

OXFORD COUNTY OXFORD SOUTH ENERGY OPTIMIZATION

Delivering Value Through the Water Cycle: Source to Tap, Tap to Source™

Oxford County is comprised of a number of communities ranging from the City of Woodstock with a population of 38,000 to small rural villages. The County operates the water and wastewater systems for each community including treatment, pumping and distribution.

The County has recently implemented aggressive energy reduction targets. In an effort to reduce energy consumption, the County retained C3 Water to carry out an energy optimization project for the Oxford South water supply and distribution system. The Oxford South water system is comprised of three interconnected water systems including the towns of Norwich, Otterville and Springford. The water system includes 7 wells, four treatment facilities, 2 elevated tanks and a control valve.

Phase 1 of this project involved carrying out hydraulic water model updates to provide energy efficiency analysis and optimization capabilities. The County's existing steady state model was updated to provide extended period simulation (EPS) functionality and reporting. The following updates were carried out;

- Add water production infrastructure and data.
- Add elevated tanks with storage curves.
- Verify model demands; MDD, ADD and PHD scenarios.
- Develop and implement 24 hour diurnal curves.
- Develop and implement 24 hour energy rate curves.
- Implement system controls and settings.

Phase 2 of the project involved utilizing the County's new EPS hydraulic water model to carry out energy efficiency analysis and optimization on the existing system and identify both capital and operational upgrade for improving the operational efficiency and effectiveness of the existing water system. Optimization recommendations included;

- Maximize supply from the most energy efficient sources.
- Peak pump shifting to maximize available storage.
- Modify pump time based controls to operate during off-peak periods.

