

# THE COLLEGE OF CHARLESTON

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## Recycling Manual



**Committee on Recycling and Environmental Responsibility**

THE COLLEGE OF CHARLESTON

# **Recycling Manual**

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April 2005

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## 1. Introduction

The definition of recycling, as per South Carolina Department of Health and Environmental Control Office of Solid Waste and Recycling, is “the collection, separation, processing and marketing of materials so they can be made into new products.”<sup>1</sup> Recycling is an important step towards waste reduction and improvement of the larger ecology. Recycling is a socially responsible way to help decrease dependence on raw materials by redistributing products that would normally end up in landfills.

For detailed information about recycling trends on the national front as well as on the college and university level, refer to thesis.<sup>2</sup>

### 1.1 Recycling in South Carolina

Organized recycling is fairly new to South Carolina, as the first State legislation to include recycling did not occur until 1991. Even so, *Bicycle* ranks South Carolina among the top 15 states in the nation in its January 2004 issue. The recycling rate for the state in 2003 was 28.79%.<sup>3</sup> This means that of all the total amount of the trash that is disposed of in South Carolina, about 29% was recycled.

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1 South Carolina Department of Health and Environmental Control's Office of Solid Waste Reduction and Recycling. "State Agencies/Colleges and Universities Waste Reduction, Recycling and Buy Recycled: Fiscal Year 2003 Annual Report." Prepared for the Governor and Members of the South Carolina State Legislature (2003).

2 Falkowski, Sarah. "Recycling Best Management Practices for College Campuses: The College of Charleston Recycling Manual." 2005.

3 South Carolina Department of Health and Environmental Control's Office of Solid Waste Reduction and Recycling. For Your Information: Economic and Environmental Benefits of Recycling 2004.

### **1.1.1 South Carolina Solid Waste Policy and Management Act of 1991**

The South Carolina Solid Waste Policy and Management Act of 1991 established a goal of 25% for recycled goods for all South Carolina businesses. A 30% reduction in landfill and incinerator waste disposal was also part of the legislation. These goals were created from baseline data from Fiscal Year 1993 and were to be reached by Fiscal Year 1997.<sup>4</sup> The Act requires local governments to track and report all solid waste.<sup>5</sup> The State of South Carolina reached these targets in the allotted time period<sup>6</sup> through overall waste reduction and recycling. Meeting these goals was made possible by the Office of Solid Waste Reduction and Recycling at the South Carolina Department of Health and Environmental Control (DHEC), which was also created as part of the 1991 Act. “The Office provides technical assistance, education and outreach programs as well as grant funding for solid waste management issues to local governments, schools, and colleges and universities”.<sup>7</sup>

An amendment to the above Act was passed in October 2000. The rates of recycling goals had been increased to 35% and the generation of municipal solid waste was reduced to a maximum of 3.5 pounds per person per day. This new set of goals was to be reached by

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4 South Carolina Department of Health and Environmental Control’s Office of Solid Waste Reduction and Recycling. South Carolina Recycles: A Newsletter for Recycling Coordinators 2.1 (2002).

5 South Carolina Department of Health and Environmental Control’s Office of Solid Waste Reduction and Recycling. “State Agencies/Colleges and Universities Waste Reduction, Recycling and Buy Recycled: Fiscal Year 2002 Annual Report.” Prepared for the Governor and Members of the South Carolina State Legislature (2002).

6 South Carolina Department of Health and Environmental Control’s Office of Solid Waste Reduction and Recycling. For Your Information: Recycling 102 2004.

7 South Carolina Department of Health and Environmental Control’s Office of Solid Waste Reduction and Recycling. “State Agencies/Colleges and Universities Waste Reduction, Recycling and Buy Recycled: Fiscal Year 2003 Annual Report.” Prepared for the Governor and Members of the South Carolina State Legislature (2003).

2005.<sup>8</sup> At the same time, the United States Environmental Protection Agency (EPA) established a similar goal of 35% recycled and 4.3 pounds per person per day by 2005.<sup>9</sup>

The amendment added colleges and universities to the list of mandated entities under this Act. These institutions are now required by law to track waste reduction, recycling, and recycled product purchases. The figures must be reported to DHEC by September 15 of each year, so that a comprehensive report can be compiled and submitted to the state Governor by November 1 of each year.<sup>10</sup> See Figure 1.1.1 for the Reporting Form. The report, called “State Agencies/College and Universities Recycling, Waste Reduction and Buy Recycled Annual Report,” provides a method of measurement and comparison among South Carolina higher-education institutions.

Figure 1.1.1. DHEC Reporting Form for SC Colleges and Universities.<sup>11</sup>

8 South Carolina Department of Health and Environmental Control’s Office of Solid Waste Reduction and Recycling. South Carolina Recycles: A Newsletter for Recycling Coordinators 2.1 (2002).

9 South Carolina Department of Health and Environmental Control’s Office of Solid Waste Reduction and Recycling. For Your Information: Economic and Environmental Benefits of Recycling 2004.

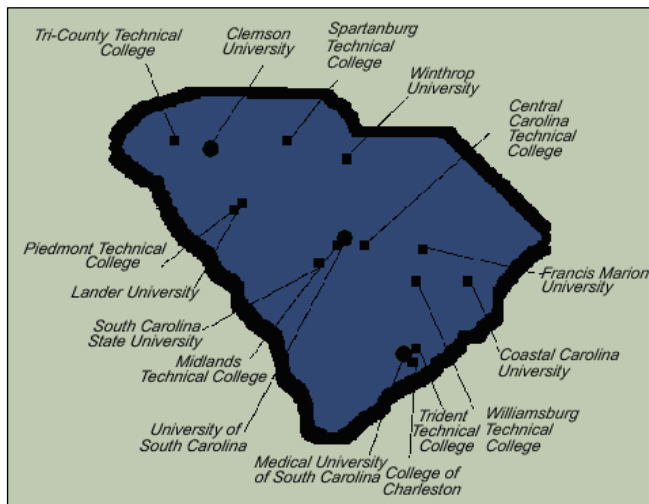
10 South Carolina Department of Health and Environmental Control’s Office of Solid Waste Reduction and Recycling. “State Agencies/Colleges and Universities Waste Reduction, Recycling and Buy Recycled: Fiscal Year 2003 Annual Report.” Prepared for the Governor and Members of the South Carolina State Legislature (2003).

11 South Carolina Department of Health and Environmental Control’s Office of Solid Waste Reduction and Recycling. “State Agencies/Colleges and Universities Waste Reduction, Recycling and Buy Recycled: Fiscal

### 1.1.2 South Carolina Programs and Results

Originating in 1998 from a partnership of Clemson University (Clemson), the Medical University of South Carolina (MUSC), and the University of South Carolina, the Sustainable Universities Initiative (SUI) focuses on “leading the way toward a more sustainable future through teaching, research, community service and facilities management.”<sup>12</sup> In 2000, the South Carolina General Assembly allotted funding for expansion of the program to other state-supported higher education institutions. Currently, thirteen schools are part of SUI. See Figure 1.1.2 for a map of these colleges and universities. This program is a network of faculty, staff, and students statewide, who work to integrate environmental considerations into their institutions. Recycling is one way to participate.

The South Carolina Resource Conservation Challenge, a spin-off of the EPA’s program by the same name, encourages all state agencies, colleges and universities, schools and school districts to reduce waste and conserve energy. Included in this program are tips



on starting, improving, and implementing recycling and waste reduction programs, as well as sustainable development and energy conservation. Winthrop University (Winthrop), among others, is part of a State Agency Task Force designed to help carry-out the mission of the program.<sup>1</sup>

Figure 1.1.2. Map of South Carolina colleges and universities

participating in the Sustainable Universities Initiative.<sup>13</sup>

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Year 2004 Annual Report.” Prepared for the Governor and Members of the South Carolina State Legislature (2004).

<sup>12</sup> Buchanan, Kim. “Initiative Description.” 18 Nov. 2002. The Board of Trustees of the University of South Carolina. 14 Jan. 2005. <<http://www.sc.edu/sustainableu/InitiativeDescription.htm>>.

<sup>13</sup> “Initiative Description.” Sustainable Universities Initiative. 14 Jan. 2005. <<http://www.sc.edu/sustainableu/InitiativeDescription.htm>>.

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A workshop in 2003 developed “new and improved ways for state agencies, colleges and universities, schools and school districts to protect the environment and save money” and included many reputable organization such as Clemson, MUSC, and Winthrop.<sup>14</sup>

The *Recycle Guys Awards Program* is a national recognition program, and since 1996, DHEC has “honored top waste reduction and recycling programs, projects, and people in SC for outstanding achievement in a variety of programs.” Programs that provide leadership and education through successful innovative approaches compete for the Awards. Evaluation criteria include growth trends, percentage recycled, and helping other agencies in South Carolina. Past recipients include MUSC, Winthrop, and Clemson, among several others.<sup>15</sup>

### **1.1.2.1 DHEC College and University Annual Reports**

An amendment to the South Carolina Solid Waste Policy and Management Act of 1991 mandate that all colleges and universities in South Carolina record waste management practices and report the data annually. See Figure 1.1.1 for the Reporting Form. In 2002, 28 of 30 colleges and universities in South Carolina returned a completed reporting form. The results indicated that about 7% of purchases came from recycled content. DHEC recommended that education programs should be developed, continued, and expanded to increase awareness about waste reduction.<sup>16</sup>

In 2003, all 30 colleges and universities returned the form. The amount of recycled-content purchases more than doubled to 14.5%. DHEC’s recommendation was the same as in 2002, to continue education programs to increase awareness.<sup>17</sup> While college and

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14 “S.C. Resource Conservation Challenge.” 22 Nov. 2004. South Carolina Department of Health and Environmental Control. 7 Feb. 2005. < <http://www.scdhec.gov/lwm/RCC/index.html>>.

15 South Carolina Department of Health and Environmental Control’s Office of Solid Waste Reduction and Recycling. “State Agencies/Colleges and Universities Waste Reduction, Recycling and Buy Recycled: Fiscal Year 2004 Annual Report.” Prepared for the Governor and Members of the South Carolina State Legislature (2004).

16 South Carolina Department of Health and Environmental Control’s Office of Solid Waste Reduction and Recycling. “State Agencies/Colleges and Universities Waste Reduction, Recycling and Buy Recycled: Fiscal Year 2002 Annual Report.” Prepared for the Governor and Members of the South Carolina State Legislature (2002).

17 South Carolina Department of Health and Environmental Control’s Office of Solid Waste Reduction and Recycling. “State Agencies/Colleges and Universities Waste Reduction, Recycling and Buy Recycled: Fiscal

university recycling percentages were not available at this time, the state recycling percentage was about 29%.<sup>18</sup> This equates to 1.75 recycled pounds per person per day. The national average for 2003, according to the EPA, was 1.3 recycled pounds per person per day.<sup>19</sup>

Every college and university in South Carolina (all 30) returned the reporting forms in 2004. Recycled purchases dropped to about 10% (from 14.5%). DHEC published the following recommendations: 1. “Develop, continue, and expand education programs to increase awareness and to encourage waste reduction and cost saving practices.” 2. “State agencies, colleges and universities together with the South Carolina Budget and Control Boards State Building and Property Services and the Office [of Solid Waste Reduction and Recycling] should work to ensure the wording in the real estate lease agreements to include: recycling collection, storage of recovered materials until pick-up, and credit of waste reduction.” 3. “State government needs to buy recycled... More recycled content and environmentally friendly contracts need to be offered.”<sup>20</sup>

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Year 2003 Annual Report.” Prepared for the Governor and Members of the South Carolina State Legislature (2003).

