



UNIVERSITY OF LOUISVILLE COMMITTS TO SUSTAINABILITY

Multi-departmental approach greens a vibrant 309-acre urban campus

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Photos courtesy of the University of Louisville.

Sustainability in action calls for facility and staff members to be “creative and responsible stewards” at the University of Louisville. That’s easy to say, but a huge challenge to execute.

A Sustainability Council comprised of faculty, staff and students and founded in 2008 provides oversight and direction, coordinates activities and recommends policies. The council’s three subcommittees are: Education and Research; Operations; and Administration, Finance and Outreach. Dr. Justin Mog serves as assistant to the provost for sustainability initiatives.

Aaron Boggs is the assistant director, physical plant maintenance and renovations. He handles much of the planning and implementation within the operations component.

“With widespread commitment to sustainability we get the buy-in to specific initiatives and actions that keep the process moving forward,” says Boggs.

The website (<http://www.louisville.edu/sustainability>) spreads the word on initiatives and their progress. It also announces special events and invites participation. Involvement leads to understanding, which generates input to better define and develop goals.

The University is working in conjunction with the Association for the Advancement of Sustainability in Higher Education (AASHE). It is committed to using its Sustainability Tracking, Assessment and Rating System (STARS).



Parents, prospective and active students, and the community judge a university in part by the appearance of the campus landscape. Highly visible from the main traffic route I-65, the 309-acre Belknap campus is an urban delight, rivaling the best parks in town.

“From the grounds management perspective, we need to keep open minds, consider all probable alternatives, and find the sustainability initiatives that fit our programs,” explains Boggs. “The principles are basic: reduce, reuse and recycle. There needs to be a balance between what we should do and what we can do realistically.

“The things we do to go green must deliver the desired results while

maintaining our standards of efficiency and productivity and they must be cost-effective. We’re a state entity working with the public’s money.”

Staff organization

Two superintendents report to Boggs. The superintendent of maintenance and renovation oversees the building maintenance staff. Greg Schetler serves as the grounds superintendent (a position Boggs held previously) and also as recycling coordinator.

A staff of 21 covers the general campus grounds maintenance. The staff includes an in-house mechanic, a garbage truck operator, a backup garbage truck operator who also maintains the parking garage, and a laborer who does grounds work part of the year.

The general campus area is split into two halves: North and South. Each has a foreman who oversees eight people. These individuals are assigned to specific areas of the campus and are responsible for all grounds-related maintenance within their areas. Schetler directs the two foremen and the mechanic.

Turf care

When Boggs was hired for his current position five years ago, one of his first steps was to inventory the areas they were maintaining. He learned that they were responsible for more than 55 acres of turfgrass and nearly 2 acres of landscape beds.

He wanted to reduce mower emissions, yet retain all the productivity of gas and/or diesel machines. After exploring the options, he determined the best alternative would be converting the existing mowers to propane.

“Propane was readily available and a local company, Metro Lawn, offered the support base to help us through the process,” he relates.

Boggs worked out a deal with the local propane distributor that guaranteed the price of propane would never exceed the cost of gas. That made it easier to gain approval from the university with funding of \$1,000 per machine for the kits and approximately \$200 per machine for some fabrication.

The in-house mechanic tackled the first conversions on his own, working with small, less-expensive conversion kits and two Honda push mowers.

“He found these pull-start mowers tough to convert, so he was a little skeptical of moving forward,” recalls Boggs. So Metro Lawn offered to help.

“They spent a day with our mechanic, converting one of our Scag Turf Tiger ZTWs. That gave him the confidence to do the other conversions on his own,” says Boggs. Eventually, the university converted eight Turf Tigers, two Scag ride-on mowers and two push mowers. Deck sizes range from 36 to 60 inches.

“Initially, our staff perceived the propane tanks as 30-pound bombs,” recalls Boggs humorously. “So we brought in a propane specialist who showed them why the units are less dangerous than gas.”

During the first year of operation, the fuel cost savings amounted to \$2,000, and Boggs calculates that it will take more than five years to cover the cost of conversion.

“But we achieved our goal, cutting emissions with no loss of productivity. When we need to replace mowers, we’ll select models that operate on propane,” he continues.



Aaron Boggs, assistant director, physical plant maintenance and renovation for the University of Louisville, with the Tree Campus USA award. Boggs surveyed the campus and came up with 55 acres of turf and 2 acres of beds

Other landscape initiatives

The grounds department has practiced integrated pest management (IPM) for years and continually analyzes procedures.

“We’ve adapted practices to reduce synthetic product applications. But we’ve retained some tools, such as pre-emergent control in plant beds, where the alternative – pulling weeds – is too labor-intensive to be cost-effective,” says Boggs.

Gardener Charlie Sloan produces in the university greenhouse many of the annual flowers that beautify the campus. Sloan knows what he’s doing; he’s held that position for more than 30 years.

As part of the sustainability initiative, he is now developing plans to incorporate more perennials into the plantings, selecting varieties that will provide similar performance to annuals but with less maintenance and lower costs. He’s also identifying high-profile sites where he’ll use only annuals for seasonal color.

“His buy-in to the changes is key to this initiative as it utilizes his expertise in bed design, plant production and maintenance,” says Boggs.

