

UMKC Sustainability & Transportation Initiatives

October 21, 2008

UMKC faculty, staff and students have been working on several sustainability and transportation initiatives over the past several years. Each of these initiatives are in various stages but all have the objective of being more environmentally responsive to the Kansas City community while serving the needs of UMKC students, employees and the general public. The following is a summary of initiatives being addressed.

1. Sustainability Team 2008 - A UMKC Sustainability Team was formed in January 2008 and is comprised of 78 faculty, staff, and students. The Sustainability Team is a next step in the progression of the campus work on environmental issues and builds on the results of the Recycling and Waste Reduction Team. The goals for this Team in 2008 are as follows:
 - Composting food waste on campus
 - Locally produced food purchases by Sodexo
 - Composting organic waste from grounds maintenance
 - Expand Campus Recycling 2008 (Health Sciences, University Center, Education Building, Oak Hall, etc.)
 - Clean Commute Program to provide bikes and bike racks along with bike education
 - Recycle Mania
 - Green Purchasing Policy to expand recycled content paper, Energy Star rated equipment etc.
 - Create Baseline for Carbon Footprint on campus
 - Create a vehicle to communicate sustainability efforts on campus
 - Update website to include sustainability heading and then all the subsets under sustainability links such as Recycling, Green Purchasing, Composting, LEED Building, Environmental Curriculum, Landscaping, etc
2. Baseline UMKC Carbon Footprint - In a joint effort involving Environmental Studies faculty and students, Campus Facilities Management staff and the UMKC Sustainability Committee, a model to establish the existing carbon footprint of UMKC is near completion. This model is using the *Clean Air- Cool Planet Campus Carbon Calculator V5.0*. The final data set, which is transportation, is nearing completion. The calculation is scheduled to be turned over to Dr. Adegoke in early November for review and modeling in other calculators. The *Clean Air – Cool Planet Campus Carbon Calculator* should be available for use information in November.
3. Recycling - Campus Facilities Management created a Recycling and Waste Reduction Team which began efforts to further reduce waste and expand the white paper recycling program in 2002. The team implemented the new expanded recycling program on the

UMKC Volker campus in 2005. Additionally, UMKC Hospital Hill campus recycling was implemented in spring 2008 in both the Health Sciences Building and the School of Dentistry. UMKC now recycles mixed paper, cardboard, paperboard, aluminum cans, plastic beverage containers and scrap metal. UMKC received Environmental Excellence awards in 1994 and 2005 for its white paper recycling program for expanding recycling on campus. Based upon industry models, UMKC potentially saved 6,596 trees, 384 tons of air pollution and 2.7 million gallons of water with its recycling programs.

4. “Green” Cleaning Materials - Campus Facilities Management implemented the use of “green” cleaning materials in 2008, including glass cleaner, general cleaner, wash room cleaner and neutral disinfectant products. Eighty percent of all cleaners used by CFM Building Services Custodians are Green Seal certified cleaners and equipment.
5. Rain Gardens - UMKC has installed three rain gardens in the past year, the last two in partnership with CDM Engineers and the Department of Natural Resources.
6. Bus Service – UMKC currently has a shuttle bus that runs between the Volker Campus and Hospital Hill. UMKC has been negotiating with the Kansas City Area Transportation Authority (KCATA) for a bus pass system for students and employees that would replace the current shuttle system and enhance transportation options.

A potential student pass system would require a student fee to be paid to the KCATA and in exchange, students could ride any KCATA bus at any time at no additional charge. Transportation to Hospital Hill would be available via the new KCATA Rapid Transit line on Troost and in addition, KCATA would provide a UMKC shuttle system for the Volker Campus that would provide transportation across the Volker Campus. For employees, UMKC would pay a fee and employees could ride the KCATA buses for a reduced fare.

