescent Lights/Ballasts	6,297
Pallets	12,774
Construction Material (Reused)	540,000
Yard Waste (Reused)	61,980
Y-TOSS (Items donated at move-out)	15,228
<b>Total Overall Recyclables (lbs.)</b>	<b>1,136,487</b>
<b>Total Overall Solid Waste (lbs.)</b>	<b>3,158,270</b>

Appendix 1 continued:

**Radford University Archived  
Recycling Rates - CY (Jan -  
Dec)**

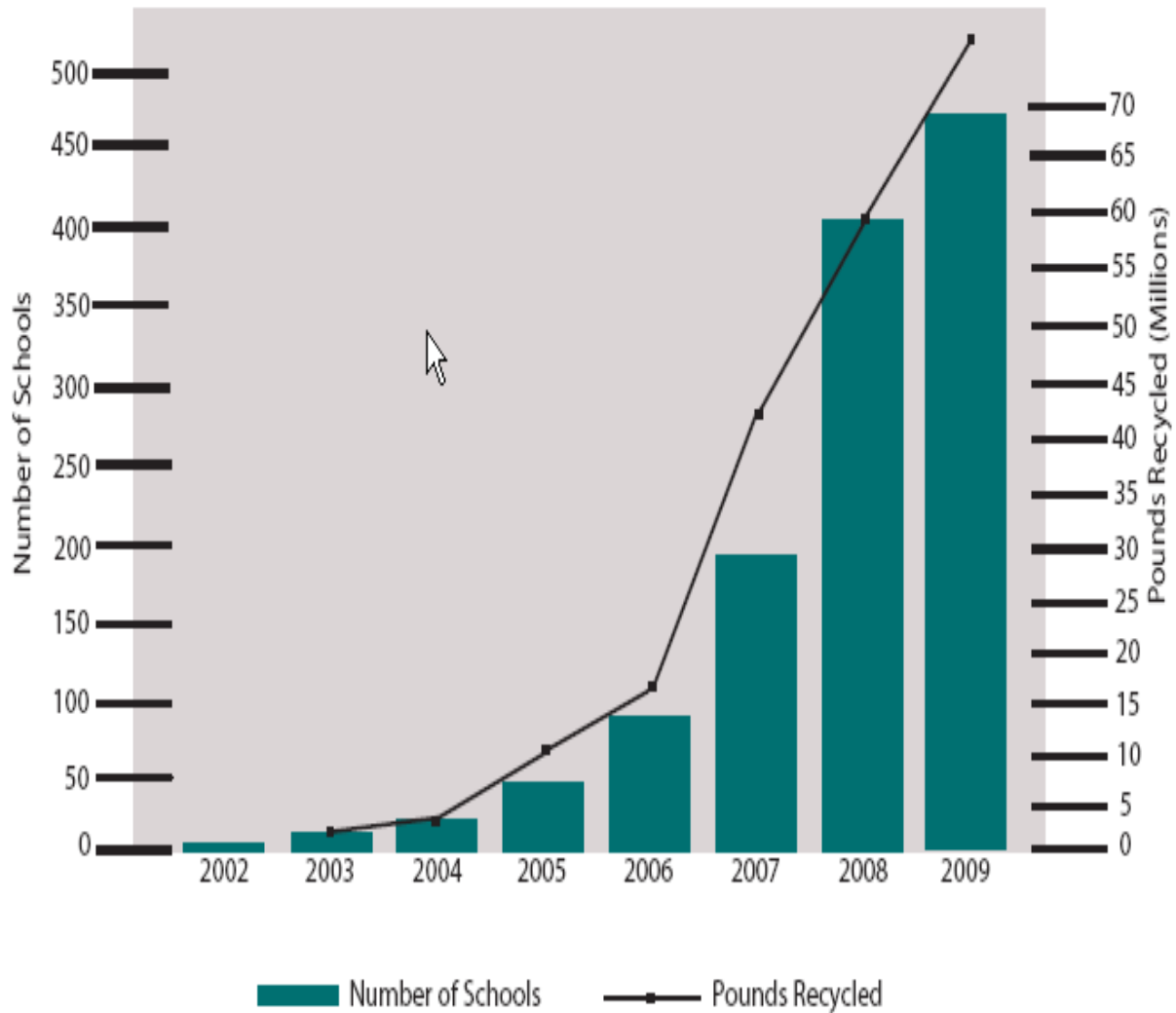


Year	Solid Waste (lbs.)	Recyclables (lbs.)	Recycling Rate
1992	2,598,000	452,000	14.80%
1993	2,454,000	588,000	19.30%
1994	2,650,000	770,000	22.50%
1995	2,676,000	626,000	19.00%
1996	2,780,000	438,000	13.60%
1997	2,708,000	522,000	16.20%
1998	2,780,000	474,000	14.60%
1999	3,176,000	382,000	10.70%
2000	2,277,484	265,701	10.50%
2001	2,257,834	231,365	9.30%
2002	2,493,957	274,597	9.90%
2003	2,668,080	126,052	6.00%
2004	2,932,220	206,351	7.90%
2005	3,252,040	247,980	7.00%
2006	3,489,440	368,149	9.50%
2007	3,260,444	569,281	14.90%
2008	3,143,610	1,185,328	27.38%
<b>Total</b>	<b>47,597,109</b>	<b>7,726,804</b>	