Some sustainability projects are labor-intensive, such as conversion of a section of bermudagrass turf to a wildflower butterfly garden. Long-term, it will reduce mowing and other maintenance practices.

Other initiatives incorporate multi-departmental skills and interaction. Trees were the focus of one such initiative, headed by William Persons, an ecology doctoral student and graduate research assistant. Working with a team of biology department students he located and identified campus trees. Students from the Computer Engineering and Computer Science (CECS) department entered data noting the species, variety, diameter, height and biological details for each tree. They developed a GPS map, color-coded by type of tree, using Google Earth as the portal. They follow the same process for new campus tree plantings. The CECS students developed an app to access this information on the over 2,500 trees on campus. They even built a tree tour on the app. This data helped establish the University of Louisville’s status as a Tree Campus USA. The grounds staff has access to the app and Boggs, a certified arborist, worked with the data to develop a comprehensive tree care program.

“You need to know what you have to create an effective management program for it,” explains Boggs. “This increases our efficiency. We can use the app to record new tree plantings, to set up fertilization schedules and pruning cycles, set up alerts for insect or disease inspection, and to track and report maintenance procedures by tree. It also helps establish the value of the trees to our campus.”

Armed with this information, Boggs developed Tree Protection Specs for construction projects that are included in the overall specifications for every project.

“There had been no established protection procedures prior to this. But when we were able to quantify a tree’s value and the costs involved in removing and replacing it, should damage occur, the process was quickly approved,” he explains.

Stormwater

Boggs' responsibilities include project management and input on new building projects. Early on, Boggs contacted Jeff Bruce of the Jeffrey L. Bruce & Company from North Kansas City, Mo. They had worked together during the synthetic turf installation of Papa John's Stadium. "His company is now focusing on sustainability, green roofs and bioswales, as well as athletic fields," says Boggs. "He's working with our office of planning and design on these major projects, incorporating inputs from my department, the physical plant and sustainability council."

Major flooding across campus in 2009 and the May 2012 stormwater infiltration of the metro sewer system put more emphasis on the runoff issue. The campus site is a low point in Louisville topography and the 2.2 million square feet of hardscape surfaces add to the problem.

Boggs says, "Geologists tell us a river once ran through this site. We've done testing all over campus and generally hit straight sand at a depth of 14 feet. Digging that deeply to create large infiltration trenches provides the green infrastructure to channel storm water runoff into the ground, not the sewer system. Then only waste water goes into the sewers, cutting the load on that piping."



The turf at an urban campus takes a beating as students rush to their classes. Regular aerification helps turf recover.

The turf at an urban campus takes a beating as students rush to their classes. Regular aerification helps turf recover.

Most of these kinds of projects are supported through the Metropolitan Sewer District stipend funds, with the funding amount based on the waters diverted. The University put together a suite of projects, calculating some will cost more than the stipend, some less, but the combined total will net zero.

Trash management and recycling

Recycling is a huge piece of the sustainability picture. When initially hired as the superintendent of grounds, Boggs was told his time allocation would "probably" be 80 percent grounds and 20 percent solid waste and recycling. But at that time, the physical plant recycling efforts focused only on paper, cardboard and a limited amount of aluminum. "My challenge was to develop a plan to move to single stream recycling," he says. "That definitely tilted the percentages of time allocation."

Again, buy-in was – and is – the most critical factor. “It takes education to instill the importance of recycling and to identify what should be recycled. Then we need to provide the proper receptacles at the appropriate places to encourage people to do the right thing with the materials.”

Inside the offices and classrooms, that translates to green mini-bins for trash with the former garbage cans transitioned into recycling cans. Food service sites have designated containers for paper and plastic for recycling and food scraps for composting. Some of the old dumpsters on campus are now used to make compost.

The grounds staff plays a key role in the recycling program. They collect lawn and plant debris and pruning trimmings for composting at an on-campus site. They assist in capturing all the debris from outdoor renovation projects and route it to the proper reuse and recycling areas.

Boggs says, “Trash control is one of the biggest jobs on a college campus. To avoid the negatives associated with trash littering the grounds and overflowing trash cans, we make pick up a priority. Though the number of trash cans and sections to police vary per area, that detail averages two hours a day and that’s what we allow for it.”

The crews buy in means the plastic bottle they pick up from the parking lot will go into recycling, not trash. Their input impacts where recycling receptacles and the BigBelly solar powered trash compacters are placed. They alert Schetler to the less common items, such as an abandoned couch, to insure it’s handled in the proper manner.

Boggs says, “The interesting thing about recycling is that it’s quantifiable where much of grounds maintenance isn’t. We can track the progress within various classifications.” The sustainability website shares progress reports like this one. “In 2012, the University diverted 41.3 percent of our total waste from landfills through our recycling program.”

Spreading the word is vital to keep the commitment to sustainability going. Boggs says, “If you don’t talk about what you’re doing, people assume you’re doing nothing.”

So post signage as appropriate. Establish a facility sustainability website and keep it updated. Use your facility public relations folks to promote your program internally and externally through multiple platforms such as newsletters, social media, local and regional print and broadcast venues.

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<http://www.turfmagazine.com/maintenance/university-of-louisville-commits-to-sustainability/>