7. Alternative Fuel Vehicles - UMKC has purchased three electric carts over the past year to replace cars used to travel around campus. UMKC also purchases E-85 vehicles whenever possible for the vehicle type needed and has E-85 fuel available on campus to other state and federal agencies. UMKC has applied for a grant to replace the current recycling truck with an alternative/ bio-diesel/NG or some combination fuel vehicle that will reduce emissions. A pilot program will also be launched this academic year which will make electric vehicles available at the Administrative Center and University Center/Swinney for staff use.
8. Bike Commute Program and Ride Share Program - UMKC took delivery of 26 new bicycles on Aug. 6, 2008, as part of a “Bike Commute” initiative. The bikes have been

loaned out to students, faculty and staff for a full semester and 26 additional bikes will be added next semester. The grant will also allow for a survey of bike rack needs on campus and additional bike racks will be installed where needed most on campus. The Missouri Department of Transportation is supporting the effort with a 2-year grant and Bridging the Gap is assisting UMKC.

9. UMKC also launched a Ride Share Program in the Summer 2008 and over 100 UMKC employees are participating.
10. Building Design for Energy Efficiency - All new buildings, additions and major renovation are designed to meet ASHRAE Standard 90.1, Energy Standard for Buildings which includes the following features.
 - Use insulation in building walls and roofs and install thermally efficient glazing.
 - Use heat recovery systems and variable volume distribution systems on air circulation systems.
 - Use occupancy sensors and building controls to allow energy setbacks and load management.
 - Use high efficiency electric motors with building equipment.
 - Use high efficiency lighting fixtures and ballast.
11. Energy Performance Contracting Project - UMKC is nearing completion of an Energy Performance Contract with Burns & McDonnell Engineering Co., Inc. (B&M), where B&M provided the design, construction and guaranteed the energy savings resulting from the project initiatives. The projects being performed are financed from the energy savings and are projected to save \$1.6 million annually. The project total cost is \$19,675,027. Initiatives included in this program are:
 - Installing high-efficiency lamps and ballasts
 - New 5,800 ton chiller plant with all new chillers, cooling towers, pumps, piping and associated electrical equipment
 - Expanding the building automation system throughout campus
 - Installation of new laboratory controls and exhaust air system in Spencer Chemistry/Biological Sciences
 - Converting several buildings from constant volume air systems to variable air volume systems
 - Modifying of return air system in several buildings
 - Adding variable speed drive to one chiller in the Dental School Building
 - Installing new chiller and pumps in the Medical School Building
 - Installing water conserving plumbing fixtures throughout campus
 - Reducing steam usage by modifying sterilizers, minimizing steam leaks and modifying operation schedules

- Consolidating natural gas metering to obtain lower rates

Emission reductions resulting from this program are estimated at:

- 11,706 Tons of CO₂
- 26 Tons of NO_x
- 52 Tons of SO₂
- 224,465 milligrams of Hg
- Net 30% reduction of emissions

12. LEED and Green Building projects on campus as of 2008

- Health Sciences Building on Hospital Hill - Designed and built with many 'green' features and elements
- Oak Street West Development Phase II / Cherry Street Dormitory Replacement Housing - Designed and constructed to achieve LEED Certified designation
- New Student Union - Designed and constructed to achieve LEED "Silver" designation, with higher levels possible pending final design
- Miller Nichols Library Expansion - Phase 1 project is designed and constructed with many 'green' features and elements and overall project (Phases I, II and III) will be considered for LEED certified designation.

13. Sustainability Curriculum Offerings

- The School of Arts and Science under the Department of GeoSciences and Urban Planning offered the first cluster course on Sustainability and Community Engagement in the spring semester 2008. Dr. Caroline Davies and Dr. Michael Frisch both developed the class and had over 100 students enroll in the class.
- Political Science Department offers Environmental Justice class, Philosophy Department offers Environmental Ethics Philosophy and Public Policy class, Economic offers Environmental Economics class, along with many classes offered in the GeoSciences and Urban Planning Departments that provide the cross discipline approach to environment and urban studies program.
- These are only a few examples of course offerings incorporating sustainability into the curriculum.