18 South Carolina Department of Health and Environmental Control’s Office of Solid Waste Reduction and Recycling. For Your Information: Recycling 102 2004.

19 South Carolina Department of Health and Environmental Control’s Office of Solid Waste Reduction and Recycling. For Your Information: Recycling 102 2004.

20 South Carolina Department of Health and Environmental Control’s Office of Solid Waste Reduction and Recycling. “State Agencies/Colleges and Universities Waste Reduction, Recycling and Buy Recycled: Fiscal Year 2004 Annual Report.” Prepared for the Governor and Members of the South Carolina State Legislature (2004).

## 2. College of Charleston

*Below is a history of the recycling program at the College, as well as past programs and previous efforts.*

### 2.1 History of Recycling Program

Recycling at the College of Charleston (College) began in 2001, as the result of a request from the President of the College. With pressure from the Faculty Senate, the creation of the “Committee on Recycling and Environmental Responsibility” (Recycling Committee) came into existence to govern the newly-founded recycling program, as well as other campus sustainability projects. The purpose of the Recycling Committee is to *advocate for an effective and responsible recycling program and foster awareness of other environmental issues.*

Researching other programs, keeping up on current recycling policies, and issuing recommendations are tasks of the Committee. Currently, it consists of seven students and sixteen faculty/staff. See Table 2.3.3.1 for current departmental representation. A ten-hours-per-week Graduate Assistant serves as the Recycling Coordinator and serves as a liaison between the Recycling Committee and Physical Plant.

Paper, bottles, cans, and cardboard are collected (separately) in bins in all academic buildings as well as select sites on campus grounds and picked up by a Recycling Crew (consisting of two full-time Physical Plant employees). The Recycling Crew takes the materials to several local centers for redemption weekly. Data from recent waste audits

shows that significant amounts of recyclables have been found in the trash cans in three major academic buildings on campus. See Table 4 for detailed information.

Residence Life has its own Recycling Coordinator, also a ten-hours-per-week Graduate Assistant, who organizes recycling in three residence halls on campus. Aluminum cans, glass, and plastic bottles are commingled, while newspapers are collected separately. Bins are located at a central staging area, next to trash receptacles, on each floor and are picked up by a privately contracted recycling company.

Recycling, or lack thereof, is an issue at the College of Charleston. According to a recent audit at Maybank Hall, 60% of the trash that is thrown into the garbage cans each day is recyclable. Currently, forms to abide state regulations are submitted but cannot be proven as accurate, as recycling information is not tracked.

## **2.2 Waste Audit Results**

Waste audits were performed on three separate occasions at the College of Charleston. They consisted of the collection of trash for a specified period of time and then an inventory of the materials present. Below is a detailed description of each audit and summary data can be found in Table 2.2.

### **2.2.1 Maybank Hall**

Date: April 7, 2003 Auditor: Alliance for Planet Earth
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Trash cans from all three floors of Maybank Hall were collected during one day of classes. The total amount of trash was 192 gallons to start. When separated, there were 14.5 gallons of cans and 58 gallons of bottles (glass and plastic). The result was that just less than 38% of the trash was recyclable. When factoring in the 43.5 gallons of paper recovered from the total amount, the percentage of recyclable trash for one day is slightly over 60%. As a side note, Alliance for Planet Earth also sorted out paper, but there is no record of whether it was clean or useless.

### **2.2.2 Science Center**

Date: Nov. 24, 2003 Auditor: Sarah Falkowski
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Enough trash to fill three cans was collected from all three floors of the Science Center (not including small cans inside of locked labs, but including small cans inside of classrooms) for three days. Each container holds 96 gallons; the total amount of trash surveyed was approximately 288 gallons.

All collected materials were dumped onto a plastic tarp outside of Physicians Auditorium at noon-time, in order to seek campus attention. Volunteers sifted through garbage and removed enough glass and plastic bottles to fill a 50-gallon recycle bin approximately 85% full. This equals about 42.5 gallons. There were enough cans pulled from the garbage to fill a 32-gallon recycle bin about 25%. This equals about 8 gallons.

The amount of collected trash in three containers is 288 gallons. By subtracting 42.5 gallons (bottles) and 8 gallons (cans), 237.5 gallons of trash remain. This means that approximately 17.5% of the entire trash load was recyclable, but not recycled.

### **2.2.3 Education Center**

Date: March 1, 2004 Auditor: Sarah Falkowski
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The same amount of trash was collected from Education Center as Science Center, but all in one day instead of three. This audit resulted in about 10 gallons of cans, 40 gallons of bottles, and 180 gallons of left-over trash. 288 gallons of trash to start minus 10 gallons of cans and 40 gallons of bottles equals out to approximately 17% of the trash as recyclable. Many items were extracted from the pile (58 gallons), such as cardboard, paper, and e-waste (printer cartridges and batteries) that were not included in the total percentage of recyclables, for two reasons. Either the campus does not offer facilities for recycling these products (as in the case of the e-waste), or the materials were badly damaged and no longer able to be recycled (liquid had saturated all of the paper and cardboard to a point of uselessness).

Including those materials as recyclable in the total calculation, 37.5% of what is thrown out as trash in the Education Center was able to be recycled, yet was disposed as trash.

**Table 2.2. Summary data from waste audits.** This data is representative of what is discarded in the trash and recyclable. The Cans and Bottles Percentage Recycled column (C+B % Rec.) calculates the percentage of trash made up by recyclable cans and bottles. When taking into account other recyclables (cardboard, paper, e-waste), the percentage increases, as shown by the Total Percentage Recycled column (Total % Rec.). It is important to note that this is percentage of trash that is recyclable, and was not placed in containers for recycling.

Location	Date	Auditor	Total Trash	Cans	Bottles	C+B % Rec	Other	Total % Rec
May	4/7/03	APE	192 gal	14.5 gal	58 gal	37.76	43.5 gal	60.42
Edu	11/24/03	SF	288 gal	8 gal	42.5 gal	17.53	n/a	17.53
Sci	3/1/04	SF	288 gal	10 gal	40 gal	17.36	58 gal	37.50

**KEY:**

<i>May</i> = Maybank Hall	<i>Edu</i> = Education Center	<i>Sci</i> = Science Center
<i>APE</i> = Alliance for Planet Earth	<i>SF</i> = Sarah Falkowski	<i>C</i> = cans
<i>B</i> = bottles	<i>% Rec</i> = percent recycled	

### 2.3 Bylaws

The following bylaws are a product of the second regular meeting of the Faculty Senate at the College of Charleston for the academic year 2001-2002 (Oct. 2, 2001).

#### 2.3.1 Designation

As a permanent standing committee, the "Committee on Recycling and Environmental Responsibility" which will be designated as a college committee, at the level of the President's Committee on Diversity and Multicultural Issues, as found on page 25, section II, H - 1, the Faculty Administration Manual.

### 2.3.2 Purpose

- To foster awareness of campus environmental issues.
- To advocate for and encourage an effective and responsible recycling program.
- To educate the campus community regarding environmental issues which directly impact our community.
- To create a network wherein the campus community is kept abreast of campus policies on recycling.
- To research current environmental trends and programs - especially with regard to recycling - from which our campus may benefit.
- To assess plans, policies, and programs with regard to campus environmental and recycling issues and to make recommendations to appropriate college offices and officers.

### 2.3.3 Membership

This is an advisory committee with members to be appointed by the President of the College, after consultation with the Recycling Coordinator, the Director of the Masters of Environmental Studies Program, and the Director of the Undergraduate Environmental Studies Minor. Members are supposed to include at least one student selected by Student Government Association, one student selected by Alliance for Planet Earth, one graduate student, and two staff members.

Table 2.3.3.1. Departmental representation of 2004-2005 College of Charleston Recycling Committee.

Students	Faculty	Staff
MES Program Graduate Assistant	Music	Library (2)
MES Program (2)	Hispanic Studies (2)	MES Program
Undergraduate student (2)	Physical Education (2)	Riley Institute
Residence Life Graduate Assistant	Biology	Residence Life
APE representative		Cougar Productions
		Physical Plant
		Career Services
		Administrative Computing
		Office of Student Life
<b>Total = 7</b>	<b>Total = 6</b>	<b>Total = 10</b>

## 2.4 Contacts

The following table contains useful contact information concerning campus recycling.

Table 2.4. Contact Information for the College of Charleston Recycling Committee.

Name	Job Duty	Company	Contact Information
John Foster	Recycling Processing Manager Of Solid Waste and Recycling	Charleston County Solid Waste and Recycling	<a href="mailto:jfoster@charlestoncounty.org">jfoster@charlestoncounty.org</a> Phone: 720-7111 x26
Dede Bishop	Specializes in Community Outreach and Education	Charleston County Solid Waste and Recycling	<a href="mailto:dbishop@charlestoncounty.org">dbishop@charlestoncounty.org</a> Phone: 720-7111 x28
Barbara Neale	Assistant Director Of Recycling Programs	DHEC- Office of Coastal Resource Management	<a href="mailto:nealb@dhec.sc.gov">nealb@dhec.sc.gov</a> Phone: 747-4323 x126
Christine von Kolnitz	Recycling Coordinator	Medical University of South Carolina	<a href="mailto:vonkolnc@musc.edu">vonkolnc@musc.edu</a> Phone: 792-4066
Mark Hane	Manages Recycling Crew	College of Charleston Physical Plant	<a href="mailto:HaneM@cofc.edu">HaneM@cofc.edu</a> Phone: 953-5550
Chris Fisher	Owner and Operator for contracted campus recycling	Fisher Recycling	<a href="mailto:info@fisherrecycling.com">info@fisherrecycling.com</a> Phone: 881-3388
Barbara Gray	Director of Research and Grants	College of Charleston	<a href="mailto:grayb@cofc.edu">grayb@cofc.edu</a> Phone: 953-5885
Carolyn Kapp	Coordinates campus printer cartridge recycling	Rocky Mountain e-Cycle	<a href="mailto:carolyn@rockymountainecycle.com">carolyn@rockymountainecycle.com</a> Phone: 303-404-3947

## 2.5 Bin Maps

The following information was provided by Greg Baccari and Sarah Falkowski during a survey of the campus on February 17, 2004. Recommendations are underlined and boldface.

