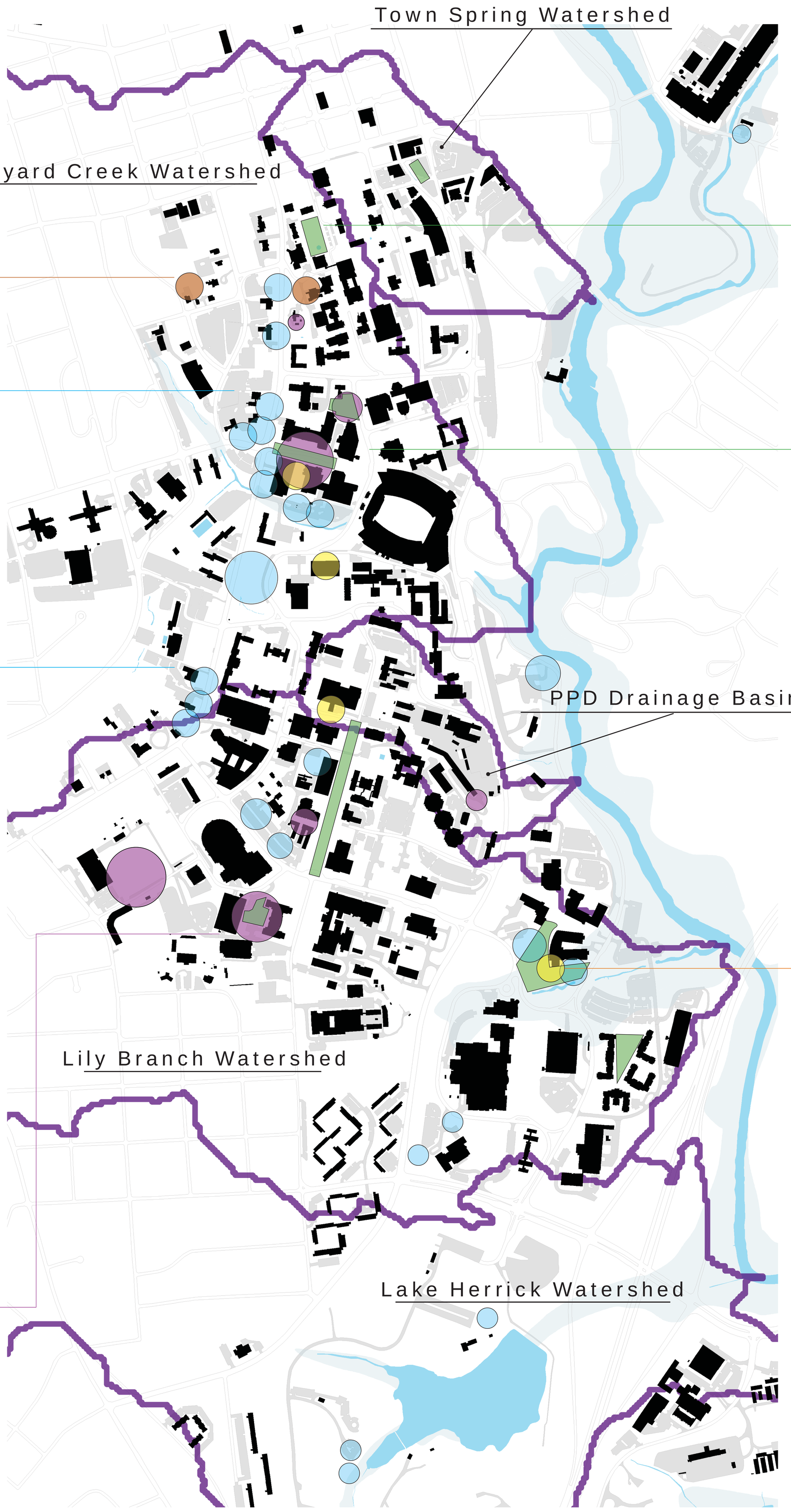
UGA Campus Stormwater



porous pavement

Conventional concrete or asphalt surfaces increase stormwater problems. They create stormwater runoff onto adjacent sites instead of allowing water to drain naturally into the soil. Surface parking lots can create huge amounts of stormwater that is typically polluted from vehicular residues, concentrated into stormwater pipes and then carried to downstream properties. Once inside those pipes, the high-velocity water can cause erosion and habitat degradation for the streams they empty into.

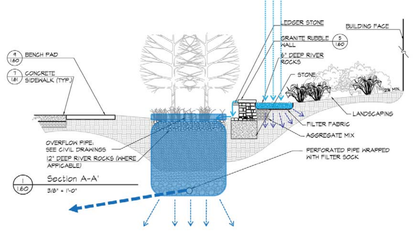
Porous pavements act as normal pavements, but also allow stormwater to drain through them and into the underlying soil. Microbes within porous pavements also help break down oils and other pollutants leaked from cars.

rain gardens

A rain garden is a planted depression that is designed to absorb rainwater runoff from impervious urban areas like roofs, driveways, walkways, and compacted lawn areas. This reduces runoff by allowing stormwater to soak into the ground (as opposed to flowing into storm drains and surface waters which causes erosion, water pollution, flooding, and diminished groundwater).

