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Temple to evaluate urban stormwater-management controls

Temple's Main Campus will become a living laboratory for the study and evaluation of stormwater management controls and practices in urban environments, thanks to a four-year, \$1 million grant from the U.S. Environmental Protection Agency (EPA).

Jeffrey Featherstone, director of the Center for Sustainable Communities at Temple, is principal investigator for the multidisciplinary grant, with Laura Toran, Weeks Chair in Environmental Geology; Mark Weir, assistant professor of public health; and Lynn Mandarano, associate professor of community and regional planning, serving as co-principal investigators.

Featherstone said the project—involving researchers from civil and environmental engineering, and horticulture and landscape architecture—will focus on the environmental, economic and social impacts of implementing green infrastructure to deal with stormwater-runoff issues in urban environments.

"Since there has been a lot of construction on Main Campus, we have the luxury of having about a dozen new stormwater-control measures scheduled, under construction or already in place, the effectiveness of which can be studied and evaluated," he said.

Featherstone said that rain gauges have been installed already at several locations around campus. "You can get tremendous precipitation variations within an urban environment and you want to be able to correlate the rainfall with the runoff, which these gauges allow us to do."

Additional trenches, cisterns and gauges will be installed around campus during the duration of the grant. And certain streets might become "green streets," featuring added trees and vegetation and

"Temple is becoming the focal point for stormwater management in the Philadelphia region."

-- Jeffrey Featherstone, director of the Center for Sustainable Communities at Temple

Main Campus locations to be examined

Temple's Main Campus provides numerous opportunities to study and utilize stormwater. Jeffrey Featherstone, director of the Center for Sustainable Communities at Temple and principal investigator of the EPA grant, named numerous sites to be examined:

stormwater runoff directed into underground trenches.

Featherstone said another part of project would explore the impact of green infrastructure on raising the city's property values.

"We will examine real-estate assessments of properties near green infrastructure and compare them to assessments for similar properties elsewhere," Featherstone explained. "If green infrastructure can increase property values, it can assist in raising the city's tax base and be a catalyst for the revitalization of the city."

Featherstone said the EPA wants to ensure that such practices work in tough urban environments. "If they are going to endorse these types of measures and controls, they want to be sure the science is there to support them."

Several Temple researchers also are involved in stormwater-control projects through the Philadelphia Water Department's Green Campus Initiative. That department has created a stormwater-management-enhancement district at Temple—the only such district that is a university and not a neighborhood.

"Temple is becoming the focal point for stormwater management in the Philadelphia region," Featherstone noted.

He added that Senior Vice President for Construction, Facilities and Operations James Creedon; Associate Vice President and University Architect Margaret Carney; and Tom McCreesh, director of operational standards and permitting, "have been very supportive about the need to make the campus a stormwater-management laboratory and have engaged the faculty in the design of stormwater facilities for new buildings."

In addition to Temple, the EPA awarded \$1-million grants to Villanova University, University of Pennsylvania, Swarthmore College and the University of New Hampshire.

- Trenches and infiltration galleries constructed under Parking Lot 10 at 12th and Diamond Sts. are being evaluated to see how much stormwater runoff is being captured, stored and infiltrated in the soil, versus how much is making it to the city's sewer system.
- A cistern in the Science Education and Research Center (currently under construction) will be used to collect rainwater for flushing toilets and other uses in the building.
- The green roof atop the Architecture Building might be quartered off so that researchers can use different plant materials to determine which works better in the region's climate.

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