### 2.5.1 Lightsey Center

#### A. Downstairs:

- 1) Class Room B08: no bins inside or outside in the hall plenty of room → **Suggested that two bins and a trashcan** are supplied outside the classroom
- 2) Room B12: 1 paper bin is present → seems sufficient
- 3) Hallway outside Registrar: 1 paper bin under copier is present → **recommend that two more bins are added**
- 4) Registrar Office Room B17: **To Left:** 1 paper bin and 1 unused desk size present → **need 1 more desk size with proper signage** **To Right:** 2 desk size for paper in office area to the right.
- 5) Room B51 Advising Resources: 1 desk size for paper is present
- 6) Computers in Hall outside Advising: 1 desk size for paper is present
- 7) Career Services Room B61: 1 large paper bin is present → Seems adequate
- 8) B31 Educational Services: 1 bin for paper next to copier
- 9) B52 Advising: 1 for paper 1 for plastic present → **Need 1 more for cans**

**B. Ground Floor:**

- 1) Bookstore: have bins in offices → need at least 6 more bins for cans and bottles and one paper bin for the Cougar Trail Computer
- 2) Procurement Services: 1 paper bin inside front office → possibly 2 blue bins for cans/bottles
- 3) Office of Financial Aide (in trailers): currently have two paper bins in back office near room 187 → would like 2 bins for cans and bottles in break room with proper signage

**C. Second Floor: (no bins at present)**

- 1) Zero bins → recommend at least two bins at front entrance as soon as repairs are completed

**D: Third Floor: (no bins at present)**

- 1) Zero bins → need at least 3 sets: one at stairs, one at elevator/lobby/ and one on backside by room 315

## **2.5.2 Education Center**

**A. Ground Floor:**

- 1) Front Lobby: 1 glass, 1 plastic, and 1 can tall style bin present: (Triple cans full of recycle stuff)
- 2) Left Wing: 2 glass, 1 can, and 1 paper next to vending machines → need signage
- 3) Backside: 2 can, 2 plastic, 1 paper → need signage
- 4) Right Wing: 1 paper 1 can next to vending machine → no bottle/glass can recommend moving one glass bin from left wing and need signage

**B. Second Floor:**

- 1) Lounge Area at center of building: 3 bottle and 2 can present → need one more can and possibly 1 paper and 1 more trash can and needs signage
- 2) **Student Learning Room 216:** 1 paper bin by copier present: → need another bin for other copier
- 3) Hall near stair well: have 1 for cans and a trash can → missing 1 plastic/glass
- 4) Near Language Annex: → need signs for all three
- 5) Far side away from stair wells: Have complete setup with signs → recommend a cardboard depot at this spot
- 6) Office of Media and Technology Main Office: 2 paper bins to the right next to copiers present
- 7) Inside Language Annex: Have 1 paper bin
- 8) Far end next to coke machine: 1 glass/plastic → need 1 bin for cans, a trash can, and all signs

### 2.5.3 Science Center

#### A. First Floor:

- 1) Back side of building outside: have three bins → **add signs and trash can**
- 2) Lobby outside Physicians Auditorium.: have 2 can, 1 bottle, 1 trash → **need 1 more bin and 1 more trashcan and several signs**
- 3) Right Rear Entrance near George Street Observer paper station: 1 paper bin- → **need signs, two bins and one trashcan**
- 4) Front Entrance onto George Street: A+ perfect!!!
- 5) Center Hall: A+ perfect!!!
- 6) Backside of building on Geology side: 2 sets of trash, can, bottle one by elevators and other in hallway → **fix the NASA billboard covering signs**
- 7) Backside of building on Psychology side: 1 blue bin full of trash present → **have room for all 4 in complete setup + signs recommend that 3bins and 1 trash can installed**
- 8) Front Side Physics lecture rooms: no bins present → **room for a setup of 3 bins and signs recommend that we fix it**
- 9) Physics office: 1 paper bin inside door
- 10) Front Side Physics Labs/Pits: All 4 and cardboard station present A+ perfect

#### B. Second Floor: A+++ PERFECT!

#### C. Third Floor:

- 1) Chemistry Side by Bathrooms: All 3 and signs present → A+
- 2) Chemistry Side: 1 paper bin in Chemistry Reading Room
- 3) Hallways: **Need Another set of bins on each hallway on Chemistry side**
- 4) Geology Side: A+ → outside Dr. Beutel's office **Mars Spirit Rover Poster is hiding the signs**

### 2.5.4 Bell Building

#### A. Second Floor:

- 1) Front Lobby: nothing present → **add can and bottle bins**
- 2) Left Wing: 1 can bin at end of hall → **add bottle bin as well**
- 3) Right Wing: nothing present → **add can and bottle bins**

#### B. Third Floor:

- 1) Left Wing: 1 can bin at end of hall → **move to other end of hall and add bottle bin**
- 2) Right Wing: 1 can bin next to vending machine → **add bottle bin as well**

#### C. Fourth Floor:

- 1) Left Wing: nothing present → **add one can and one bottle bin**
- 2) Right Wing: 1 can next to stairs and 1 can by vending → **add bottle bins next to each can bin**

## 2.5.5 Maybank Hall

### A. Ground Floor:

- 1) Front Lobby: 2 can tall style bin present
- 2) Left Wing: 1 bottle bin next to vending machines → need signage and bring can bin down from 3<sup>rd</sup> floor, maybe add trash can to avoid contamination
- 3) Right Wing: 1 can bin next to vending machine → needs signage and a bottle bin, maybe add trash can to avoid contamination

### B. Second Floor:

- 1) Left Wing: 2 can and 1 unmarked bin near stairs → need signage
- 2) Right Wing: 1 bin next to stairs → needs signage and move one can bin over from left wing

### C. Third Floor:

- 1) Left Wing: 2 can and 1 unmarked bin near stairs → need signage and relocate one can bin elsewhere, and replace with a bottle bin
- 2) Right Wing: 2 can next to stairs → needs signage and relocate one can bin elsewhere, and replace with a bottle bin

### 3. Case Studies of Other Campus Recycling Programs

*The following information was derived from case studies of fellow universities in the State of South Carolina included in the thesis<sup>21</sup>. See Table 3.4 for a table of materials recycled at each campus.*

**T**he W-E-C-A-R-E Program (Winthrop Enthusiastically Cares About Recycling for the Environment) was started in 1991, as a pilot program in four campus buildings. The original materials collected were aluminum cans and paper. Receipt of a South Carolina College and University Grant in 1993 financed brochures, posters, and magnets to be distributed to the Winthrop community to get the word out about the program.

#### 3.1 Winthrop University

Winthrop was awarded a 2<sup>nd</sup> place “South Carolina Clean and Beautiful State Award” from Keep America Beautiful in 1996. One year later, recycling containers were purchased with a \$3,500 grant from DHEC. In 1998, \$15,000 from DHEC provided for additional recycling bins and the purchase of a truck for transportation of recyclables around campus. More recognition from Keep America Beautiful and DHEC followed in 1999 with an award for Best Collegiate Recycling Program in South Carolina. That same year, DHEC granted Winthrop \$10,000 towards the purchase of a chipper/shredder for mulching. Winthrop’s program was expanding so rapidly that another dumpster (for shredded paper only) was

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21 Falkowski, Sarah. “Recycling Best Management Practices for College Campuses: The College of Charleston Recycling Manual.” 2005.

purchased, with a \$9,723 grant from DHEC in 2000. The same grant provided funding for 160 old computer monitors to be recycled and allowed for posters and brochures to be updated. In 2001, Winthrop increased its recycling program to include a composting program with a \$9,406 DHEC grant.<sup>22</sup>

Currently, the program collects aluminum cans, office paper, newspaper, magazines, cardboard, and yard waste. Employees of the campus Set-up Department pick-up items from recycling centers strategically located throughout campus buildings. Each floor of the residence halls has its own recycling cart use to transport materials to the drop-off site. Recyclables are taken to the central staging area where the City of Rockville makes weekly pick-ups. There are three dumpsters specifically for cardboard located at the staging center which are also emptied once per week by the City of Rockville.

Winthrop offers a class entitled “Recycling in the Residence Halls” to educate interested campus residents about the program. This “well-rounded campus recycling program”<sup>23</sup> hosts a move-out service where unwanted items are collected and donated to local charities. A program in which single-serve drink containers are collected for recycling also takes place in residence halls. However, glass and plastic bottles are not collected elsewhere on campus.

### **3.2 Medical University of South Carolina**

MUSC’s Recycling Program began in 1991 with the inception of the Aluminum Cans for Burned Children Program (ACBC). Funds from the ACBC were allocated to provide non-medical items essential to recovery of pediatric burn patients at MUSC. In 1992, the Recycling Committee was formed. They discussed what items to recycle, how to do it, and where to take them. The first step the committee took was the purchase of recycling bins for offices. Over the next few years, the recycling rate increased as more items were added to the list of recyclables. Then, in 1994, problems began when some ACBC volunteers left the university and bins were neglected. At the same time, the paper recycling program ceased to progress and stagnated. In 1995, MUSC created a position for a full-time

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22 “Facilities Management.” Winthrop University. 14 Jan. 2005.  
<<http://www.winthrop.edu/facilitymgmt/Recycling/recycling.htm>>.

23 South Carolina Department of Health and Environmental Control’s Office of Solid Waste Reduction and Recycling. South Carolina Recycles: A Newsletter for Recycling Coordinators 2.2 (2002).

Recycling Coordinator and a Recycling Assistant. With the addition of full-time recycling staff, new items were added to the list of recyclables, including: yard waste, paint, newspaper, books, magazines, six-pack rings, Ni-cad batteries, lead-acid batteries, plastic, glass, and steel. Two years later, two more recycling assistants were hired. Throughout the next several years, the recycling program at MUSC was recognized statewide for its innovations. See Table 3.2.1 for specific grants and awards received by MUSC. In 2001 and 2002, staffing was limited due to budget constraints. Currently two full-time and two part-time employees operate the award-winning program.<sup>24</sup>

This program operates under the Office of Sustainability with a mission to “efficiently and cost effectively recycle and develop a comprehensive recycling education program for the students, faculty, and staff of [MUSC]”<sup>25</sup>.

MUSC has reported below the mandated annual recycling percentage each year, despite the awards and recognition for their astounding recycling efforts.

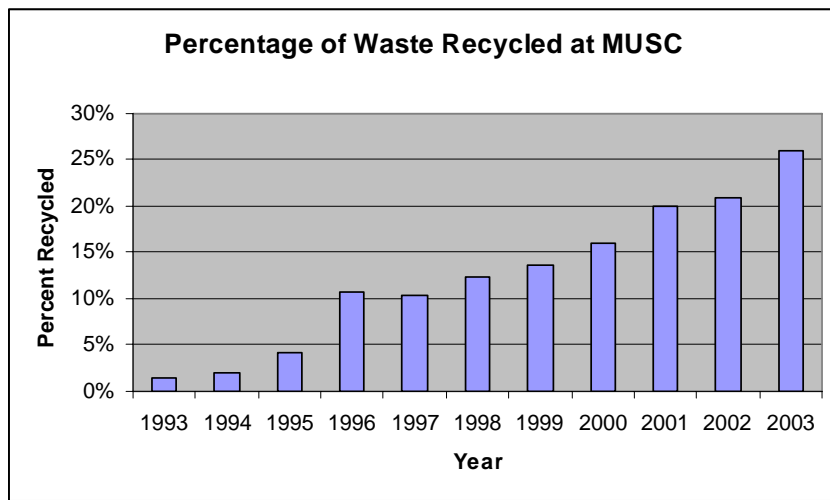


Figure 3.2.2. Recycling percentages as reported by the Medical University of South Carolina.<sup>26</sup> A steady increase over time is apparent.

24 “Finance and Administration Division: Recycling.” 1 July 2004. Medical University of South Carolina. 14 Jan. 2005. <<http://www.musc.edu/recycle/index.html>>.

25 “Finance and Administration Division: Recycling.” 1 July 2004. Medical University of South Carolina. 14 Jan. 2005. <<http://www.musc.edu/recycle/index.html>>.

26 “Finance and Administration Division: Recycling.” 1 July 2004. Medical University of South Carolina. 14 Jan. 2005. <<http://www.musc.edu/recycle/index.html>>.

