



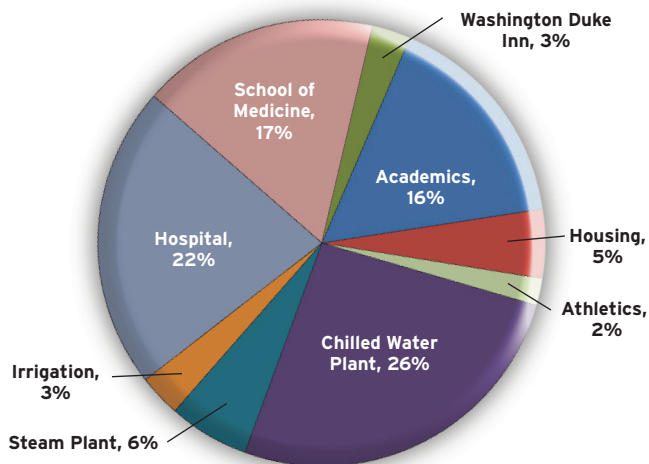
Water & Stormwater Management Sustainability Facts

Overview

Duke University obtains all its potable water from the City of Durham, which receives its raw water supply from the Lake Michie Reservoir and the Little River Reservoir. There are a number of alternative sources to supplement this supply including the Teer Quarry and allocations from neighboring towns.

Water conservation and efficiency have always been a goal of Duke, but this was especially key in October of 2007 when the North Carolina Drought Management Advisory Council listed Durham County, along with 54 other counties, in the highest category of D4-Exceptional Drought. Through the dedicated efforts of everyone on campus, Duke reduced its water use by 50 percent month over month from the previous year with an estimated sustained decrease of 30 percent. In FY 2011, Duke's annual water usage was 448 million gallons.

Duke Water Consumption by Management Center FY2011



Existing Sustainability Initiatives

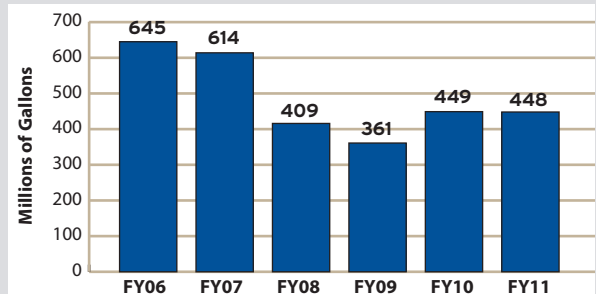
- SWAMP Site
- Take back the Tap
- Non-potable water use at Williams Field
- Campus wide upgrade of bathroom fixtures
- Rainwater Cisterns
- Reducing the number of once through cooling systems in labs
- Expediting the connection of buildings to more efficient, centralized chiller plants

Stormwater Regulation

Stormwater is one of the five central utilities operated by the University. The City of Durham is the monitoring agency, which charges a monthly stormwater fee based on the amount of impervious surface on campus. Duke's campus lies in two different watersheds, the Cape Fear (Main & Central) and Neuse (East), complicating management of this utility.

Stormwater regulations in Durham have become increasingly strict over the past several years. Prior to 2009, city requirements for stormwater differed in each watershed. The Cape Fear focused mainly on the quantity of stormwater leaving campus, while the Neuse had a water quantity and water quality component. With the 2009 update, the city implemented a common ordinance across both basins with a focus on the quality of stormwater leaving campus. It is expected that another update will be released in 2012, again tightening water quality requirements.

Total Campus Water Use



Water and Stormwater Management Statistics Fiscal Year 2011

Score on AASHE STARS Water Section	10.25/10.25
Amount of Potable Water Used	448 million gallons
Amount of Non-Potable Water used by Chiller Plant 2	~40 million gallons
Amount of Rainwater Storage Cisterns on Campus	150,000 gallons*
Total Acres of Campus (Modeled for Stormwater Analysis)	1700
Acres of Impervious Surface (Modeled for Stormwater Analysis)	405
Amount of Water Used for Irrigation	~15 million gallons
Percent of Water Used for Irrigation that is Non-Potable	~10-15%
Number of Campus Water Meters	232†
Number of Buildings on Campus with Water Use Allocated	253‡
Percent of Buildings that are Individually Metered for Water	53%

* CIEMAS 70,000 gal, Center for Athletic Excellence | † 13 City, 62 irrigation, 22 allocated by square feet, 21,000 gal, Williams Field 60,000 gal | 135 individual building

‡ Not including Marine Lab, Central Campus Housing, or Separate Housing Quad Buildings



Water & Stormwater Management Sustainability Facts

Before 2007

- Duke began analyzing stormwater on a regional basis
- Duke's Stream and Wetland Assessment Management Park (SWAMP) site Phase 1 implemented
- Fitzpatrick Center completed with 70,000 gallon underground rain water cistern

2007

- The North Carolina Drought Management Advisory Council listed Durham County, along with 54 other counties, in the highest category of D4- Exceptional Drought
- Duke formed a drought response team for campus water, and water use on campus dropped over 50% month over month from the previous year
- Duke distributed 10,000 free low-flow showerheads to employees and off-campus students

2008

- Washington Duke Golf Course reduced fertilizer and potable water use by 30%
- 250 new ultra-high efficiency front load washing machines installed in residence hall laundry rooms
- Began implementation of alternative water sources for make-up water at Chiller Plant 2

2009

- Environmental Alliance began Duke's Take Back the Tap campaign with water taste tests on The Plaza
- Two rainwater cisterns installed to provide irrigation water for Williams Field
- City of Durham adopted new stricter stormwater ordinance

2010

- City of Durham again updated stormwater ordinance

2011

- West Campus Water Reclamation Pond feasibility study and proposal presented to the Board of Trustees