*Note: The recycling rate chart reflected above displays annual figures based on the calendar year (1 Jan – 30 Dec) period. All future recycling rate charts after 2008 are reflected based on the fiscal year (1 Jul – 30 Jun) period.*

## Appendix 2

### Recyclemania 2009 – Final Results



RU's cumulative recycling rate: 11.62%

- Recyclemania Competition

**Grand Champion, Per Capita Classic,  
Waste Minimization Competitions and Gorilla Prize**

Results shown are in *US Pounds*.

Week	Grand Champion		Per Capita Classic		Waste Minimization		Gorilla Prize	
	Weekly recycling rate (%)		lbs/ person		lbs/ person		lbs	
	2009	2008	2009	2008	2009	2008	2009	2008
<b>1</b>	10.31%		0.75		7.29		7,630.00	
<b>2</b>	10.37%		0.82		7.95		8,360.00	
<b>3</b>	9.99%		0.76		7.64		7,740.00	
<b>4</b>	9.04%		0.75		8.29		7,600.00	
<b>5</b>	12.90%		0.85		6.60		8,640.00	
<b>6</b>	9.51%		0.84		8.85		8,540.00	
<b>7</b>	18.41%		0.96		5.20		9,720.00	
<b>8</b>	16.35%		0.69		4.19		6,960.00	
<b>9</b>	10.06%		0.83		8.27		8,440.00	
<b>10</b>	11.89%		0.81		6.85		8,260.00	

**Targeted Materials Competitions**

Results shown are in *US Pounds*.

Week	Paper		Corrugated Cardboard		Bottles and Cans		Food Service Organics	
	lbs/ person		lbs/ person		lbs/ person		lbs/ person	
	2009	2008	2009	2008	2009	2008	2009	2008
<b>1</b>	0.44		0.26		0.05		0.00	
<b>2</b>	0.33		0.41		0.08		0.00	
<b>3</b>	0.28		0.40		0.08		0.00	
<b>4</b>	0.16		0.48		0.11		0.00	
<b>5</b>	0.33		0.41		0.11		0.00	
<b>6</b>	0.32		0.35		0.17		0.00	
<b>7</b>	0.32		0.47		0.17		0.00	
<b>8</b>	0.24		0.33		0.12		0.00	
<b>9</b>	0.36		0.36		0.12		0.00	
<b>10</b>	0.34		0.39		0.08		0.00	

## Appendix 3 Y-TOSS 2009



<b>2009 Y-TOSS Recycling Weight Estimates</b>		
<b>Item Description</b>	<b>Qty</b>	<b>Total Weight (lbs.)</b>
9' x 14' Rug	24	787
5' x 7' Rug	36	328
Area Rug	10	844
Foam Pad/Mattress - Twin Bed	20	1,100
Futon Mattress	2	110
Large Sofa	3	600
Full Study Desks	3	693
Sofa Chairs	4	500
Desk Chairs	4	127
Hutch	7	707
TV Stand	12	540
Wood/Metal Shelves (3 tier)	19	1,093
Plastic Storage Bins	21	210
Lamps	5	55
Microwave	3	150
Vacuum	8	168
TV	5	415
Refrigerator - Tall	5	180
Refrigerator - Short	5	280
Fan (Box and Circular)	13	182
Mirror	5	75
Ironing Board	5	75
TV Tray	3	15
Waste Can	27	54
Box - Small House Wares	1	135
Box - Clothes (Usable)	14	1,890
Box - Clothes (Textiles)	12	1,620
Box - Shoes/Purses	2	270
Box - Misc	15	2,025
<b>Total Qty</b>	<b>293</b>	<b>15,228 (7.61 Tons)</b>

## **Appendix 4**

### **Recycling Policy**

#### **I. Purpose**

Radford University recognizes its role as a leader in the community with regard to environmental policies and promotes responsible stewardship of the environmental resources under its influence. The overall purpose of this recycling policy is to set forth standards and organizational processes aimed at waste minimization, recycling, and the diversion of recyclable materials from landfills.

#### **Objectives**

1. Reduce waste at the source (Waste Minimization).
2. Encourage the purchase and use of environmentally friendly products.
3. Encourage the purchase of high post-consumer content recycled products.
4. Increase the total volume of waste materials diverted from landfills to recycling processes.
5. Ensure long term viability of campus recycling operations through coordination and managerial oversight.
6. Promote recycling practices and procedures throughout the campus community.
7. Comply with Federal and State mandates in recycling processes.