Table 3.2.1. Grants and Awards for the Medical University of South Carolina.<sup>27</sup>

Year	Grants	Achievements
1996		Best Collegiate Recycling Award (DHEC)
1997	\$25,580 grant (DHEC)	Best Collegiate Recycling Award (DHEC)
1998	\$20,000 grant (DHEC)	Spotlight Award for Excellence in Waste Reduction and Recycling (CRA)
1999	\$15,000 grant (DHEC) \$7,000 demo contract (SEO) \$15,000 grant (SUI)	
2002		Quest for Excellence <a href="#">First Mate Award</a> (MUSC)
2003		Published <a href="#">Recycling and Beyond: A College Campus Primer</a> Featured in <a href="#">EPA Best Practices for Healthcare Facilities Guide on Reuseable Totes, Blue Wrap and Composting</a> Featured in "EPA Colleges and Universities Integrated Strategy"
2004		Co-authored <a href="#">H2E 10 Step Guide to Composting in Healthcare Facilities</a> Rookie Reporter Award (EPA) Honorable Mention Award in College/University Category (EPA)

KEY:

- *DHEC* = South Carolina Department of Health and Environmental Control Office of Waste Reduction and Recycling
- *CRA* = Carolina Recycling Association
- *SEO* = State Energy Office
- *SUI* = Sustainable Universities Initiative
- *MUSC* = Medical University of South Carolina Division of Finance and Administration
- *EPA* = United States Environmental Protection Agency Waste Wise Program

### 3.3 Clemson University

In 1977, Clemson began to voluntarily recycle office paper. The actual Recycling Department formed in 1991, with one full-time position devoted to recycling coordination. The program opened a 5,200 square-foot storage station for its recyclables in 1993. After the program had been up and running for a few years, students worked with the Recycling

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27 "Finance and Administration Division: Recycling." 1 July 2004. Medical University of South Carolina. 14 Jan. 2005. <<http://www.musc.edu/recycle/index.html>>.

South Carolina Department of Health and Environmental Control's Office of Solid Waste Reduction and Recycling. South Carolina Recycles: A Newsletter for Recycling Coordinators 1.1 (2002).

South Carolina Department of Health and Environmental Control's Office of Solid Waste Reduction and Recycling. South Carolina Recycles: A Newsletter for Recycling Coordinators 2.1 (2002).

South Carolina Department of Health and Environmental Control's Office of Solid Waste Reduction and Recycling. South Carolina Recycles: A Newsletter for Recycling Coordinators 2.2 (2002).

Coordinator to create a residence hall recycling program in 1996. While the national average recycling rate was 7% in 1997, Clemson took the initiative to double its own recycling rate from 15% to 30%. To achieve the increase, Clemson expanded its list of collectable items to include used motor oil, batteries, and fluorescent bulbs in 1998. Recycling containers for toner and printer cartridges were also added to the collection list, at a later date.

By the year 2000, the program was really taking off. At this time, there were seventeen employees staffing the recycling program.<sup>28</sup> Composting was introduced into the program, as well as tire recycling, courtesy of a \$6 million grant from DHEC.<sup>29</sup> A \$10,000 DHEC grant in 2001 expanded the recycling program into more residence halls<sup>30</sup> and also helped to purchase a truck to transport recyclables.<sup>31</sup> The innovation paid off with an award in 2001, from Keep America Beautiful and DHEC, for Best College or University Recycling Program.<sup>32</sup>

The current University Recycling program abides by the following mission summary: comprehensive recycling and composting services to the university through convenient centers, public awareness/participation/education programs concerning waste minimization, and diversion of measurable quantities of recyclables from landfills.<sup>33</sup> University Recycling submits an annual review of the recycling program to the Clemson University Environmental Committee outlining recycling goals and objectives, new recycling initiatives, education and outreach, and public service connection.<sup>34</sup> Clemson is testing a “Recycling Partners” pilot program in which Recycling and Custodial Departments work together to collect and sort recyclables. The idea is to create a partnership between the two departments

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28 “Clemson University Facilities.” 25 Mar. 2004. Clemson University. 14 Jan. 2005. <<http://facilities.clemson.edu/structure/recycling/recycling.asp>>.

29 Clemson University Facilities Resource Conservation Department. Recycling Matters Fall 2000.

30 Clemson University Facilities Resource Conservation Department. Recycling Matters Spring 2001.

31 Clemson University Facilities Resource Conservation Department. Recycling Matters Fall Move-In 2001.

32 Clemson University Facilities. Recycling Matters June 2002.

33 “Clemson University Facilities.” 25 Mar. 2004. Clemson University. 14 Jan. 2005. <<http://facilities.clemson.edu/structure/recycling/recycling.asp>>.

34 Dillard, Karen, ed. Clemson University Facilities Resource Conservation Department. Recycling Matters Winter 2003.

who each benefit from no longer having to contact one another about coordinating pick-up and overflowing bins.<sup>35</sup>

Clemson reaches out to the campus community by providing education about recycling. During orientation, new employees are encouraged to log-on to the University Recycling webpage to learn about recycling at Clemson.<sup>36</sup> “Recycling 101 Informational Brief” is a 30-min course “designed to inform departments of Clemson University’s commitment to the environment and recycling, to illustrate how Clemson University and community benefit from recycling, and to facilitate departments in customizing recycling services to best suit their needs.”<sup>37</sup>

Resident Assistants serve as Recycling Coordinators for the residence halls. Residents are encouraged to sign-out a bin and empty it at a convenient collection center in the residence hall.<sup>38</sup> Requests for bins elsewhere on campus can be made through the University Recycling webpage.<sup>39</sup>

*Student Move-In* is a program designed to recycle cardboard boxes when students move in to the residence halls. Rolling containers in residence halls are picked up by an outside contractor. During move-in week, 25-30 tons of cardboard were diverted from local landfills and recycled.<sup>40</sup> The *Lighten the Load program* at move-out is a joint effort between University Recycling and Housing Services. Unwanted items (clothing, household items, non-perishable foods, and loft materials) are collected and donated to the Salvation Army, Habitat for Humanity, and Clemson Community Care.<sup>41</sup>

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35 Dillard, Karen, ed. Clemson University Facilities Resource Conservation Department. Recycling Matters Summer 2003.

36 “Clemson University Facilities.” 25 Mar. 2004. Clemson University. 14 Jan. 2005. <<http://facilities.clemson.edu/structure/recycling/recycling.asp>>.

37 Dillard, Karen, ed. Clemson University Facilities Resource Conservation Department. Recycling Matters Winter 2003.

38 Clemson University Facilities Resource Conservation Department. Recycling Matters Fall Move-In 2001.

39 “Clemson University Facilities.” 25 Mar. 2004. Clemson University. 14 Jan. 2005. <<http://facilities.clemson.edu/structure/recycling/recycling.asp>>.

40 Clemson University Facilities Resource Conservation Department. Recycling Matters Fall Move-In 2001.

41 Dillard, Karen, ed. Clemson University Facilities Resource Conservation Department. Recycling Matters Summer 2003.

*Keep Clemson Clean* is an effective program that raises awareness about recycling at home football games by encouraging fans to pick-up. With funding through the Sustainable Universities Initiative, recycling containers for cans and bottles are placed around the stadium. Members of Students for Environmental Action monitor and collect the recyclables after the games.

Creative methods of reusing materials at Clemson include assembling recycled notebooks and recycling greeting cards. Clemson collects cereal box cardboard and binds them into notebook covers. They are sold (via email request from the University Recycling website) during special events like Earth Day and America Recycles Day. See Figure 3.3.1 for picture. Used greeting cards are collected and sent to a center for abused and neglected children where the kids redesign and sell the cards to benefit their own college funds.<sup>42</sup>



Figure 3.3.1. Notebooks made from recycled cereal boxes at Clemson University.<sup>43</sup>

42 “Clemson University Facilities.” 25 Mar. 2004. Clemson University. 14 Jan. 2005. <<http://facilities.clemson.edu/structure/recycling/recycling.asp>>.

43 “Clemson University Facilities.” 25 Mar. 2004. Clemson University. 14 Jan. 2005. <<http://facilities.clemson.edu/structure/recycling/recycling.asp>>.

Table 3.4. List of recyclables collected at each campus. Also included is the year that each recycling program started, whether recycling collection extends off-campus, and if there is a webpage for the recycling program.

Material Recycled	Winthrop	MUSC	Clemson	Charleston
aluminum	X	X	X	X
glass		X	X	X
plastic		X	X	X
office paper	X	X	X	X
cardboard	X	X		
magazines	X	X		
newspaper	X	X		
tires			X	
computers	X			
composting	X			
yard waste	X	X		
paint	X	X		
books		X		
residence halls	X		X	X
campus buildings	X		X	X
six-pack rings		X		
batteries		X	X	
printer cartridges			X	
steel		X	X	
motor oil			X	
fluorescent bulbs		X	X	
orientation programs			X	
outreach programs	X	X	X	
move-in		n/a	X	
inception year	1991	1991	1991	2001
off campus	n/a	n/a	X	
webpage	X	X	X	X

## 4. Best Management Practices and Implementation

*The following is a list of best management practices (BMP's) derived from the thesis<sup>44</sup> research. Information on ways the College can apply these methods to the campus recycling program to increase its effectiveness is also discussed in Section 5.*

### 4.1 Recycling Coordinator Position

**I**t is recommended to increase funding in order to hire a full-time employee to manage recycling efforts across the campus.<sup>45</sup> By creating a new position, no additional responsibilities shall tax any existing employees, and the recycling program can gain much needed vigor. “Programs operating on volunteers or short-term student coordinators only have a low success rate and also provide little security for program longevity and development.”<sup>46</sup> This new role can be accomplished through an establishment of an administrative department’s role with the current Recycling Committee. The coordinator will coordinate multiple routes and pick-up days for the recycling crew, identify markets for

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44 Falkowski, Sarah. “Recycling Best Management Practices for College Campuses: The College of Charleston Recycling Manual.” 2005.

45 Padden, Phillip, Brian Bovard, and Danny Dejavanne. “Obtaining and Installing Outside Recycling Bins Along Major Footpaths at the University of Maryland.” Prepared for the University of Maryland Department of Building and Landscape Services. 2000.

46 von Kolnitz, Christine and Karyn Kaplan. “Recycling and Beyond: A College Campus Primer.” Medical University of South Carolina. 2004.

collected materials, and create waste reduction opportunities.<sup>47</sup> The tracking of recyclables, networking among other recycling programs, hosting committee meetings, promoting educational campaigns, and performing general administrative duties will be part of the responsibility of a full-time Recycling Coordinator.<sup>48</sup> Types of data that should be tracked include: revenue generated from recyclables, savings from reuse programs, use of volunteers and academic interns, cost avoidance from less trash disposal, and revenue earned from recycling redemption.<sup>49</sup> Copies of all receipts will be necessary to track this information.

An alternative to this recommendation is to hire an outside contractor. As von Kolnitz and Kaplan<sup>50</sup> report, this “could be just what is needed to convince the administration to institute a campus recycling program.” Even if redemption funds are not earned from recyclables, as is the case with private contacting, there is still a savings from not having to pay landfill tipping fees on trash that is taken away.

## 4.2 Outreach and Training

Outreach and education are useful ways to get a message across campus, as “implementation comes from education.”<sup>51</sup> Recycling-awareness programs can be used to create new behavior patterns or enforce old recycling habits.<sup>52</sup> Utilize student government to the advantage of the Recycling Committee, as they have a powerful connection to upper administration as well as the student body to help send the right message about recycling.

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47 von Kolnitz, Christine and Karyn Kaplan. “Recycling and Beyond: A College Campus Primer.” Medical University of South Carolina. 2004.

