

# ORANGE WATER AND SEWER AUTHORITY

## RECLAIMED WATER SYSTEM

May 2016

**PURPOSE:** To provide information about OWASA's reclaimed water (RCW) system.

**BACKGROUND:** OWASA and the University of North Carolina at Chapel Hill (UNC) partnered to develop the RCW system to provide UNC with a capability to use RCW instead of drinking water to meet certain non-potable water demands (chilled water, irrigation of landscaping and athletic fields, toilet flushing in new facilities, etc.) on the campus. RCW is the clean water produced as a by-product of the advanced treatment of wastewater at OWASA's Mason Farm Wastewater Treatment Plant (WWTP).

UNC paid the entire cost to build the RCW system, excluding the \$1.6 million in grant funds OWASA received from the North Carolina Clean Water Management Trust Fund to pay for engineering design and permitting costs, and \$625,500 OWASA received from EPA which helped pay for construction of the system. The system cost about \$14 million to design and build. Upon completion, the RCW capital improvements were dedicated to OWASA for operation and maintenance.

**OWASA'S OPERATION:** The RCW water system began operation in April 2009, and Calendar Year 2015 RCW sales averaged 0.58 million gallons a day (MGD), about 8.5% of the community's water needs. The system includes a 600,000 gallon concrete storage tank and a pumping station located at the WWTP. The RCW system also includes a chemical feed system that allows OWASA to further treat and disinfect the already highly treated reclaimed water. The RCW distribution system is comprised of about five miles of RCW mains ranging in size from 6 to 24 inches in diameter.

The RCW system is currently configured to meet a total peak day demand of 3 MGD (average daily demand of 1.2 MGD); however, the system is designed and constructed to allow cost-effective expansion to 5.2 MGD by adding only an additional transfer pump and additional chemical feed system capacity. The RCW average daily demand forecast for Fiscal Year 2016 is 0.75 MGD. Demands are expected to increase to about 0.93 MGD by 2030. The system's current configuration is expected to meet projected RCW demands for the foreseeable future.

The cost to operate and maintain the system is paid solely by OWASA's RCW customers which currently includes only UNC (including UNC Healthcare) and the Saint Thomas More School.

