

Case study

City of Rome

Rome, New York



Wastewater treatment plant expansion cuts energy costs through self-funding project

The City of Rome is located in upstate New York, 45 miles east of Syracuse, and has a population of nearly 35,000. Like many small American cities, it is struggling to maintain services and make critical infrastructure improvements in the wake of state and local budget cuts, as well as a shrinking tax base. And, as part of its Economic Development Plan, the City is actively marketing itself to attract new businesses and keep its economy strong. The site of the former Griffiss Air Force Base has been successfully redeveloped to attract commercial and light industrial tenants.

In September 2007, the City of Rome teamed with Johnson Controls to install \$2 million worth of energy efficiency improvements that will pay for themselves through lower utility bills. The self-funded “performance contract” included lighting upgrades, a new boiler, energy management systems, and building envelope improvements. Based on our performance, the City turned to Johnson Controls again in February 2008 to trim energy costs at its wastewater treatment facility. This additional performance contract includes both modernizing and increasing the plant’s capacity.



One of three energy efficient variable vane blowers installed.



Stainless steel piping delivers air from blowers to aeration basins.

Challenges

- Expand the capacity of the existing wastewater treatment plant to accommodate the wastewater needs of new businesses.
- Decrease energy consumption to lower utility costs, reduce operating expenses and minimize the facility's impact on the environment.
- Pay for these infrastructure upgrades without raising taxes.

Johnson Controls solutions

- Install a fine bubble aeration system at the wastewater treatment plant to replace the City's mechanical aerators, some of which were 30 years old. Staying with the existing system would have been both cost prohibitive and energy inefficient because of a one-year lead time for custom parts and a cost of \$1.2 million. The fine bubble aeration system includes energy efficient variable-vane blowers, dissolved oxygen controls, and efficient membrane diffusers. The dissolved oxygen controls automate the output of the blowers, thereby minimizing energy consumption.
- Install variable speed drives on low-lift pumps at the water filtration plant.
- Utilize New York's performance contracting legislation to finance the project with a tax-exempt municipal lease over a 15-year term.

Results

- When completed in the summer of 2009, the wastewater treatment plant will be able to process additional volumes of "high strength" waste. The expanded capacity will allow the City to generate additional revenue from companies that produce waste, as well as help attract new businesses to Rome.
- Reduced energy consumption will result in savings of more than \$100,000 annually.
- The resulting operational benefits will make it easier for the plant to meet its discharge permit requirements.
- With Johnson Controls guaranteeing the savings, the City of Rome will obtain benefits totaling \$8.6 million over the 15-year contract term, with no taxes raised. The City will continue to enjoy cost savings after the contract expires.