48 von Kolnitz, Christine and Karyn Kaplan. “Recycling and Beyond: A College Campus Primer.” Medical University of South Carolina. 2004.

49 Lounsbury, Michael. “Institutional Sources of Practice Variation: Staffing College and University Recycling Programs.” *Administrative Science Quarterly* Mar. 2001.

von Kolnitz, Christine and Karyn Kaplan. “Recycling and Beyond: A College Campus Primer.” Medical University of South Carolina. 2004.

50 von Kolnitz, Christine and Karyn Kaplan. “Recycling and Beyond: A College Campus Primer.” Medical University of South Carolina. 2004.

51 von Kolnitz, Christine and Karyn Kaplan. “Recycling and Beyond: A College Campus Primer.” Medical University of South Carolina. 2004.

52 Heming, Julia. “Recycling Program Hinges on U. Michigan Students.” *U-WIRE:Michigan Daily* 17 Sept. 2004.

By improving current educational practices and providing on-going outreach.<sup>53</sup> By improving current educational practices and providing on-going outreach<sup>54</sup> and training, the recycling program can begin to perform as desired. One way to educate is to start with new students and employees. Providing an informational session during orientation<sup>55</sup> about how the campus recycling operates is a great way to make sure the newest members of the college community get started on the right track. Handing out free recycle bins and/or refillable mugs<sup>56</sup> at the orientation is another way to recognize the importance of recycling on campus. Resident assistants can be trained to teach their residents how to recycle properly and educate them on campus recycling practices<sup>57</sup>. Training faculty that is already part of the campus is also important to waste management and recycling<sup>58</sup>. Attaching pertinent recycling information to pay stubs<sup>59</sup> is one way of reaching out to the college faculty and staff, and work-study students, too. Placing an advertisement in the campus directory makes the program logistics easily accessible to students, faculty, and staff.

Building a positive reputation about recycling is a by-product of educational outreach. Once a logo and catchy phrase is established for a recycling program, each should appear on everything associated with recycling on campus. It helps to associate the recycling program to the physical act of recycling. It also acts as a reminder to recycle on (and off) campus. One suggestion is to affix magnetic signage on all campus recycling vehicles.<sup>60</sup>

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53 von Kolnitz, Christine and Karyn Kaplan. "Recycling and Beyond: A College Campus Primer." Medical University of South Carolina. 2004.

54 Mason, I.G., A. Overender, and A.K. Brooking. "Source Separation and Potential Re-use of Resource Residuals at a University Campus." *Resources, Conservation and Recycling* 40 (2004): 155-172.

55 von Kolnitz, Christine and Karyn Kaplan. "Recycling and Beyond: A College Campus Primer." Medical University of South Carolina. 2004.

56 von Kolnitz, Christine and Karyn Kaplan. "Recycling and Beyond: A College Campus Primer." Medical University of South Carolina. 2004.

57 Block, Ben. "U. Maryland Campus Recycling Short of State Standards." *U-WIRE: The Diamondback* 23 Nov. 2004.

58 de Vega, Carolina Armijo, Sara Ojeda-Benitz, and Elizabeth Ramirex-Barreto. "Mexican Educational Institutions and Waste Management Programmes: A University Case Study." *Resources, Conservation and Recycling* 39 (2003): 283-296.

59 von Kolnitz, Christine and Karyn Kaplan. "Recycling and Beyond: A College Campus Primer." Medical University of South Carolina. 2004.

60 von Kolnitz, Christine and Karyn Kaplan. "Recycling and Beyond: A College Campus Primer." Medical University of South Carolina. 2004.

### 4.3 Participation

Getting students to participate and volunteer<sup>61</sup> is both a good source of labor and a way to reach-out to the student body. Tasks such as waste audits require a lot of participation for a short period of time. Encouraging students to take part in small projects about recycling and waste reduction activities,<sup>62</sup> either through classes, jobs, or on their own will help contribute to the ultimate goal of recycling on campus. The Recycling Committee could design waste reduction activities for specific courses and encourage faculty to implement them as part of their requirements.<sup>63</sup> Some programs even encourage students to visit recycling centers and municipal landfills<sup>64</sup> in order to bring the message of waste reduction and recycling into the big picture. Involvement of environmental student groups on campus can be a huge asset to a recycling program. Recognizing valiant recycling efforts through an awards program can boost the morale of the campus and encourage friendly competition among students and/or faculty.

### 4.4 Logistics of Recycling

One of the biggest logistical rules of recycling is to be sure a recycle bin is always located next to a trash container.<sup>65</sup> If this is not feasible, it will work to attach signs on every trash can with directions to the nearest recycle bin.<sup>66</sup> The key to the most effective recycling

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61 "Facilities Management." Winthrop University. 14 Jan. 2005.  
<<http://www.winthrop.edu/facilitymgmt/Recycling/recycling.htm>>.

62 de Vega, Carolina Armijo, Sara Ojeda-Benitz, and Elizabeth Ramirex-Barreto. "Mexican Educational Institutions and Waste Management Programmes: A University Case Study." *Resources, Conservation and Recycling* 39 (2003): 283-296.

63 de Vega, Carolina Armijo, Sara Ojeda-Benitz, and Elizabeth Ramirex-Barreto. "Mexican Educational Institutions and Waste Management Programmes: A University Case Study." *Resources, Conservation and Recycling* 39 (2003): 283-296.

64 de Vega, Carolina Armijo, Sara Ojeda-Benitz, and Elizabeth Ramirex-Barreto. "Mexican Educational Institutions and Waste Management Programmes: A University Case Study." *Resources, Conservation and Recycling* 39 (2003): 283-296.

65 von Kolnitz, Christine and Karyn Kaplan. "Recycling and Beyond: A College Campus Primer." Medical University of South Carolina. 2004.

66 Block, Ben. "U. Maryland Campus Recycling Short of State Standards." *U-WIRE: The Diamondback* 23 Nov. 2004.

programs is a minimal effort recycling.<sup>67</sup> By making recycling simple, people are more encouraged to participate.

It is ideal to generate revenue from everything collected. Even if there is not a market for a particular item that has been collected, it is important to remember that there is an avoided disposal cost, which, according to LaFleur,<sup>68</sup> is an important element in gauging recycling success.

Whether to separate recyclables in bins or to collect them commingled and separate later is an important question. The optimal method is to provide separate bins for different materials to “minimize energy and labor inputs to any downstream sorting processes, reduce health hazards associated with the sorting of mixed refuse, lower recycling costs and provide opportunities for innovation.”<sup>69</sup> According to von Kolnitz and Kaplan<sup>70</sup>, “the better job a team does in preparing non-contaminated clean recyclables for market, the more recycling markets will work to accommodate maximum revenue.” To put it another way, if recycling bins have food or other waste in them, the value of the material is degraded and therefore results in less revenue.

Locating recycling bins at a central site within a building or on campus will keep things more tidy and facilitate pick-up. One idea is to provide education through answers to recycling questions by either staffing the station or supplying brochures for the taking. Illegal dumping and/or contamination can be eliminated by installing a camera (even a decoy) or by having security make rounds through the area.<sup>71</sup> Once recyclables are picked up from the staging area, it is ideal to have a storage warehouse location to allow the pile of materials to reach a point of optimal efficiency in which transportation to a redemption center is the most cost-effective.

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67 Carlson, Ann E. “Recycling Norms.” Stanford/Yale Jr. Faculty Forum Research Paper 00-08. 2000.

68 LaFleur, Carolyn. “Formula for Recycling Success.” BioCycle July 2003: 65+.

69 in Mason, I.G., A. Overender, and A.K. Brooking. “Source Separation and Potential Re-use of Resource Residuals at a University Campus.” Resources, Conservation and Recycling 40 (2004): 155-172.

70 von Kolnitz, Christine and Karyn Kaplan. “Recycling and Beyond: A College Campus Primer.” Medical University of South Carolina. 2004.

71 von Kolnitz, Christine and Karyn Kaplan. “Recycling and Beyond: A College Campus Primer.” Medical University of South Carolina. 2004.

### 4.5 Costs and Savings

Recycling will cost money, in the beginning, but can eventually pay for itself (and even *make* money). It is important to perform cost benefit analyses of collection costs versus benefit from sale.<sup>72</sup> Diversion of a particular material from a landfill is also a savings in terms of tipping fees. By using economic<sup>73</sup> incentives and disincentives to balance the system,<sup>74</sup> the correct choices can be made for the most efficient way to operate the recycling program. Putting some effort into research and development<sup>75</sup> will pay off in the end.

One option that some institutions use is to charge students a “recycling fee”. von Kolnitz and Kramer<sup>76</sup> state that “creating a funding structure that incorporates financial commitment from the administration and students gives the campus community ownership of the process and also provides extra insurance that at any time, the program won’t be eliminated.”

### 4.6 Paper Reduction

Paper is one recyclable material that has many conservation methods. One way to cut back is to provide instructional stickers<sup>77</sup> for every copy machine on campus on how to make double-sided copies.<sup>78</sup> All copiers are able to create back-to-back copies, but many people do not know how to manipulate the machine to do so. Another way to make a sizable difference in the amount of wasted paper is to charge students for printing from lab

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72 von Kolnitz, Christine and Karyn Kaplan. “Recycling and Beyond: A College Campus Primer.” Medical University of South Carolina. 2004.

73 Gaballah, I. and N. Kanari. “Recycling Policy in the European Union.” JOM Nov. 2001: 24-27.

Carlson, Ann E. “Recycling Norms.” Stanford/Yale Jr. Faculty Forum Research Paper 00-08. 2000.

74 Lodge, GC and JF Rayport. “Knee-deep and Rising: America’s Recycling Crisis.” Harvard Business Review. Sept.-Oct. 1991: 128-39.

75 Gaballah, I. and N. Kanari. “Recycling Policy in the European Union.” JOM Nov. 2001: 24-27.

76 von Kolnitz, Christine and Karyn Kaplan. “Recycling and Beyond: A College Campus Primer.” Medical University of South Carolina. 2004.

77 von Kolnitz, Christine and Karyn Kaplan. “Recycling and Beyond: A College Campus Primer.” Medical University of South Carolina. 2004.

78 South Carolina Department of Health and Environmental Control’s Office of Solid Waste Reduction and Recycling. “State Agencies/Colleges and Universities Waste Reduction, Recycling and Buy Recycled: Fiscal Year 2003 Annual Report.” Prepared for the Governor and Members of the South Carolina State Legislature (2003).

computers. This will discourage unnecessary printing.<sup>79</sup> A third reduction method is to use the blank side of used paper for draft copies, such as fax confirmation sheets<sup>80</sup>. Fax labels that can be affixed to the first page of a document instead of using an entire page as a cover sheet also saves a considerable amount of paper.<sup>81</sup> Working with printing departments to ensure waste reduction and recycling is a fourth way to cut back on paper waste on campus.<sup>82</sup> Note pads of waste paper can be created through printing departments at little or no cost.<sup>83</sup> Re-routing magazines and newspapers to a central location for public use instead of individual copies in each office is another effective method for decreasing paper waste.<sup>84</sup>

Along with paper comes toner<sup>85</sup> and printer<sup>86</sup> cartridges. The less paper that is printed, the fewer empty cartridges there will be. Many types of cartridges can be recycled either with in-house kits or sent to a private recycling company.

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79 von Kolnitz, Christine and Karyn Kaplan. "Recycling and Beyond: A College Campus Primer." Medical University of South Carolina. 2004.

