Administrative Program Review: Recycling

Western Carolina University

Office of Sustainability and Energy Management

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I. Executive Summary

Western Carolina University (WCU) has a long history of providing recycling services for campus. In the past 5 years, our recycling volume has increased by 85% and our waste diversion rate for 2014-15 was 19%. This is an increase from 14% in 2013-14. In the past 28 years, we have not created any new positions to handle recycling collections, nor have we made major changes to how campus recycling is managed. It has become evident to us that our program struggles to meet existing demand and will not be able to meet future goals without assessing current operations and implementing additional resources. This self-assessment report will give you a glimpse of how our recycling program operates at WCU.

II. Response to Criteria: Recycling

1. State the primary purpose and key functions of the unit.

The recycling unit is responsible for waste minimization on campus by diverting items from our trash collections and thus entering the landfill waste stream. This includes the following items that are currently recycled listed by each recycled waste stream:

- Cardboard
- Glass, plastic (#1-#7), and aluminium
- All mixed paper
- E-waste and printer cartridges
- Non-PCB Ballasts and reusable batteries
- Lamps, PCB ballasts, batteries and thermostats
- Scrap metal and appliances
- Construction waste (select items)
- Food scraps at Courtyard Dining Hall and Brown Dining Hall (starting in 2017)
- Waste cooking oil at Courtyard Dining Hall, AK Hinds University Center, and Brown Dining Hall (starting in 2017)
- Tires
- Motor oil
- Residence Hall Move-out (Goodwill Industries)
- Pallets, saw logs from tree removal, leaf collection/composting, and woodchips (currently not tracked due to lack of resources)

2. List the top 3-5 goals/priorities of the unit.

- To minimize landfill waste and increase material recycling through awareness and education programming, optimizing collections, staff training and appropriate placement of collection sites
- To maximize income generated from various recycling streams available to WCU
- To operate as efficiently as possible given available resources
- To continually investigate strategies to improve these goals given the ever-changing recycling market that is available to us

3. Summarize the history of this unit on campus.

Our recycling program began in the early 1970’s with the creation of our food waste collection program in Brown and Dodson Cafeteria. All food scraps generated during meal preparation and left over consumer waste was collected and picked-up by a local hog farmer as a feed source for their operations.
This program still exists today, with the same family-owned business, and has saved us a large amount of money by diverting our food waste from the landfill.

In 1988, we expanded our recycling program to include other waste stream items including separated paper, metal, aluminum, and cardboard. It was launched and managed by the WCU Physical Plant (now Facilities Management) Preventative Maintenance (PM) Coordinator and is still documented as twenty percent of overall job duties for this position. Over the years it has expanded to include additional items, as noted above in response #1. Our recycling program has broken even one time in the mid 1990’s when factoring in avoided costs from diverting landfill waste. Over the years, Facilities Management Housekeeping staff has been responsible for collecting all recycling and waste inside campus academic, administrative, and athletic buildings and Facilities Management Grounds staff has handled recycling and waste pick-up outside all buildings.

In 2007, the newly hired Energy Manager assisted the PM Coordinator with duties associated with WCU’s recycling program to assist with program improvements, requests for service and expansion of the existing program as it falls under the “sustainability umbrella”. The recycling program had expanded dramatically over the years and there was a larger demand from the WCU community to increase service. The Energy Manager received two grants for collection bins through NC DENR in 2011 ($5,000 for bins) and Keep America Beautiful/Alcoa in 2012 (50 bins) and participated in Recycle Mania 2009-2012. In 2013, the Office of Sustainability and Energy Management (OSEM) was officially created. While recycling was not added to the OSEM organizational structure or job duties during this change, this office still supports recycling efforts on campus as it is part of operating a successful campus sustainability program. In 2013, OSEM launched the WHEE Recycle program and in 2014 created WHEE Recycle Tailgate Recycling program for all home football games, which uses interns from OSEM to manage the program and student volunteers to assist with collections.

Since 2009-10 to present, our recycling volume has increased by 99.94 tons going from 117.2 tons to 217.14 tons. **This is an 85.2% increase in just five years.** In 2014-15 our overall waste diversion rate was 19.1%, which is good considering we do not have a dedicated, full-time staff member overseeing all aspects of our recycling program. Support staff operating our recycling program has not changed since the inception of our expanded recycling program in 1988. During this time, student enrolment has increased from 4,400 to over 10,300. This growth has also caused the addition of numerous staff and faculty positions along with associated increased visitors and events on campus. Overall visitation data has not been tracked during this time. Over the past 28 years our size and demand has grown tremendously, but we have not provided additional resources to support program.

Describe the structure of the unit and how it is situated organizationally within the institution.