A raingarden is designed to handle the first flush, or first 1.2 inches of rainfall. Water from streets and parking lots is directed towards these raingardens where it is filtered by plants, and a special soil mix that encourages percolation. Water that infiltrates into the ground helps to create healthy campus streams during dry periods.

There are over 40 raingardens located in various watersheds of the UGA campus.

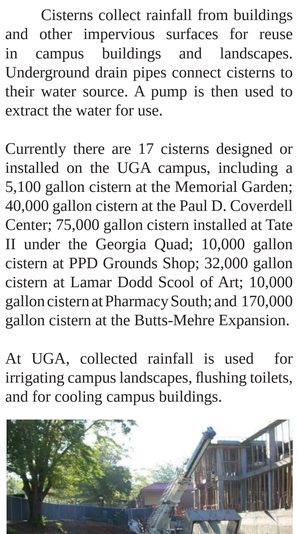


cisterns

Cisterns collect rainfall from buildings and other impervious surfaces for reuse in campus buildings and landscapes. Underground drain pipes connect cisterns to their water source. A pump is then used to extract the water for use.

Currently there are 17 cisterns designed or installed on the UGA campus, including a 5,100 gallon cistern at the Memorial Garden; 40,000 gallon cistern at the Paul D. Coverdell Center; 75,000 gallon cistern installed at Tate II under the Georgia Quad; 10,000 gallon cistern at PPD Grounds Shop; 32,000 gallon cistern at Lamar Dodd Scool of Art; 10,000 gallon cistern at Pharmacy South; and 170,000 gallon cistern at the Butts-Mehre Expansion.

At UGA, collected rainfall is used for irrigating campus landscapes, flushing toilets, and for cooling campus buildings.



greenspace creation

Over ***46 acres*** of greenspace has been created at UGA in the last 10 years. Transforming the University from a car-centered thoroughfare to a pedestrian-friendly, green campus involves ripping up a lot of asphalt, over **1.5 million sf** in UGA's case.

To reduce the need for irrigation, native plants are used extensively in these greenspaces. Appropriately sited native plants are beneficial for various reasons: they are adapted to the southeastern environment and can withstand the harsher aspects of the climate without depending on regular watering, fertilizing, or pesticides; they are better suited to provide habitat to Georgia's native fauna; and they help create the character and sense of place that defines the UGA campus. Native Piedmont forest restoration plantings, as well as stream restoration projects such as Historic Town Spring, are being implemented to further enhance the campus ecolgy.

green roofs

Green roofs are living roofing systems that incorporate plant material. In addition to functioning as a roof they also provide beauty, habitat and other environmental benefits. Green roofs reduce heat island effects and are excellent insulators for the buildings they cover. In direct contrast to their metal and asphalt relatives, they help treat stormwater instead of compounding the problem. UGA currently has an existing green roof on the Geography building, a trial roof on the Science Library, an extensive green roof on the new Lamar Dodd School of Art building and an intensive green roof plaza at Tate II.

Stormwater is not a problem in itself, but how we treat it leads to two very different outcomes.

In natural settings, rainfall percolates into the ground where it is slowed, filtered and eventually travels to recharge lakes and streams. Urban areas with many impervious sites speed the velocity of stormwater, funnel it into concrete pipes, and discharge dirty, high-velocity water into lakes and streams without any chance of filtration. The result is polluted and eroded urban stream systems.

At UGA, impervious surfaces have combined to damage Tanyard Creek and Lily Branch. Mitigating these effects through best management practices like pervious pavement, bioretention, and cisterns has become the standard for stormwater treatment to which UGA holds itself. Not only do large, coordinated projects like the Lumpkin Street renovation improve water quality for a campus watershed, they also provide functional and educational opportunities. By being highly visible and attractive elements of campus, they introduce people to a natural phenomenon that might otherwise be ignored. Furthermore, those elements can provide valuable research opportunities for students and faculty studying urban ecosystems. Campus stormwater projects, in effect, not only mitigate an ecological problem, they also become an outdoor learning lab.

The University of Georgia is working hard to keep abreast of ideas and technologies that will help it become an ecologically friendly campus. Some of these ideas, like collecting rainwater in cisterns, are not new at all, but are tried and true practices that had somehow been forgotten or omitted from conventional building practices. Some of these ideas, like the installation of a green roof, are striking to the average observer. Others, like taking a cue from nature and using native plants to conserve water, are more subtle. In all cases however, the result is improved habitat, resource conservation, and an aesthetic amenity to the campus environment.

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