80 South Carolina Department of Health and Environmental Control's Office of Solid Waste Reduction and Recycling. "State Agencies/Colleges and Universities Waste Reduction, Recycling and Buy Recycled: Fiscal Year 2003 Annual Report." Prepared for the Governor and Members of the South Carolina State Legislature (2003).

81 South Carolina Department of Health and Environmental Control's Office of Solid Waste Reduction and Recycling. "State Agencies/Colleges and Universities Waste Reduction, Recycling and Buy Recycled: Fiscal Year 2003 Annual Report." Prepared for the Governor and Members of the South Carolina State Legislature (2003).

82 von Kolnitz, Christine and Karyn Kaplan. "Recycling and Beyond: A College Campus Primer." Medical University of South Carolina. 2004.

83 "Facilities Management." Winthrop University. 14 Jan. 2005.  
<<http://www.winthrop.edu/facilitymgmt/Recycling/recycling.htm>>.

84 "Facilities Management." Winthrop University. 14 Jan. 2005.  
<<http://www.winthrop.edu/facilitymgmt/Recycling/recycling.htm>>.

85 South Carolina Department of Health and Environmental Control's Office of Solid Waste Reduction and Recycling. "State Agencies/Colleges and Universities Waste Reduction, Recycling and Buy Recycled: Fiscal Year 2003 Annual Report." Prepared for the Governor and Members of the South Carolina State Legislature (2003).

86 "Facilities Management." Winthrop University. 14 Jan. 2005.  
<<http://www.winthrop.edu/facilitymgmt/Recycling/recycling.htm>>.

#### 4.7 Internet as a Tool

The internet is a valuable tool for campus recycling programs. First, the establishment of on-line e-forms for everything (customer service requests/print shop orders)<sup>87</sup> will tremendously reduce paper waste. Also, using email for routine communication<sup>88</sup> instead of traditional mail<sup>89</sup> and interdepartmental memos will cut down on the amount of paper used and then discarded.

The other reason utilizing the World Wide Web is helpful is for information dissemination, particularly recycling information.<sup>90</sup> This is one way to distribute recycling materials and promote “PR” for the program.<sup>91</sup> Examples include brochures and instructional fliers, contact information, and a compilation of frequently asked questions. Publishing a “recycling newsletter” online<sup>92</sup> is a way to let the campus know about the recycling program’s progress and upcoming events without using paper. The Internet can be used to set up a listserv<sup>93</sup> concerning recycling questions and requests.

#### 4.8 Purchase Recycled

Once excess paper has been eliminated from the waste stream, through reduction and reallocation into e-documents, there is still one remaining step towards sustainability: purchasing recycled products. According to the Environmental Defense Fund, “if you’re

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87 von Kolnitz, Christine and Karyn Kaplan. “Recycling and Beyond: A College Campus Primer.” Medical University of South Carolina. 2004.

88 South Carolina Department of Health and Environmental Control’s Office of Solid Waste Reduction and Recycling. “State Agencies/Colleges and Universities Waste Reduction, Recycling and Buy Recycled: Fiscal Year 2003 Annual Report.” Prepared for the Governor and Members of the South Carolina State Legislature (2003).

89 “Facilities Management.” Winthrop University. 14 Jan. 2005.  
<<http://www.winthrop.edu/facilitymgmt/Recycling/recycling.htm>>.

90 LaFleur, Carolyn. “Formula for Recycling Success.” BioCycle July 2003: 65+.

91 von Kolnitz, Christine and Karyn Kaplan. “Recycling and Beyond: A College Campus Primer.” Medical University of South Carolina. 2004.

92 von Kolnitz, Christine and Karyn Kaplan. “Recycling and Beyond: A College Campus Primer.” Medical University of South Carolina. 2004.

93 von Kolnitz, Christine and Karyn Kaplan. “Recycling and Beyond: A College Campus Primer.” Medical University of South Carolina. 2004.

not buying recycled products, you're not recycling.”<sup>94</sup> It is recommended that the recycled content of paper is at least 50% in order to stimulate recycling markets so that recycling can remain steady.<sup>95</sup>

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94 in von Kolnitz, Christine and Karyn Kaplan. “Recycling and Beyond: A College Campus Primer.” Medical University of South Carolina. 2004.

95 von Kolnitz, Christine and Karyn Kaplan. “Recycling and Beyond: A College Campus Primer.” Medical University of South Carolina. 2004.

## 5. Recommendations

*The following is a list of recommended best management practice (BMP) methods to increase effectiveness of the current recycling program on the campus of the College of Charleston.*

**T**he Recycling Committee has been in existence since 2001, and does not have much authoritative power within the campus community. The recommendations that follow, once implemented, will strengthen the current practices of the Recycling Committee and therefore increase the effectiveness of recycling on campus.

### 5.1 Establish Rules of Committee

#### 5.1.1 Policy

The College of Charleston should adopt an economically viable recycling policy that maximizes recycling to minimize the amount of unusable trash discarded. DHEC requires all colleges and universities in the State of South Carolina to recycle at least 35% of all generated waste. While the College of Charleston currently does submit the required annual report to DHEC, the proposed policy is to document full-compliance with the Solid Waste Policy and Management of 1991 (see Section 1.1.1).

#### 5.1.2 Membership

While the Recycling Committee should be kept small, in order to promote an effective working group, the current membership policy should be amended to include open

meetings to anyone interested. The exact number of members is debatable, but should include an array of department representation and expertise. The Recycling Coordinator for Residence Halls should be included as a member of the campus Recycling Committee. The current advisory committee is not in compliance with the previously established membership policy. It is recommended that a member of the Student Government Association join the Recycling Committee, and that only the approval from the Recycling Chairperson be required for membership.

### **5.1.3 Graduate Assistant**

Each school year, letters of interest are reviewed by the Recycling Committee, and a Graduate Assistant is selected to serve as the Recycling Coordinator. While there is no written policy on this topic, it is suggested that the incoming student have the option to continue a second year in the position. Funding for one half-time (10 hours per week) graduate assistant position is allotted from the Masters of Environmental Studies program and should continue to remain the same.

### **5.1.4 Chairperson**

The Chairperson of the Recycling Committee is elected by a nomination process consisting of a motion and seconding of that motion. It is recommended that the position be open for re-election every January to ensure both stability and variety. When a graduate student is selected in August, the fall semester will provide enough time for the program to be effective and open for new direction in January. The Chairperson shall be eligible for re-election.

## **5.2 Hire a Recycling Coordinator**

A full-time position for a Recycling Coordinator is recommended; the current position is a graduate student working ten hours per week. While the 10-hour-per-week graduate student position should still remain, it is strongly recommended that the full-time Recycling Coordinator work with the graduate assistant to increase the effectiveness of the program.

### 5.2.1 Duties

The Recycling Coordinator will perform the following tasks:

- Coordinate recycling pick-up days and routes.
- Identify markets for collected materials.
- Implement waste reduction opportunities (see Section 5.7 for details on paper reduction).
- Track information concerning recyclables (see Section 5.6 for specific requirements).
- Network with other recycling programs (see Table 5.2.1.1 for potential resources).
- Promote educational outreach campaigns (see Section 5.3 for ideas).
- Perform general administrative duties.

Table 5.2.1.1. List of potential resources for college and university recycling programs.

Organization	Mission	Web Address
Action Plan for Universities	develop short and long term goals for recycling	<a href="http://www.iisd.org/educate/declarat/actionpl.htm">http://www.iisd.org/educate/declarat/actionpl.htm</a>
College and University Recycling Council	organize and support campus recycling coordinators	<a href="http://www.nrc-recycle.org/councils/CURC/default.htm">http://www.nrc-recycle.org/councils/CURC/default.htm</a>
EPA Waste Wise	reduce particular solid wastes through recycling	<a href="http://www.epa.gov/wastewise/about/overview.htm">http://www.epa.gov/wastewise/about/overview.htm</a>
National Recycling Coalition	advance and improve recycling efforts through outreach	<a href="http://www.nrc-recycle.org">http://www.nrc-recycle.org</a>
Student Environmental Action Coalition	empower students to put ideas into practice through campaigns	<a href="http://www.seac.org">http://www.seac.org</a>
Talloires Declaration	incorporate sustainability and environmental literacy into campus outreach	<a href="http://www.ulsf.org/programs_talloires.html">http://www.ulsf.org/programs_talloires.html</a>

### 5.2.2 Authority

The full-time Recycling Coordinator will be hired under Physical Plant. There will be a working relationship between the Recycling Coordinator and the Recycling Crew, as well as between the Recycling Coordinator and the Recycling Committee.

### 5.2.3 Annual Reports

A status report was sent to the President of the College of Charleston in January 2004. The report detailed recommendations for increased recycling effectiveness on campus. See Section 5.3.2.1 for letter. To date, there has been no response or acknowledgement concerning the letter. It is recommended that status reports be generated and submitted to the President's Office at the close of each school year; this will assist in the accurate completion of the mandated DHEC annual reporting forms, due on November 1.

#### 5.2.3.1 Report to President

The following report was drafted by Erin Beutel, Recycling Committee Chair (at the time of writing), with the help of Sarah Falkowski, Recycling Coordinator, and the Recycling Committee.

##### 5.2.3.1.1 Letter

1-5-04

Dear President Higdon,

The Committee for Recycling and Environmental Policy submits to you the following report on our activities since March of 2003 and our suggestions for the coming years. Below you will find a summary of our activities followed by multi-part document outlining what we see as critical issues and our solutions to them.

**Summary:**

Since March of 2003 we have purchased 40 new "slim jim" recycling canisters that have been or are being placed throughout the campus. Various members of the committee have gone through major buildings and attempted to strategically place the bins and label them to enhance their use and decrease cross-contamination.

We have worked with the student group APE (Alliance for Planet Earth) to conduct trash audits. These audits were conducted to determine the approximate percentage of recyclables currently being thrown away. The audit of Maybank in the Spring of 03 determined that close to 60% of the material in the trash containers was recyclable. The audit of the Hollings Science Center in November of 2003 determined that 15% of the trash being thrown away was recyclable---a notable improvement. We determined that this was related to; a) the labeling of the building as a "Green Building" (thanks to Stephanie Dellis), and b) the vigilance of the faculty in the building in ensuring that containers are always well placed and labeled.

We have also run a campus-wide test of recycled paper to determine its compatibility with various copiers and printers. This test was run because of past complaints about recycled paper jamming in our copiers due to the high humidity. The test was an unqualified success and we are working with procurement on finding a cheap recycled paper source from among our current suppliers.

Finally we have continued to work on the recycling web page in our ongoing attempt to educate the student body. (<http://www.cofc.edu/~recycling/>)

The last few months have been dedicated to developing a recycling plan for the college and we have attached said manuscript. Thank you for your time and interest, please feel free to contact me if you have any questions or suggestions.

Sincerely,

Erin K. Beutel (Chair, Committee on Recycling and Environmental Responsibility)

### 5.2.3.1.2 Suggestions

#### Recycling Committee Suggestions

**Abstract:**

We suggest that improving recycling on campus will decrease college expenditure on solid waste removal by removing items from the dumpsters, which we pay to have emptied, and taking those items to the County Recycling Center (which is free). Increasing the percentage of waste that we recycle will also ensure our compliance with the Solid Waste Policy Management Act, which requires that all State Agencies recycle 35% of waste material by the year 2005. Further we suggest that the college invest in a waste manager to oversee the disposal of all materials. This person would be responsible for not only keeping track of waste material but also for applying for solid waste grants and developing money saving solutions.