### **PRIMARY BENEFITS OF THE RCW SYSTEM:**

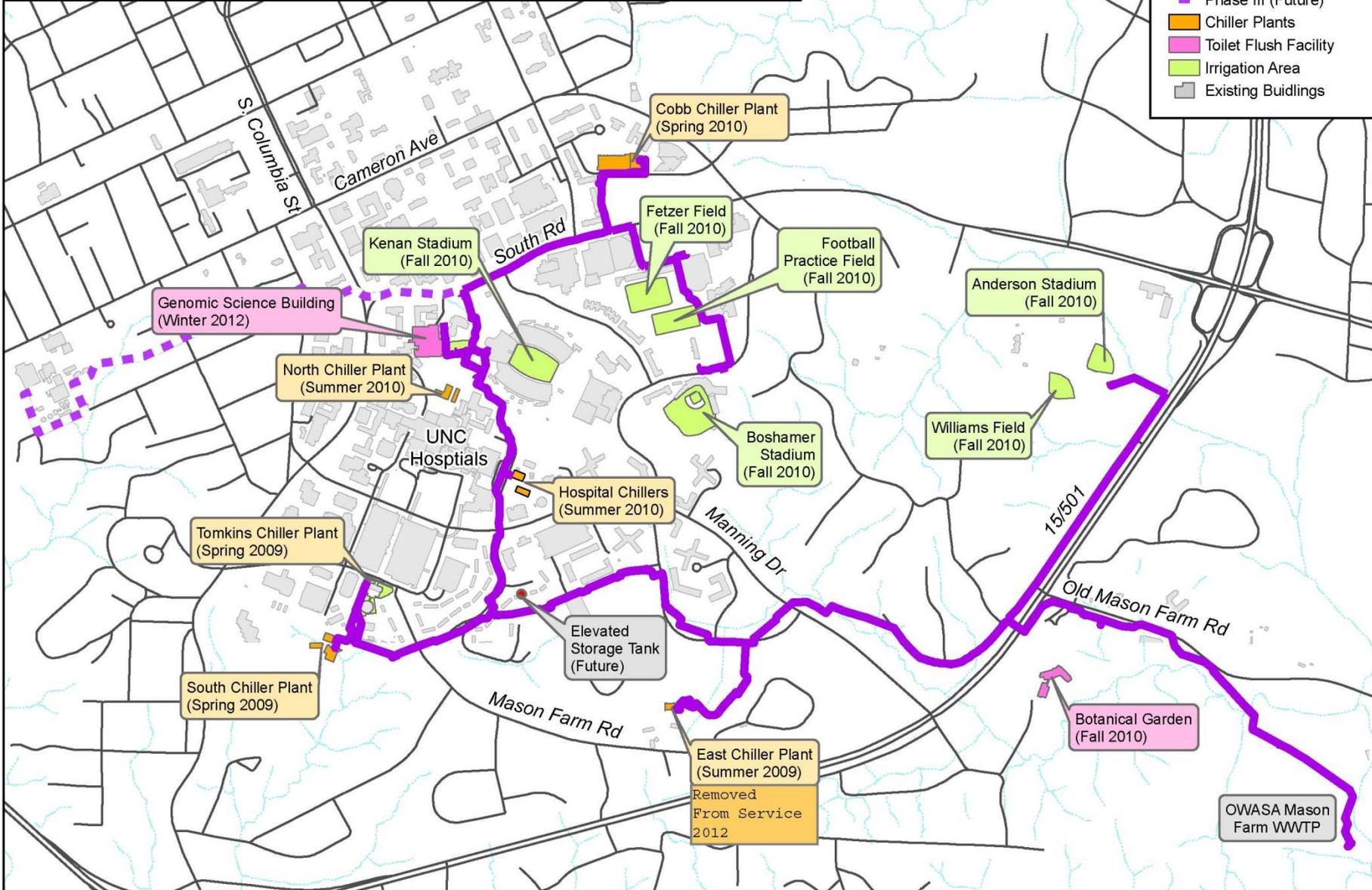
- Enables OWASA to meet non-potable water needs in a cost-effective manner while freeing up the community's drinking water supply and treatment capacities to meet essential needs;
- Lowers the risk (for all customers) during future droughts;
- Defers the need for costly additional water supply and/or treatment facilities; and
- Reduces the amount of energy OWASA uses to meet UNC's non-drinking water needs.

**FUTURE EXPANSION OF THE SYSTEM:** OWASA's 2010 Long-Range Water Supply Plan concludes that investing OWASA funds in an expansion of the RCW system to promote further conservation of OWASA's drinking water supply sources is less cost-effective than other water supply management options identified in the plan. Instead, the plan concludes that OWASA remain "opportunistic" on a case-by-case basis with respect to customers seeking to extend or connect to the RCW system.

# UNC-OWASA Reclaimed Water System and Uses

March 2013

- Legend**
- Phase I & II (Existing)
  - - - Phase III (Future)
  - Chiller Plants
  - Toilet Flush Facility
  - Irrigation Area
  - Existing Buildings



 1 inch = 1,200 feet

Note: This map provides a schematic representation of utilities on campus and is neither complete nor accurate. The GIS maps are a work-in-progress and do not contain all known utilities on campus. This map should be used in conjunction with record drawings and site surveys to identify and obtain actual locations of all existing site utilities. Designers and Consultants utilizing these maps are subject to the standards set forth in the UNC Design & Construction Guidelines. For more information concerning this map, please contact Lisa Huggins, Energy Services GIS Coordinator, at 919-962-4060.