Kansas State University Recycling Committee: Five-Year Campus Recycling Plan

Purpose

This document is intended to guide the University Recycling Committee as it works to improve the efficacy of recycling activities at Kansas State University over the next five years. It sets an ambitious goal of recycling 50% of our waste by 2015 and establishes a broad template for specific initiatives and potential administrative proposals to that end.

Introduction

This proposal is guided by four core assumptions.

1. An effective recycling program is an essential part of waste management in the 21st century for any institution that:
    - promotes responsible action within society
    - seeks the strongest possible reputation among its peers and constituents
    - seeks to exercise leadership in areas of national and global concern
2. Recycling, like all waste management activities, requires a commitment of resources: financial, physical, and human. However, with an effectively organized program, we can mitigate some of the cost and reduce the cost associated with trash disposal. We can get paid for recyclables; we can never get paid for trash.
3. Recycling must be considered within the context of a "Reduce / Reuse / Recycle" model.
4. We could recycle much more of our waste than we currently do.

Overview of Current Status

In 2010, the university generated 2460 tons of solid waste. We recycled **19 percent** (465 tons) of that waste. While this is an improvement over the 11% of 2008, it falls far short of the recycling rates achieved by other institutions, such as University of Minnesota, 32% [1]; Cal Poly State University, San Luis Obispo, 60% [2]; University of California, Davis, 67% [3]; and University of Virginia, 43% [4]. In fact, in the 2011 Recyclemania competition, Kansas State University ranked 261 out of 363 institutions in the Per Capita division, the only division in which we competed.

In 2010, recycling operations by the Facilities Division grossed **$37,000** in revenue, or just over **$79 per ton**. This revenue was generated through two sources. First, when recycling is diverted from the landfill, money thereby saved is allocated to fund recycling activity. Capturing this expense accounted for about **53%** of total revenue (assuming tipping fees of $42 per ton). Second, recycling materials are sold to external entities. This accounted for the other **47%** of revenue.

Currently, a local recycler takes most of the materials collected, and Facilities receives payment for some of them. However, the new recycling facility, taken together with increased recycling activity, should widen our potential options for selling these materials to other recyclers and/or negotiating more competitive pricing. This has the potential to affect both the rate of return for materials collected and the cost of collection. In other words, decisions related to single-stream vs. source-separated recycling will affect both our income from recyclables and our cost structure for labor and equipment.

This committee has not yet completed a quantitative analysis of the cost structure for both recycling and conventional waste management, including a description of their interplay at various levels of recycling; so cost estimates are not ventured in this document. However, the committee has begun to collect this data, and we will weigh available cost-benefit estimates in all decisions.

Proposed Actions

As we take full possession of the new Recycling Center, it is expected that increased capacity for processing recyclables will offer an opportunity for improvement in our recycling program, allowing us to increase the volume of materials diverted from the waste stream. The following year-by-year outline proposes changes that will help Kansas State University capitalize on this opportunity. We expect that efforts will be ongoing in several key areas.

1. **Personnel**: We must be willing to hire and/or assign more students and/or staff as necessary to accommodate increasing rates of collection and/or sorting.
2. **Education**: Education and promotion within the campus community must happen continually. As the university hires new personnel and takes in new students every semester, the task of communicating the importance of our recycling efforts can never be "checked off" the list.
3. **Cooperation**: There are many stakeholders whose interactions factor into the waste management equation, including the city of Manhattan, the Student Union, the KSU Foundation, Athletics, the Greek system, etc. Productive and appropriate partnerships must be continually cultivated.
4. **Complementary Waste Reduction**: Waste reduction should also be evaluated and pursued in every area of institutional activity. A few potential areas for ongoing consideration include:
    - Composting and reduction of food waste.
    - Purchasing guidelines that favor recycled content, reduced packaging and/or the future recyclability (or biodegradability).
    - Facilitation of reuse (instead of disposal) wherever possible.

2011

Primary Goal – To develop a quantitative picture of the current state of recycling at K-State.

While we know that we divert less than 20% of our waste as recyclables, we do not know how much recyclable material becomes trash and what the composition of our current waste stream is. We need to build a more complete picture of this waste stream in order to make decisions that optimize our efforts. We recommend the following.

1. Implement a waste characterization study in Spring 2011. We need to analyze the composition of the current waste stream and evaluate where the waste is generated on campus. This should integrate any data collected in the last three years from ongoing recycling operations. An on-campus study is currently being conducted. We expect to seek support for hiring a consultant to complete a waste audit if the student effort proves insufficient.
2. For the new Recycling Center, acquire at least one baler and complete installation of a loading dock during 2011.
3. Evaluate potential buyers for recyclables. Continuing with source-separation and moving to a modified single-stream approach are both possibilities. However, the ability to collect revenue from one approach versus another must be considered before we commit, and buyer options are integral to this. The Waste Characterization Study should influence this decision; knowing what we *could* collect will affect revenue projections under various buying arrangements.
4. Explore the possibility of adding the KSU Recycling Center to the list of buildings for which the KSU Foundation donors could seek naming rights. While finding a donor is impossible to put on a timetable, the ability to endow funding for recycling and/or other complementary activities through attracting a donor interested in campus sustainability should be explored.
5. Work in cooperation with Athletics to enhance Game Day Recycling efforts. In the 2010 Gameday Recycling Challenge, Kansas State ranked 75/75 in Diversion Rate (by percentage), 76/80 in Pounds Per Capita Recycled and 45/75 in Pounds Per Capita Waste Generation.