In lieu of the coordinator suggested above, the committee has some recommendations regarding the logistics of recycling on campus. We recommend that the school co-mingle our plastic, glass, and aluminum and take *all* recyclables to the county recycling center instead of driving them around town to the various places that pay us for them. Co-mingling will also reduce the number of bins in the halls and hopefully reduce the amount of contamination by non-recyclables. Also, to improve efficiency and to improve our capability to handle the larger amounts of recyclables we expect to generate in the future, we suggest creating a staging area behind the Simmons Center where recyclables could be stored in large bins before being taken to the County Recycling Center.

In the next section we break-down the various problem areas we have identified and then provide a series of solutions.

#### State Law and Fiscal Management

**Issue 1:**

The Solid Waste Policy Management Act requires each State Agency to recycle 35% of waste generated by 2005. Currently, we have no system in place to keep track of the total amount of waste generated or the amount of material recycled. This is a critical issue both for compliance with state policy and for fiscal management. Fiscally, recycling is always cheaper than disposing of solid waste because recyclables can be taken to the County Recycling Center for free (not to mention the potential money made from cans) while we must pay for waste disposal.

**Solutions:**

- 1) Hire a recycling coordinator (see description).
- 2) Designate a single person within Physical Plant to oversee all waste disposal.

#### Logistics

**Issue 1:**

The current system requires the 2 full-time physical plant employees in charge of recycling to spend inordinate amounts of time driving materials to drop-off sites.

**Solutions:**

- 1) Take all recyclables to the County Recycling Center on Romney Street. This will decrease our revenues from cans, however, we anticipate the cost being offset by less mileage on the truck and an improved recycling program which will decrease the volume of waste we have to pay to have removed
- 2) Long term we would like to see the College have one of the large recycling dumpsters that is emptied for free by the County. However, currently the recycling center is reluctant to issue us a dumpster until we can provide evidence of a system that will keep the dumpster contaminant free. We propose that this should be a long-term goal for the next year to two years.
- 3) Hire Fisher to pick-up our recyclables as we hire Waste Industries to remove our trash.

**Issue 2:**

The College is not currently equipped to handle large volumes of recyclables because there is no designated space to store it in. This results in an inefficient pick-up system whereby one recyclable material is collected from the buildings until the truck is full, the truck is then taken to the recycling center of choice, emptied, and then next recyclable item is collected.

**Solutions:**

- 1) Build a large divided bin behind the Simmons Center where recyclables can be stored on a short-term basis before being taken to the County Recycling Center.
- 2) Designate a space in each large building with a large *divided* storage container that material can be stored in prior to being taken to the Recycling Center. This would also allow departments to empty their personal containers if the need arose.
- 3) Develop a cart for the recycling team that is large enough to handle the material from a single large building.

**Issue 3:**

Difficulties have developed in the past with departments a) needing recycling bins and not getting them, b) having bins and not getting them emptied, c) needing to change the location of the bins, d) having bins disappear, and e) during certain times of the year having bin overflows. Other issues arise with custodial staff moving bins and the recycling staff missing the bins when they need to be collected

**Solutions:**

- 1) Hire a recycling coordinator to keep track of the recycling program (see coordinator description).
- 2) Designate a person within the Physical Plant or the Custodial Staff to act as a monitor and coordinator for the recycling program. This person would act as a liason between the departments and the recycling crew and also as a liason between the custodial staff and the recycling crew. Also responsible for training the custodial staff and recycling crew on recycling issues.

**Issue 4:**

Co-mingling and contamination of recyclables.

**Solutions:**

- 1) See Solution 2, Issue 1 of Logistics.
- 2) Education of the student body and staff about recycling and our expectations of their behavior.
- 3) Improved bin placement: Trash cans need to be located next to all recycling containers and containers need to be more strategically placed (and stay there---See Issue 3).
- 4) Improved labeling and upkeep of the bins (See Issue 3).
- 5) Appoint Environmental Stewards from the student body for each building. Many students want to help and having them educate their peers is a great way to build community and improve recycling.
- 6) Appoint honor offenders the task of separating trash from the recyclables.

**Issue 5:**

To our knowledge the college has no environmental policy plan. Covered in such a plan would be waste reduction, energy management, environmentally sound building materials, decrease in hazardous chemical use etc.

**Solution**

- 1) Hire an environmental manager (also recycling coordinator).
- 2) Designate someone in physical plant to construct this plan. (This plan must be constructed with Physical Plant's assistance and support, without their support the plan is useless.

### 5.2.3.1.3 Attachment to Letter

<p><b>Duties of the Proposed Recycling Coordinator/Environmental Manager</b> (see duties of MUSC Recycling Coordinator for more ideas)</p>
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|--|
| <ol style="list-style-type: none"> <li>1) Keep track of the amount of waste material generated by the college and the financial burden this puts on the college.</li> <li>2) Keep track of the amount of recyclable material generated by the college and the financial savings this provides the college.</li> <li>3) Coordinate between the Physical Plant and Custodial staff to ensure waste containers exist where needed and are emptied in the appropriate time frame.</li> <li>4) Educate custodial and physical plant staff on dealing with recyclables and waste materials.</li> <li>5) Generate funds to augment current recycling program through grant applications.</li> <li>6) Initiate new environmentally friendly practices (see <a href="http://www.musc.edu/recycle/">http://www.musc.edu/recycle/</a> for ideas).</li> <li>7) Educate faculty and students on waste practices used on campus.</li> <li>8) Work with Aramark to increase recycling of food related waste materials.</li> <li>9) Oversee disposal of material from science labs.</li> <li>10) Work with County Recycling Program.</li> <li>11) Report waste management practices to DHEC and other State Agencies as needed.</li> </ol> |
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### 5.2.4 Alternative

An alternative to hiring a full-time Recycling Coordinator is to hire a private recycling contractor. It is recommended that the campus consider Fischer Recycling as they are currently servicing the residence halls on campus. Consistency throughout the campus is key to recycling success.

## 5.3 Perform Educational Outreach

Educating the campus community on how and what to recycle will increase recycling effectiveness by improving the quality of recycling on campus, i.e. putting the waste in the correct receptacle. In order to accomplish the following recommendations, the Recycling Coordinator should work with the graduate assistant and Recycling Committee, as well as other groups on campus, when applicable.

### 5.3.1 Orientation Programming

New students and employees at the College of Charleston are ideal target audiences for orientation programs. Educating these students about recycling can become part of

orientation. It is recommended to integrate a recycling education program into the orientation training programs already in place. Refillable mugs and recycling bins, both decorated with the College of Charleston recycling logo, can be given away during the move-in period.

### **5.3.2 Adopt a Building Stewardship Program**

The Department of Transportation has an Adopt-a-Highway program with which members of an organization act as stewards by picking up trash along a designated stretch of highway. The name of the organization is represented on the sign, giving recognition for the members' efforts. By advertising stewardship, the represented organization will gain a sense of pride for the building and work hard to keep its recycling structure in optimal condition.

The Recycling Committee has tried to implement the same sort of program on the College of Charleston campus. According to a waste audit of Maybank Hall, 60% of what is in the trash cans is able to be recycled. Recent studies of trash at the Science and Education Centers, both designed as Green Buildings, revealed that significantly less of the trash is recyclable (34% and 17% respectively). Refer to Section 2.2 for more information on waste audits.

By recognizing each building on campus as *environmentally cared for*, the same results can be achieved. The original idea called for student organizations, selected at random, to have their name posted at each entrance as the stewards of that building. They were to be responsible for monitoring the placement and contents of the recycling bins throughout the building (on a weekly basis). By signing a "steward contact," each organization was required to attend a training session and log data on a weekly checklist. See Sections 5.3.2.1 and 5.2.3.2 for the contract and checklist, respectively. The purpose of this was to encourage the student body to become more aware of recycling practices on the campus, thus leading to a significant impact on the amount of waste thrown into the trash. However, the program was cancelled due to resistance from Physical Plant. It is recommended that this program be implemented again, upon consultation with the Recycling Crew at Physical Plant.

### 5.3.2.1 Steward Contract

Steward Contract:	
	<ul style="list-style-type: none"> <li><input type="radio"/> Follow checklist</li> <li><input type="radio"/> Attend training session</li> <li><input type="radio"/> Attend follow-up meetings (if necessary)</li> <li><input type="radio"/> Report to Recycling Coordinator (monthly checklist)</li> <li><input type="radio"/> Participate in waste audits</li> </ul>
I ( _____ ) hereby accept responsibility for my organization ( _____ ) to environmentally care for the said building ( _____ ).	
_____ (print name)	_____ (organization title)
_____ (signature)	_____ (date)

### 5.2.3.2 Steward Checklist

Environmental Stewards Checklist	Building: _____	Contact Person: _____
Organization: _____	Month: _____	_____
<b>WEEK 1: _____</b>	<b>DATE/INITIALS</b>	<b>COMMENTS</b>
Can bins are located near vending machines		
Bottle bins are located near vending machines		
Can and bottle bins are located near exits		
Bins are located together and appropriately		
Bins are not overflowing		
Bins are not commingled		
Bins are free of trash		
<b>WEEK 2: _____</b>	<b>DATE/INITIALS</b>	<b>COMMENTS</b>
Can bins are located near vending machines		
Bottle bins are located near vending machines		
Can and bottle bins are located near exits		
Bins are located together and appropriately		
Bins are not overflowing		
Bins are not commingled		
Bins are free of trash		
<b>WEEK 3: _____</b>	<b>DATE/INITIALS</b>	<b>COMMENTS</b>
Can bins are located near vending machines		
Bottle bins are located near vending machines		
Can and bottle bins are located near exits		
Bins are located together and appropriately		
Bins are not overflowing		
Bins are not commingled		
Bins are free of trash		
<b>WEEK 4: _____</b>	<b>DATE/INITIALS</b>	<b>COMMENTS</b>
Can bins are located near vending machines		
Bottle bins are located near vending machines		
Can and bottle bins are located near exits		
Bins are located together and appropriately		
Bins are not overflowing		
Bins are not commingled		
Bins are free of trash		

### **5.3.3 Residence Assistants**

A training program should be established to educate Resident Assistance in such a way that they can then provide recycling outreach to their residents, such as how-to programs, signage in the hallways, and answers to recycling questions.

### **5.3.4 Faculty**

Educating faculty and staff on how to recycle is recommended to not only improve recycling in each campus building, but to encourage their students to do the same. It is suggested that professors work to integrate recycling into applicable projects, such as GIS maps and/or environmental audits. This can only happen if the professors are well educated about the current recycling program and practices.

### **5.3.5 Pay Stubs**

The Recycling Committee is encouraged to create a short message to be inserted into campus employee paychecks. Important information about what can and cannot be recycled on campus (and/or contact information such as the recycling website) can be printed in the memo section of the pay stub and will be read by all College of Charleston employees.

### **5.3.6 Campus Directory**

A great way to reach the entire campus population is to advertise what items can and cannot be recycled in the campus directory. It is recommended that the Recycling Committee update the recycling information in the College of Charleston Campus Directory to reflect the current practices. Accurate contact information should also be included.

### **5.3.7 Logo**

The new logo for the recycling program (found on the cover of this Manual) should be displayed on all recycling signage, memos, bins, and vehicles. This will encourage a visual association with recycling and the program.

## **5.4 Seek Cooperation with Campus Organizations**

Getting students involved in recycling on campus is advantageous to the program. By working with established student organizations on campus, the Recycling Committee can spread the word about recycling in an effective way.

