Campus Waste Stream Assessment

Capstone Presentation
December 10, 2010
John Allen, Emma Anderson, Carly Buch, Cori Fowler, Ellie Kuhn, Julian March
Background Information

- In 1995, a comprehensive waste assessment of UNC was performed by OWRR employees and interns
- Since 1995, the recycling rate has increased by 18%
- Recycling programs and materials have been added and the campus has increased in size since the 1995 assessment was performed
- Waste assessment will allow for a 15-year comparison in changes in the waste stream
Goals

- Review standard waste assessment practices and procedures, including safety standards and precautions as well as existing waste removal locations and schedules
- Contact building representatives to organize waste audits
- Perform waste assessment (samples represent day’s worth of waste) and conduct interviews to analyze recycling behaviors on campus
- Compare findings (from 1995 assessment)
- Identify potential new and expanded programs/materials
- Make recommendations for targeting specific materials for recycling or waste reduction
Methods: Waste Audits
Frank Porter Graham Student Union

Offices, Lounges, Alpine Bagel
Kenan-Flagler Business School

Classrooms, Offices, Lounge/Food/Library
UNC School of Law

Dining, Classrooms, Offices, Lounge/Library/Conference
Waste Categories

- Construction
- Corrugated Cardboard
- Glass
- Metals
- Mixed Paper
- Office Fiber
- Organics
- Plastics
- Trash
Methods: Interviews
Why did we do interviews?

Interviews were performed in order to gauge response to recycling programs already in place and explore public opinion on how programs could be improved.
IRB Process

- “Determination Whether Research or Similar Activities Require IRB Approval” form was submitted
- Study was not required to gain IRB approval
- Appropriate because data did not contribute to “generalizable knowledge” – designed to inform OWRR only
Interviewing Process

- Eleven to sixteen questions were asked to four groups
  - Students
  - Faculty
  - Staff
  - Housekeeping

- Questions were asked face to face, via email, and over the phone.
Interviews

Findings and Analysis
Student Union

- Bins favored at Alpine Café
- Bins with more recycling options requested in main exit/entranceway and on third floor
- Students – lacking in confidence about recycling behavior
- Staff – fairly responsible about recycling but yet not fully educated about options
- All – if it is not convenient to recycle something, they will often trash it
Business School

- Students – less interest than in other buildings
- Housekeeping – sort recycling from trash fairly often; комраort student apathy
- Bins requested in lower-level study rooms
- Professors – confident about recycling behavior, unsure about others’
Law School

- Bins requested in more centralized locations such as Rotunda
- Students – fairly confident about recycling behavior
- Staff/Faculty – very confident about recycling behavior
- Housekeeping – larger bins needed in classrooms
General Analysis

- Recycling bins needed in combination with all trash locations
- Greater visibility needed for bins and bin labels
- Visible and accessible information needed on what/how to recycle
- Confusion exists over:
  - Which non-bottle shaped plastics to recycle
  - Where or if to recycle cardboard, batteries, electronics
- Greater convenience needed for people to increase recycling behavior
- Students generally more apathetic than professors
  - Environmental ethic needed via public messages
Waste Audits
Findings and Analysis
Student Union

- Dominated by organics (64%)
- Alpine Bagel’s trash was 84% organics – good candidate for a composting program
- Fewest currently recyclable materials in trash
Business School

- Most diverse waste
- Organics only 34%
- Remnants of pizza party and catered boxed lunches, some unopened
- Of the three dining areas, Café McColl had the lowest percentage of organics (32%)
- Most currently recyclable material in the trash (35%)
Law School

- Most plastics
- Fairly representative of the total waste stream
General Analysis

- Organics made up more than half of the waste stream
- Expanded diversion programs could theoretically decrease waste stream by 82%
- Of the plastics, only 26% were bottle-shaped (58% were non bottle-shaped rigids)
Recommendations
GOAL: Increase campus recycling rate

2009-2010: UNC’s recycling level was 45%, with 55% of waste land-filled

We recommend OWRR set a goal to recycle 55%

- In the Student Union, Business School, and Law School, 20% of items found in trash can be recycled under current OWRR programs.
- Programs included office fiber, mixed paper, plastic bottles, metal, glass, and corrugated cardboard.
- If those items were recycled, the recycling level would be 55%.
GOAL: Increase recycling of organics

- Organics was the largest single percentage of types of waste found in the trash.

- **We recommend** that organics from small and medium-sized dining facilities and coffee shops on campus should be collected and recycled.
GOAL: Increase recycling of organics

Three ways to capture organics
- Back of the house
- Post-consumer
- Special events

We recommend recycling efforts should focus on back of the house.
- Easier to train employees/small numbers of staff
- More likely to guarantee compliance
GOAL: Increase recycling of organics

Other recommendations:

- Publicize special event compost program
- Initiate further review of options for placing organics bins in dining areas for post-consumer content
- Study organics recycling options and choose most cost-effective between:
  - Use OWRR to collect bins of organics
  - Pay organics contractor to pick up from multiple sites
GOAL: Target office paper, plastic bottles, and cardboard

● **We recommend** greater education of the importance of recycling to influence people’s behavior.
  ● Education, communication, and marketing efforts needed
  ● Crucial to meeting goal of increasing recycling rate
  ● Consider budgeting for additional staff to work on education efforts
GOAL: Make recycling as convenient as trash disposal

- **We recommend** a goal of placing a recycling bin next to every trash bin, both indoors and outdoors.

- **Indoors**
  - Place small recycling bins next to each trash can
  - Remove small trash cans and have centralized waste stations in hallways

- **Outdoors**
  - Replace some Victor-Stanley trash cans with recycling bins
  - Partner with Grounds Services to streamline pickup operations
GOAL: Partner to recycle niche products

- Could have a recycling station in the Student Union
- Indoor bins for recycling CDs, batteries, cell phones, cell phone chargers, ink cartridges, plastic bags, and compact fluorescent light bulbs.
Conclusions

There is an opportunity to increase recycling on campus. We are recycling more than 1995, but there is room for growth. Based on findings from interviews and audits of mixed-use buildings, we recommend:

- Set 55% recycling goal
- Increase organics pickup
- Educate
- Make recycling as easy as trash
- Partner with others
A special thanks to Elizabeth Shay, Kevin McLaughlin, Blair Pollock, Amy Preble, and B.J. Tipton for all their help this semester!
Questions?