**Division - Administration and Finance**

**Department – Facilities Management (FM)**

**Unit – Operations & Maintenance (Grounds, Housekeeping, PM Coordinator), – Office of Sustainability & Energy Management**

1. Provide an organizational chart of the unit with every employee identified by the title name. Attach a brief list of the primary duties carried out by each employee on the chart.

Vice Chancellor Administration & Finance

Mike Byers

*Overseas all functions of Administration & Finance Division*
Administrative Program Review: Recycling & Surplus

Associate Vice Chancellor Facilities Management
Joe Walker, PE


Director Operations & Maintenance
Lee Smith

Overseas all functions of Operations & Maintenance including Grounds, Housekeeping, Steam Plant, Water Plant, Electric Resale, Electric Shop, HVAC Shop, Plumbing Shop, Mechanic Shop, Carpentry Shop, PM Coordinator, and Superintendent of Shops

Grounds Supervisor
Roger Turk

Overseas all functions of Grounds

Housekeeping Supervisor
Bonnie Ross

Overseas all functions of Housekeeping

PM Coordinator
John Surber

Overseas PM Program, Elevator Contracts, & Recycling

Grad Intern/Student Interns
4 Interns 2015-16
Assists with all functions of OSEM

Ground Crew Supervisor
Vacant

Overseas certain functions of Grounds including recycling collection outside of buildings

Recycle Operator
Brad Morgan

Responsible for collecting most of campus recycling outside of buildings Mon-Fri. Includes all mixed paper, GPA, & cardboard. Transports paper & GPA to containers for transport to SRC. Bales cardboard for resale.

Day Shift Supervisor
Brian Buchanan

Overseas Day Shift Housekeeping staff

Day Shift Housekeepers
10 Housekeepers

Day shift performs cleaning duties in academic, administrative, and athletic buildings. Transports waste and recycling to exterior waste collection sites.

2nd Shift Supervisor
Gabe Williams

Overseas 2nd shift Housekeeping Staff

2nd Shift Housekeepers
43 Housekeepers

2nd shift performs cleaning duties in academic, administrative, and athletic buildings. Transports all waste and recycling to exterior waste collection sites.

Grounds Workers
Provides additional collection support Mon-Fri and ½ day on Sun.
If applicable, describe the number and contribution of student employees or graduate assistants to the unit’s programs and services.

Grounds has had a job posting with WCU Student Employment for the past 10 years, but applications have been very low (2 in the last 10 years). The last work-study student employee was four years ago. Over the past 25 years, we have had less than 10 students workers employed with our recycling program. Non-work study student employment funding for Grounds was cut back in 2008. This position is intended to assist with collections. OSEM has employed graduate assistants, graduate interns, undergraduate interns and student volunteers since 2011 to assist with all aspects of the WHEE Recycling program except for collections. This includes the following:

- Organizing and facilitating various programs targeted at students, faculty, staff, and alumni
- Recycling bin inventory
- Grant assistance
- Signage and bin placement
- WCU Tailgate Recycling program
- Annual Recycling Reports to NC DENR (now NC DEQ)
- Implementing recycling stream opportunities and assessment (Ex. E-waste, printer cartridges)

Alignment with WCU Mission, Vision, Values

1. How does the unit mission align with the university mission with specific reference to support of the QEP, UNC Tomorrow and the academic colleges/schools?

WCU Whee recycling program aligns with the following guiding commitments:

- **State of North Carolina – Executive Order 156**
- **UNC Tomorrow Commission Final Report (2007) – Section 4.6 Our Environment**
- **UNC System-Wide Sustainability Policy 600.6.1**

**Strategic Direction #5 Invest in Our Core Resources:**

**GOAL 5.2: Develop a comprehensive University master plan.**

**Initiative 5.2.1 -** Charge a task force consisting of representatives of internal and external constituents and supported by an external consultant to develop a comprehensive campus master plan that takes into account such factors as anticipated enrollment growth, the environment, sustainability, energy efficiency, core infrastructure needs, building priority needs, departmental/unit consolidation, technology infrastructure, campus safety and security, green space, transportation, campus design standards, and the integration of the campus with the surrounding community. The comprehensive plan will include the following components:

- a comprehensive facility condition assessment for existing buildings and infrastructure (utilities, information technology, roads, etc.)
- a campus sustainability plan that aligns with the UNC Sustainability Policy
- an assessment and prioritization of core infrastructure needs in light of emerging technologies
- an assessment and prioritization of new building needs
- a prioritized plan for addressing repair and renovation needs
- incorporation of green space throughout the campus
- a plan to consolidate like parts of individual units/colleges where possible
• a campus parking and transportation plan that facilitates access to education sites and includes investment in multimodal options such as bike lanes, greenways, etc.
• a process for allocating and budgeting space as a core resource to maximize space utilization
• a plan to ensure the integration of campus development with the community surrounding the University

GOAL 5.3: Improve the effectiveness and efficiency of campus business processes to ensure continuous improvement and to realize financial savings.