### **5.4.1 Alliance for Planet Earth**

The Alliance for Planet Earth, or APE, is made up of environmentally concerned undergraduates at the College of Charleston. They use activism to promote their ideas to campus administration and students. In the past, they have hosted tables of information concerning recycling on campus. APE has been instrumental in providing assistance in waste audits and bin mapping. The rules of membership dictate that a representative of APE serve on the Recycling Committee, but it is strongly encouraged that more of a connection be established between the Recycling Committee and APE

### **5.4.2 Masters of Environmental Studies Student Association**

Graduate students of the Masters of Environmental Studies (MES) program are very active on campus and in the community. They promote environmental education at numerous times and locations throughout the school year, and should be used as a resource by the Recycling Committee. It is strongly encouraged that an MES representative becomes part of the Recycling Committee.

The program's Student Association (MESSA) created a Move Out/ Help Out program in which boxes are provided in residence halls on campus to collect unwanted clothing and non-perishables. MESSA works with Student Life to transport the donations to Goodwill Industries in the Charleston Area.

Earth Day is a big event for MESSA; several area celebrations invite the Student Association to host a table. Several years in a row, MESSA has done a recycling education campaign with interactive games and hand outs (including free bins).

By creating a working relationship with MESSA, the Recycling Committee can effectively promote campus recycling policies.

### **5.4.3 Student Government Association**

The Student Government Association (SGA) has been helpful in the past by sending a campus-wide memo concerning the lack of recycling at the College of Charleston (see Figure 5.4.3.1). The rules of membership require that a representative of SGA be present at Recycling Committee meetings. This should be used to the advantage of the Recycling Committee. By having a member of campus administration part of the Recycling Committee, the program, and Committee, will gain more power and in turn, be taken more seriously, leading to increased effectiveness.

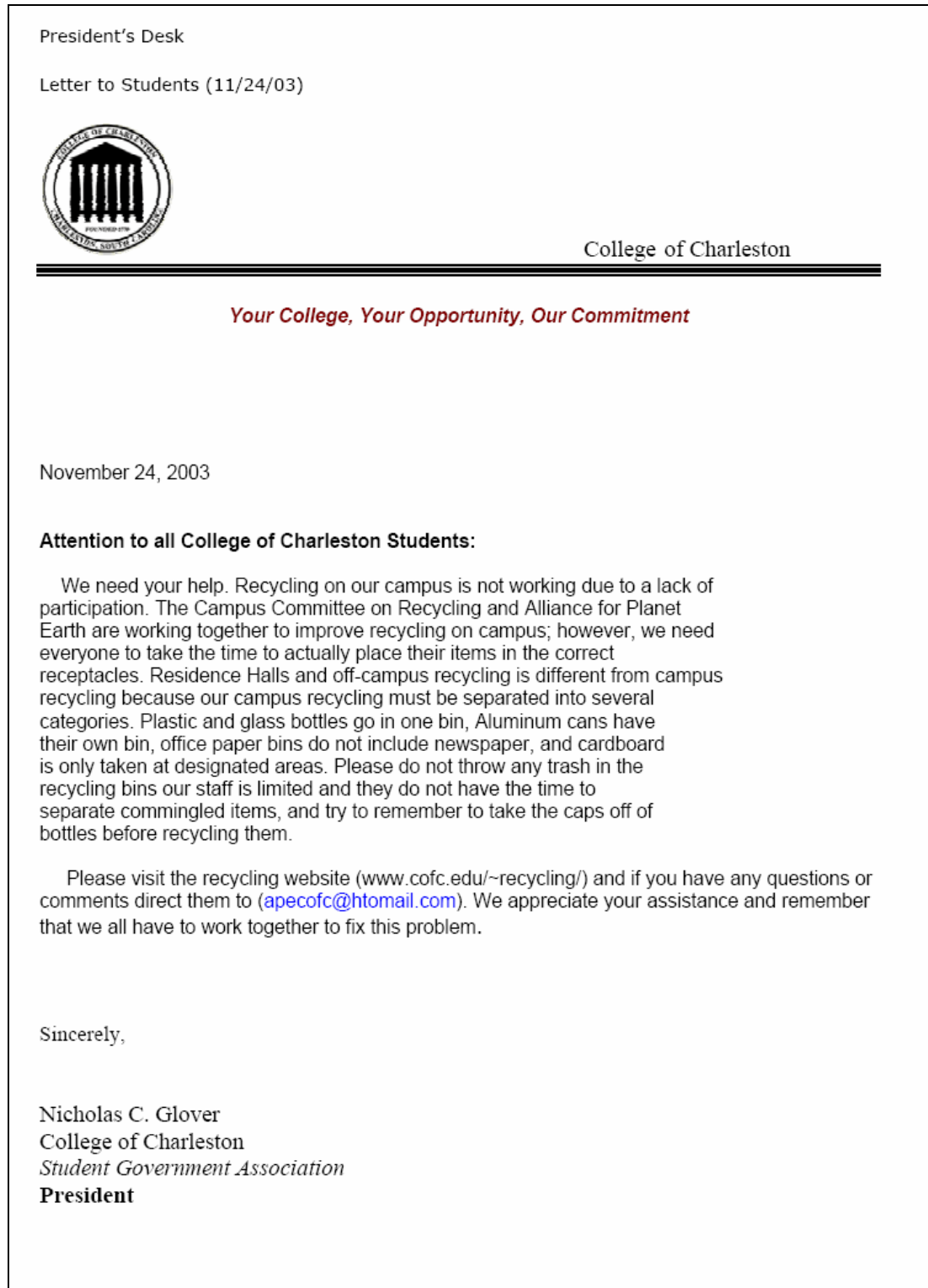


Figure 5.4.3.1. Student Government Association Presidential Memo. This was sent to all campus students, faculty, and staff, on November 24, 2003 via email.

## **5.5 Begin Consistent Recycling**

The residence halls on campus require commingled recycling; that is, aluminum cans, glass bottles, and plastic bottles are all collected in one bin. Newspapers are collected separately. On the rest of the campus, however, it is expected that each recyclable be placed into a separate bin (cans and bottles). The inconsistency could be part of the ineffectiveness of recycling on the College of Charleston campus as a whole. It is recommended that bins on campus accommodate commingled recyclables, because the current program in the residence halls is working better the campus program. While this would take away some revenue from marketed materials (cans and paper stock), the increase in overall efficiency from commingling far outweighs the small amount earned from the recycling market. A long range goal of reverting back to separation collection should be kept in mind, but at the present time, campus consistency is more important. See Section 5.6.1 for analysis.

### **5.5.1 Signs on Trash Cans**

It is recommended that all trash cans have a sign posted on/near them with directions to the nearest recycling bin, if not located directly next to it. It is ideal to have both containers in each location, but when this is not possible, signage is the next best thing.

### **5.5.2 Centralized Bin Locations**

Hosting a central collection area in each hall/building (depending on size of building and volume of recyclables) is recommended. Residence halls on campus have a centralized disposal area where trash *and* recycling bins are located. This avoids the clutter of bins scattered everywhere (a common complaint) and makes pick up easier. See Section 2.5 for building-specific recommendations.

### **5.5.3 Storage Warehouse**

It is recommended that a storage warehouse be considered to avoid the daily transport of recyclables to the recycling center. This would increase efficiency of the program.

## **5.6 Track Accounting Information**

Keeping track of all information concerning recycling on campus is very important, as it is essential for accurate completion of the mandated DHEC reporting form. Unfortunately, data is not consistently recorded at the present time.

### **5.6.1 Cost Benefit Analysis**

It is recommended that a cost benefit analysis of collection costs versus benefit from sale of recyclables be performed before initiating commingling on campus. It is important to remember that any waste that is not taken to a landfill, whether reused or recycled, avoids the cost of dumping fees and should be calculated in this analysis.

### **5.6.2 Revenue Generated**

Once the program is on track with marketing materials, an account needs to be established to collect revenue. There is an account at the present time, yet no one person has authority to deposit or withdraw from it. Revenue that is collected from the sale of marketable recyclables should be redistributed back into the program in the form of outreach materials (brochures/posters) and recycling bins.

### **5.6.3 Receipts**

The most important part of accounting for a recycling program is to keep all receipts; records of materials purchased, landfilled, and recycled are critical. This information contains not only dollar figures, but also the weight of materials. These figures are required by DHEC on the annual report form.

### **5.6.4 Database**

By creating a database of all of the aforementioned tracking information, statistical figures concerning the recycling program can be made available instantly. It is recommended that one be created as soon as possible and be updated daily.

## **5.7 Reduce Paper Consumption**

The campus recycling program should also encourage consumption reduction methods in addition to recycling practices. Paper is an item in great demand, but also ends

up as great amounts of waste. What follow are recommendations to reduce paper consumption on at the College of Charleston.

### **5.7.1 Double-sided Copies**

It is highly recommended that instructional stickers for making double-sided copies be produced and affixed to all copiers and printers on campus.

### **5.7.2 Fax Confirmation Sheets**

There are two reduction methods that are recommended concerning facsimiles. First, implement the reusing of unwanted paper as fax confirmation sheets. The other recommendation is to create small labels to stick on page one of a facsimile with all cover sheet information, instead of using an entire sheet of paper.

### **5.7.3 Electronic Documents**

While Cougar Trail already handles much information about financial aid, scheduling, and account summaries, it is recommended that even more documents on campus be converted to electronic, or e-documents.

### **5.7.4 Charge for Printing**

It is recommended that campus computer lab implement a printing fee for each page. The software is already accessible at the printer release stations and should be set up to automatically charge the users account in order to cut back on unnecessary printing.

### **5.7.5 Work with Print Shop**

The Print Shop on campus uses unwanted paper and recycles it into notepads that are available for free in the Print Shop office. The Recycling Committee should work with the Print Shop to make sure all recycling goals are met and to encourage waste reduction technologies. (Also see Section 5.7.6).

### **5.7.6 Recycle Cartridges**

It is recommended that the campus contract with a private recycling company to provide collection for recycling toner and printer cartridges. Many companies, such as

Rocky Mountain e-Cycle, offer free drop-site materials and even post-paid mailers for recycling ease. See Section 2.4 for contact information.

### **5.8 Promote Recycled Paper**

A proposal for recycled paper was circulated by a student at the College of Charleston in 2002 and received negative response. Then a test run of recycled paper was conducted throughout campus which resulted in a unanimous approval for recycled paper. It is recommended that research be conducted on what types of recycled products already contracted companies offer. It is strongly encouraged that the campus switch from virgin paper stock to at least 50% recycled content.

## 6. Conclusion

**T**he definition of recycling, as per South Carolina Department of Health and Environmental Control Office of Solid Waste and Recycling, is “the collection, separation, processing and marketing of materials so they can be made into new products.”<sup>96</sup> Recycling is an important step towards waste reduction and improvement of the larger ecology. Recycling is a socially responsible way to help decrease dependence on raw materials by redistributing products that would normally end up in landfills.

For detailed information about recycling trends on the national front as well as on the college and university level, refer to thesis.<sup>97</sup>

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96 South Carolina Department of Health and Environmental Control’s Office of Solid Waste Reduction and Recycling. “State Agencies/Colleges and Universities Waste Reduction, Recycling and Buy Recycled: Fiscal Year 2003 Annual Report.” Prepared for the Governor and Members of the South Carolina State Legislature (2003).

97 Falkowski, Sarah. “Recycling Best Management Practices for College Campuses: The College of Charleston Recycling Manual.” 2005.