

# CREATING SUSTAINABLE WATER SYSTEMS

BY EMILY J. SMITH

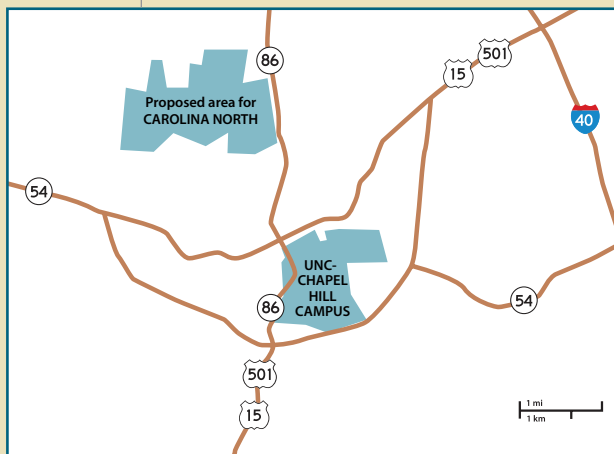
The UNC School of Public Health is working with UNC officials and the Orange (County, N.C.) Water and Sewer Authority (OWASA) to explore the possibility of implementing a water

research and educational outreach zone in Carolina North—the living and learning campus proposed a few miles north of Carolina’s main campus in Chapel Hill, N.C.

The Carolina North draft plan proposes to develop about 25 percent of the 900-acre tract over the next 50 to 70 years. University leaders envision the new campus will be a mixed-transit development, with classrooms, labs, homes, schools, community spaces, offices and commercial buildings in a campus-and-village setting that respects the ecology of the site.

School of Public Health faculty hope the proposed new campus also will be home to a project called One Hydrosphere. With seed money from UNC’s Office of Research and Economic Development and the UNC Institute for the Environment, Dr. Mike Aitken, chair of the School’s Department of Environmental Sciences and Engineering and Dr. Fran DiGiano, an environmental sciences and

engineering faculty member, have begun consideration of this collaborative research, education and public outreach project for sustainable water resource management at Carolina North. They foresee facilities and programs devoted to demonstrating how reclaimed water and cutting-edge technologies can reduce the environmental impact (or “footprint”) related to water consumption in new urban centers. Their idea is consistent with UNC Chancellor James Moeser’s stated vision of Carolina North as a model of sustainability. “The name ‘One Hydrosphere’



**TIP:** Replace your old toilet—the largest water user inside your home. Toilets made before 1993 use 3.5 to eight gallons per flush, while new high-efficiency models use 1.6 gallons or less—up to 80 percent less than older toilets. 💧

emphasizes the continuous cycling of water through natural processes and human use. Within this cycle, wastewater reclamation has become an increasingly important component of prudent water resource management,” says Aitken.

In May, Aitken and DiGiano convened about 40 individuals, including representatives of higher education groups, private sector, state government, K-12 science educators, UNC facilities planners and OWASA. They met in Chapel Hill for a day-long workshop to plan how the One Hydrosphere concept might be developed and eventually used.

Workshop participants brainstormed about ways One Hydrosphere could foster collaborative research opportunities and serve as an educational outreach facility to promote water quality and sustainable water resource management across the region and state. They also discussed ways to integrate the water conservation and reuse theme into the mission of Carolina North. Doing so would involve constructing a dual water distribution system on the new campus: one for drinking water and one for reclaimed water. A satellite wastewater treatment plant would need to be constructed to prepare the water for reuse.

The reclaimed water could be used for toilet flushing, air conditioning cooling towers, landscape irrigation, and environmental enhancements such as ponds and streams on the new campus.

“If a wastewater treatment plant and dual distribution system were put in Carolina North for water reuse, it would be the first in the country that wasn’t retrofitted into a college or university campus, but planned and built from the beginning,” says DiGiano. ■