Initiative 5.3.1: Review the use of expendables, including printed documentation, and where reasonable, reduce such usage and transition to digital alternatives.

Initiative 5.3.2: Conduct business-flow analyses of all key functions and revise or eliminate unnecessary or redundant business processes and leverage existing enterprise solutions (Banner, Blackboard, R25, SharePoint, etc.).

Initiative 5.3.3: Consolidate and centralize similar operations across campus.

• **WCU Campus Master Plan** (2013) – *Creating a sustainable campus* (chapter 6)

**Drivers and Goals**

- Design and manage the campus landscape without compromising the natural environment
- Focus on stewardship of resources – landscape and water
- Emphasize campus as a living learning-laboratory – woodlands, waterways
- Optimize energy and conservation
- Restore and preserve open space
- Balance growth
- Champion sustainability
- Update campus design standards to address sustainability
- Enhance community partnerships and connections
- Employ less consumptive maintenance practices – emphasize life cycle
- Consider waste stream in the composting, reusing, and recycling of materials
- Pursue carbon neutrality
- Reduce energy consumption
- Consider downstream effects of campus landscape decisions
- Consider the interconnectedness of stewardship, pedagogy, and service learning

2. How has the purpose of the unit changed in the past 5 years?

The purpose of this unit has not changed in past five years. The demand has increased and we are not adequately meeting campus needs. In 2014-15 Grounds staff had to support the Recycling Operator position by providing waste collection services with an additional 463.75 man hours at a cost of $8,366.05 to meet demand. This pulls key staff away from their regular job duties and strains campus operations.

3. How do you expect the purpose to change in the next 5 years?

We do not expect our purpose to change and would like to see our operations expand in order to increase our current recycling rate of 19%. Our primary concern is that we will not be able to achieve this objective with our current resources. We will continue to provide waste reduction services for WCU. Our goal is that we will have obtained adequate resources and will be able to better serve campus needs. Please note that we have requested and additional Recycling Operator for over 15 years. We are missing opportunities that could reduce waste and thus save money from our operating budget.

**Demand for the program**

1. Who are the key users/participants of the unit’s programs or services?

Every person that produces waste on our campus is a key user. The largest participant group is Dining Services and Residential Living.
2. How do you identify and measure demand for the unit’s programs or services?

We measure demand by assessing total student enrollment (10,340 in 2015) and total WCU employees (676 full and part time faculty, 952 full and part-time staff). This does not capture visitors to campus that produce waste.

3. List those other units on campus that interact most with this unit. Briefly describe the nature of those interactions.

Grounds, Housekeeping, OSEM and the PM Coordinator units support a majority of recycling operations.

Grounds is responsible for removing waste from outside the buildings and transporting it the appropriate locations. GPA and mixed paper go to roll off containers located adjacent to the campus Print Shop. When full it is transported by Republic Services to Jackson County Solid Waste and Recycling Transfer Station. Scrap metal and appliances are collected at the WCU Landfill site and transported by WCU Grounds staff or picked up by a local scrap metal recycler.

Housekeeping is responsible for collecting all waste and recycling inside buildings and transporting to appropriate locations outside for pick-up by Grounds. In some instances, where there is a large quantity or volume of recycling being removed from a building, the Housekeeping staff will take it directly to the roll off containers located adjacent to the Print Shop. Also, the Housekeeping staff will move bulky waste items (Surplus items designated for disposal, etc.) directly to WCU’s Landfill site and placed in appropriate roll-off containers.

OSEM assists with the overall recycling program via educational awareness and outreach, branding, campus programming, identifying funding opportunities, process improvements, collection inventory, staff training, recycling waste cooking oil, e-waste and printer cartridges, and completes the annual recycling report to NC Department of Environmental Quality (NC DEQ), which was formerly known as NC DENR.

PM Coordinator coordinates recycling of lamps, ballasts, thermostats and batteries.

4. List other units on campus that provide related programs and services.

Housekeeping staff in Auxiliary Services buildings transport all waste to outside collection sites that is picked up by Grounds staff. This includes Dining Services, Campus Recreation Center, University Center, and Bookstore, Student that live in WCU Residence Halls are responsible for carrying all room waste to central collection points for Grounds Staff pick-up. These sites are located at each residence hall and have been added in the past 10 years.

5. Describe the unique contributions of this unit.

This unit is the only entity on campus that performs recycling services for WCU.

Quality

1. How do you identify and measure quality of the unit’s programs or services? List the top benchmarks used to assess quality.