#### **II. Definitions**

Waste minimization- to reduce the amount of waste generated

Recycling streams- sorted recyclable materials

Life-cycle cost- cost of a system or product over the entire lifespan

#### **III. Policy**

All departments that generate waste at Radford University should make waste minimization and recycling a top priority and an integral component of their daily operations. Each department shall consider the life-cycle costs and environmental aspects associated with purchases and are encouraged to purchase items with recycled content and minimal wastes and packaging as appropriate. Every employee and student has the responsibility to exercise



these behaviors, making Radford University a more sustainable campus and helping to reduce our carbon footprint.

#### **IV. Procedures**

Every student, employee and department shall recycle materials as current recycling streams allow. Radford University recycling operations cover three main and various alternate recycling streams:

- Main Recycling Streams:
  - o Mixed Paper
  - o Containers (Cans/Plastic/Glass)
  - o Cardboard
  
- Alternate Recycling Streams (include but are not limited to):
  - o Motor Oil
  - o Antifreeze
  - o Kitchen Grease
  - o Tires
  - o Batteries
  - o Toner Cartridges
  - o Scrap Metal
  - o Reusable Construction Waste
  - o Pallets
  - o Electronic Waste

A detailed description and procedural guidance for current recyclables may be located on the Radford University Recycling Website.

#### **Scavenging**

Separated recyclables, once deposited in official University containers, remain the property of the University. Therefore, scavenging is considered theft and is prohibited and punishable in accordance with established University policies and/or applicable laws.

#### **Dumping**

Dumping, by individuals or organizations, of waste not generated as a result of official University activities conducted on University property is prohibited in accordance with established University policies and/or applicable laws.

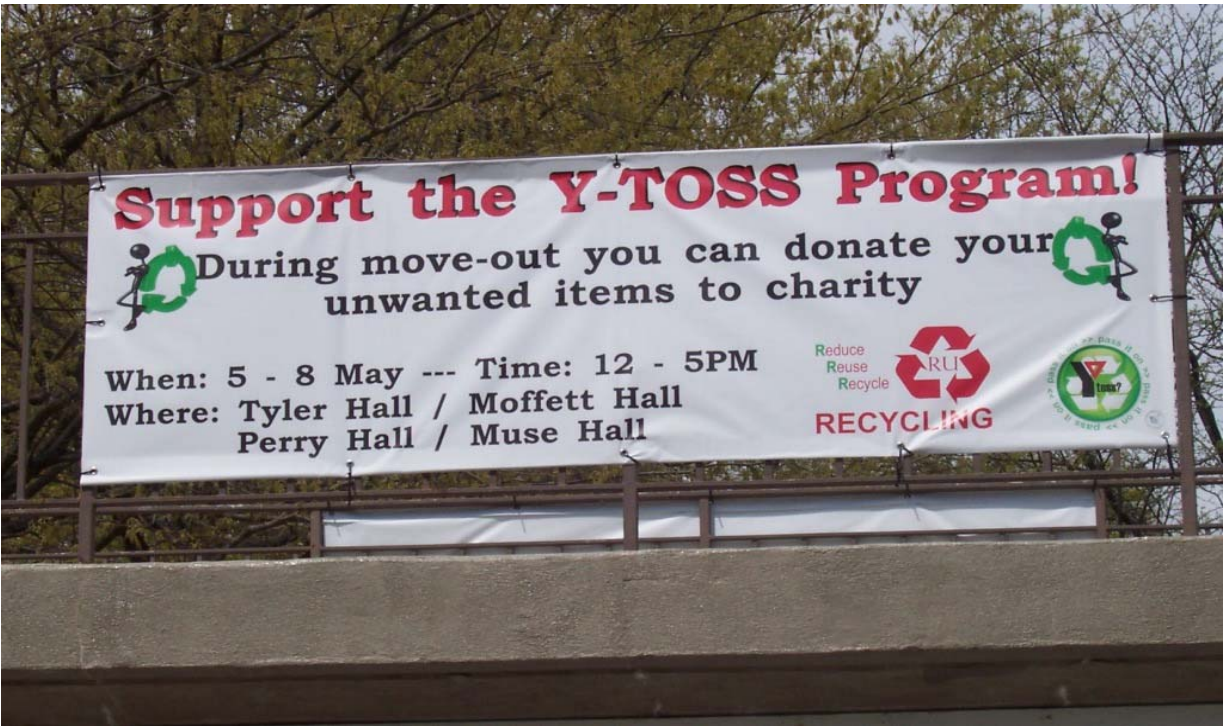
## **Waste Minimization**

Waste minimization helps to protect the environment and makes good economic sense. Waste minimization saves University funds by avoiding labor and disposal costs, creates safer working conditions for employees, and protects our health and the environment.

Appendix 5  
Photo Album  
Recyclemania 2009



# Y-TOSS 2009



## Y-TOSS 2009 continued



# 1<sup>st</sup> Composting Pilot Project – Dalton Dining Center



## Composting Pilot continued



## Composting Pilot continued:





# Earth Day 2009



## Earth Day continued:



## REDUCE (Waste Minimization)



## REUSE (Reusing Products on Campus)



## **RECYCLE** (Taking Advantage of Recycling Opportunities)

