

Section 1

Project Background and Objective

1.1 Project Background

The Town of Cary (Town) began operation of its reclaimed water system in 2001 and was the first utility in North Carolina to deliver reclaimed water for beneficial uses to homes and businesses to meet irrigation and cooling demands. Reclaimed water is a critical piece of the Town's overall water resources, serving the following goals:

- Reducing the peak demands on the potable water system to decrease or defer water treatment plant expansion;
- Reducing wastewater treatment plant discharge and loads into receiving waters;
- Assisting the Town's efforts to reduce per capita potable water use; and
- Reducing interbasin transfer (IBT).

For the past decade, the Town has maintained a reclaimed water program consisting of two distribution systems: the North Cary service area served by the North Cary Water Reclamation Facility (NCWRF) and the South Cary service area served by the South Cary Water Reclamation Facility (SCWRF). The Town is currently expanding its reclaimed water system into a third service area through joint implementation of the Jordan Lake Water Reclamation and Reuse project (JLWRP) with Durham County and Wake County. This project will initially provide reclaimed water from Durham County's Triangle Wastewater Treatment Plant (TWWTP) to customers in the Wake County portion of Research Triangle Park and to the Town of Cary's Thomas Brooks Park, site of the USA Baseball national training center, as well as new subdivisions and currently undeveloped portions of northwestern Cary.

The Town's last Reclaimed Water Master Plan was completed in 2007. To provide more current analysis and modeling of the reclaimed water system and create the basis for future planning decisions, the Town commissioned CDM Smith to perform a comprehensive Reclaimed Water Master Plan Update. The Reclaimed Water Master Plan Update was coordinated and integrated with the Town's Long Range Water Resources Plan (LRWRP) project, which was performed concurrently with this study.

1.2 Objective

The Town of Cary and CDM Smith staff jointly developed the following mission statement for the Reclaimed Water Master Plan Update.

"The Cary/CDM Smith Team will prepare a reclaimed water system master plan update that is cost-effective, that supports the Town's water resource management objectives, and that is acceptable to stakeholders. The plan will be based on the development and application of an updated hydraulic model of the system, calibrated to recent field measurements and system demand data, and will consider and inform the Town's latest land use plans."

1.3 Report Format

To present the evaluation, results, and recommendations developed during the master planning process, the remainder of the report is organized into the following sections:

Section 2 – Existing Reclaimed Water Program

Section 3 – Regulatory Review

Section 4 – Existing Reclaimed Water Demands

Section 5 – Future Reclaimed Water Demands

Section 6 – Reclaimed Water Supply Capacity

Section 7 – Hydraulic Model Development and Evaluation Criteria

Section 8 – Future Reclaimed Water Scenario Evaluation

Section 9 – Recommended Capital Improvement Program