2012

Primary Goal – To increase recycling totals to **25%** of total waste. This would generate around **$48,585** to support recycling operations (assuming net revenues per ton remains flat, and assuming total waste production is flat. I.e.: 2010 waste totals (2460 tons) X 25% X $79 per ton).

1. Hire additional staff to support the specific goal of increasing recycling at K-State and optimizing return on investment for recycling expenditures. We do employ individuals who have primary responsibility for coordinating and executing the physical collection and disposition of recyclables. However, current staff does not have sufficient time for planning, promotion and proactive coordination. Additional hiring should be done to facilitate this. Negotiating contracts, buying equipment, pursuing appropriate grants, advocacy and planning for recycling at special events (including sporting events and events at the Union and the Alumni Center) and spearheading ongoing promotion & education within the campus community are activities best conducted as a primary responsibility rather than as a sideline.

2. Develop a campus-wide recycling education program to promote the expectation of recycling participation among both faculty/staff and students. There are many possibilities to explore, including but not limited to:
    - Forming "green teams" within buildings or departments
    - Effectively integrating recycling awareness into the orientation of new students.
    - Creating new recycling events/challenges for the campus
    - Advertising support from leaders within the campus community.
    - Intensifying administrative communication regarding the expectation of participation by university units.
    - Improving/expanding signage for recycling
    - Creating a virtual tour of the KSU Recycling Center
3. Pending the final departure of the USDA from the Recycling Center in Fall 2012, plan and implement a furniture exchange and re-use program, including promotion and advertising. The new Recycling Center will, when fully in our possession, have room to allow for this. The ability to keep large items out of the waste stream and to collect revenue from finding new users for these items will potentially add value for the campus community in multiple ways.
4. Seek to finalize a decision regarding the preferred strategy for collection: source-separated or modified single stream. Given the ability of certain units to collect large amounts of one type of recyclable or another (such as cardboard) it is assumed that we will always want to maintain some ability to sell already-sorted materials and thereby collect higher prices. Thus, true single-stream collection seems unlikely versus a modified single-stream model.
5. Consider the results of the Waste Characterization Study and expand the placement of bins and/or the reach of the desk-side program based on results.
6. Evaluate policies and procedures for the collection of trash and/or recyclables. Consider where changes could be made to encourage and/or incentivize recycling behavior, optimize the use of custodial time and assure knowledgeable participation. This is most likely something that must happen on an ongoing basis. However, it would be particularly important at this juncture if collection is changed to focus on single-stream versus source-separation.
7. Complete a quantitative analysis of the cost structure for both recycling and conventional waste management, including a description of their interplay at various levels of recycling. We must obtain this data to measure and articulate the benefits of recycling, and to inform future decisions. A database will begin compiling this information in Spring 2011.

2013

Primary Goal – To increase recycling totals to **30%** of total waste. This would generate approximately **$58,302** to support recycling operations (same assumptions as prior year).

1. Reduce reliance on volunteers at special events, while still increasing the reach and presence of recycling at various sporting and entertainment events. For institutional waste-management, we should not rely on student volunteers to ensure recycling manpower. To the extent that

student participation is valuable, it must be reliable and organized in way that broadly distributes participation.

2. Audit and make specific recommendations for changing waste-generating practices. Reducing the actual volume of materials should offer monetary benefit to the university in the form of reduced purchasing costs and reduced waste-handling costs.
3. Make modifications to bins and signage and educational materials as appropriate if we modify the level of source separation.
4. If growth in recycling participation is not on track, consider what sort of policy changes and/or administrative pressure could further improve participation by university personnel.

2014

Primary Goal – To increase recycling totals to **40%** of total waste. This would generate approximately **$77736** to support recycling operations (same assumptions as prior year).

1. Re-evaluate adequacy of machine and space utilization within the Recycling Center as recyclable volume increases. Upgrade where necessary.
2. As we reach levels of recycling that are substantially improved, and/or favorable in relation to peer institutions, work to ensure that the accomplishment is adequately publicized, both internally and externally. We want to capitalize on the positive image value of any investment we make in socially responsible action.

2015

Primary Goal – To increase recycling totals to **50%** of total waste. This would generate approximately **$97,170** to support recycling operations (same assumptions once again).

1. Conduct another Waste Characterization Study to analyze the impact of increased recycling activity and to clarify where further progress might still be made, whether we can expand the scope of what we recycle without incurring additional cost.
2. Develop a new Five-Year Plan to assure continued progress towards optimal recycling and waste reduction.

References

1. http://www.facm.umn.edu/about/central-services/recycling/
2. http://www.afd.calpoly.edu/sustainability/campusoperations.asp?pid=5#Recycling
3. http://sustainability.ucdavis.edu/news/2011/january/waste_reduction.html
4. http://utilities.fm.virginia.edu/recycling/Pages/RecyclingPerformanceHistory.aspx