We use the annual recycling report to NC DEQ as our benchmark to assess our program.

2. How do you use the results of quality assessments to improve programs and/or services? Provide specific examples.

OSEM reports this data to the Assoc. Vice Chancellor of Facilities Management, Grounds Supervisor, Housekeeping Supervisor, Director of Operations & Maintenance, and PM Coordinator on an annual basis. Recycling data is intermittently reported to the campus community for education and awareness programs.
3. What were the major accomplishments of the unit in the past 5 years? Include those directly related to unit functions AND/OR other contributions related to University goals.

We have increased our total recyclables by 85%, and achieved a 19% diversion rate. We received funding for two grants to provide additional bins for campus and increased campus education and awareness programs, particularly in the Residence halls. A few years ago Residential Living started providing collections for unwanted items to be donated to Goodwill Industries during move-out in the spring.

Cost Effectiveness
1. How do you identify and measure cost effectiveness of this unit? List the top benchmarks used to assess cost effectiveness.

OSEM uses recycling data captured from our annual NC DEQ Annual Recycling Report. See attachment 1 (NC DEQ Annual Recycling Report). Please note that we were not asked to submit a report from 2012-14 due to changes at NC DEQ.

Operations and Maintenance uses our work order system (TMA) to track internal costs and billing. For example, Residential Living move-in (fall 2014) and move-out (spring 2015), Grounds staff had to support the Recycling Operator with an additional 575 hours at a cost of $14,230.0 and 146.5 hours at a cost of $3,969.65 respectively.

2. Attach an itemized spreadsheet outlining ALL revenues/resources generated and expenses incurred for the unit for the past 3 years.

See attachment 1 (NC DEQ Annual Recycling Report), attachment 2 (Finished WCU Recycling Records 2009-2013, and attachment 3 (WCU Waste Record Master2004-2014). The annual salary for our Recycling Operator is $27,000 plus 28.86% for fringe and benefits bringing our total cost to $34,792.20

Opportunity Analysis
3. How can programs or services offered by the unit be enhanced? Examples might include:

- To build a robust, efficient, and effective recycling program at WCU;
- Hire an additional Recycling Operator to assist with collections;
- Hire a Coordinator to oversee the program. Currently, no single unit or person is responsible for managing our waste reduction program at WCU;
- Investigate if efficiencies can be achieved by combining Surplus and Recycling Operations. Both are located adjacent to each other in the Warehouse and the mission of waste reduction is similar between the two units;
- Investigate if efficiencies can be achieved by evaluating reporting structure of Operations and Maintenance and Surplus Property;
- Investigate the potential for additional financial support from WCU Auxiliary Services. Our two largest user groups, Residential Living and Dining Services, fall into this category;
- Assess current waste collection site locations around campus to facilitate better operation and performance for Housekeeping and Grounds. Deficiencies include but are not limited to Hunter Library, Hoey Auditorium, and Courtyard Dining Hall;
- Provide additional collection sites and improve current collection points on campus. Many existing sites are not adequate in size.

4. How do the activities of other units advance or hinder the effectiveness of your unit? Focus should be on those units that were identified in item #3 in the section on “Demand for the Program”.


We have no single point of contact that is solely responsible for managing this program. This causes inefficiencies, lack of user knowledge across campus and missed opportunities. Auxiliary Services operations also impacts our services. Facilities Management is not responsible for collecting recyclables inside these buildings (University Center, Bookstore, Residence Halls, Dining Services, Campus Recreation Center, etc.). However, they have seen large growth over the past 10 years contributing to larger volumes of waste.

5. What programs and services offered by the unit are redundant or outside the scope of the unit’s primary purpose?

None to our knowledge.

6. What are similar units at peer or aspirant institutions doing that this unit would like to do or should be doing?

Staff the recycling program adequately to meet the growing needs of campus. This will also allow us to capture additional opportunities.

7. What additional cost-savings could be achieved in this unit?

Appropriate staffing of the recycling program will provide avoided cost savings. We understand that a recycling program is not a money-making venture, but additional support could help us achieve greater avoided costs and additional savings. See attachment 5 (WCU Recycling Coordinator Study—Please note that this study was conducted by two WCU undergraduate students for a capstone course).

8. What external funding opportunities (grants, contracts, etc.) exist that could be pursued by this unit? If applicable, describe any efforts to pursue such funding to date?

We have received two grants in the past five years as mentioned above. There are a lot of missed opportunities and revenue streams we are not tapping into due to lack of staff and program management.

9. What would it take to make the program exemplary?

- Hire an additional Recycling Operator to assist with collections;
- Hire a Recycling Coordinator to oversee the program. Currently, no single unit or person is responsible for managing our waste reduction program at WCU;
- Create additional collection points and improve inadequate existing sites.