

# Wastewater Infrastructure Benefits from Stimulus Funding

## Two Projects in Central New York

by Robert Kukenberger and Carrie VanDerhoof



Photo by Sara Urciuoli, Urciuoli Photography, Syracuse, NY

Author Bob Kukenberger inspects a 36-inch diameter pipe for ARRA “Buy America” compliance.

The American Recovery and Reinvestment Act (ARRA), commonly known as the Stimulus Act, was signed into law by President Barack Obama on February 17, 2009. New York State received \$432 million for Clean Water Projects and \$86 million for Drinking Water Projects. This funding is being administered by the New York State Environmental Facilities Corporation (NYSEFC), jointly with the New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (DOH) under the State Revolving Fund (SRF) programs. While this is a much needed boost for water and

wastewater infrastructure funding, the needs for New York are daunting by comparison. The wastewater municipal infrastructure needs statewide have been estimated at \$36.2 billion over the next 20 years.<sup>1</sup> Maintaining and improving our water quality is imperative for social, economic and environmental reasons, and it takes a combination of local, state and federal funding to meet the costs of infrastructure.

The ARRA required that selected projects be “ready-to-go” or “shovel ready” and, therefore, projects were selected that were demonstrated by municipalities to be at a stage of readiness to be able to execute construction contracts by February 17, 2010. The NYSEFC also selected projects that would create geographical and regional diversification as it was important to distribute the funds throughout New York State. A total of 81 wastewater projects were financed through ARRA under an SRF program. Two of these projects are featured in this article: the Onondaga County Harbor Brook Combined Sewer Overflow (CSO) Abatement Project; and, the Village of Canastota Water Pollution Control Plant (WPCP) and CSO Improvements Project.

### Harbor Brook CSO Abatement Project

The Harbor Brook CSO Abatement Project includes replacement of approximately 9,600 lineal feet of early 20th century U-shaped concrete interceptor sewer with larger diameter PVC pipe to convey sanitary combined sewage to the Metropolitan Syracuse Wastewater Treatment Plant (Metro), as well as separation of two combined drainage areas and construction of several green infrastructure projects to reduce stormwater flow to the combined system. This project had been placed on hold in 2008 at 75 percent design completion pending a review of Onondaga County’s CSO abatement program along with consideration of an enhanced CSO program featuring green infrastructure to reduce runoff and combined



Photo by Sara Urciuoli, Urciuoli Photography, Syracuse, NY

Excavation gets underway for the 36-inch Harbor Brook interceptor pipeline.



Photo by Sara Urciuoli, Urciuoli Photography, Syracuse, NY

Operators install bypass pumping system for the Harbor Brook rehabilitation project.



Three large underground fuel storage tanks were found during excavation for the pipeline, one seen opened here (right). Workers are shown preparing tanks for remediation. Tanks were emptied, removed and the surrounding soil was remediated in accordance with NYSDEC requirements.

sewage flows. With the availability of ARRA funding, the county accelerated the evaluation of the Harbor Brook CSO program and authorized completion and revisions of the design of the interceptor replacement and added the green infrastructure (GI) components to the project. The GI projects include infiltration tree basins, a major rain garden and bio-retention basin, porous pavements and porous sidewalks.

The Harbor Brook CSO abatement project will have significant environmental and socio-economic benefits because it will reduce CSO volumes discharged to Harbor Brook and Onondaga Lake, improve the community with green infrastructure and reduced flooding potential, and remove underground storage tanks that were discovered during the excavation for the new interceptor sewer. In addition, Onondaga County has been approached by the local community for involvement with design, construction and maintenance of the planned rain gardens and infiltration swales. It is also planned to construct test sections of porous concrete and porous pavement on city streets and sidewalks. The work under this project is consistent with and part of Onondaga County's GI program across the entire CSO drainage area in the City of Syracuse to reduce stormwater runoff to the combined sewer system.

The Onondaga CSO project is financed for an estimated total of \$21.8 million, including an EPA approved green project reserve of \$1.8 million. The estimated ARRA principal forgiveness (grant) is \$11.8 million and the remainder of \$10 million will be paid back by the county under a low interest, long term loan. The ARRA funding for this project is important to Onondaga County and its ratepayers as the CSO program cost is currently estimated at over \$500 million.

### Village of Canastota WPCP and CSO Project

The Village of Canastota WPCP and CSO Improvements Project consists of a new 16.8 million gallon per day capacity combined dry and wet weather headworks (screening and grit removal) and pumping station; a new 710,000 gallon above-grade wet weather storage (equalization) tank, rehabilitation of the existing primary settling tanks and anaerobic digester processes within the existing clarigester tanks; the rehabilitation of existing aeration tanks, secondary gallery and final settling tanks; and, the upgrade of miscellaneous equipment throughout the plant.

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*Photos by Sara Urciuoli, Urciuoli Photography, Syracuse, NY*



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A well point system was installed for dewatering prior to deep excavation for the CSO pipeline.

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On June 17, 2005, a Modification Consent Order (MCO) was issued by NYSDEC requiring the Village of Canastota to submit a Wastewater Facilities Plan for addressing its wastewater treatment capacity needs and abatement of Combined Sewer Overflow (CSO) 002, which discharges to Canastota Creek. The MCO was executed by NYSDEC on February 13, 2006. These improvements will help the village comply with the requirements set forth in the modified consent order and the State Pollutant Discharge Elimination System (SPDES) permit for the Canastota WPCP.

Green Project Reserve (GPR) funding will enable the Village of Canastota to enhance the energy efficiency of its wastewater treatment plant through improvements to the aeration system.

This will be achieved by replacement of existing blowers with single stage centrifugal blowers, and installation of a dissolved oxygen based control system to maximize aeration efficiency and minimize blower operation and energy consumption while treating highly variable organic material loadings in the influent wastewater. The GPR will also allow Canastota to install solar panels to reduce the consumption of fossil fuel derived power at the wastewater treatment plant. These proposed improvements have been approved by the US Environmental Protection Agency as eligible GPR infrastructure under ARRA.

The ARRA funding enabled the Village of Canastota to proceed with this project on an aggressive schedule and as one project rather than a staged program based on available financing. Local financing for this project is limited due to the village's requirements to pay on existing bonds for previous sewer separation projects.

This project will result in environmental benefits to Canastota Creek due to the reduction of CSOs from 40 to 50 events per year to an estimated four to six events per year, along with improved treatment plant efficiency for wet weather and dry weather wastewater flows. The GI components of the project will reduce energy consumption at the wastewater treatment plant and demonstrate the use of high efficiency aeration equipment and controls, and solar panels at wastewater treatment plants.

### Environmental Benefits and Construction Jobs

Both projects are being monitored by NYSEFC with regard to jobs, minority and women businesses and workforce, implementation of green infrastructure, and compliance with "Buy American" requirements. These two wastewater infrastructure projects demonstrate the benefits of infrastructure funding and cooperation between local, state and federal officials to achieve environmental improvements while creating needed construction related jobs.

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Photo by American Aerial Services, LLC, Fabius, NY

The Canastota Water Pollution Control Plant rehabilitation, as seen by air. Deeper clarifiers were built for improved performance (top); solar panels will be installed along southside of aeration tanks; and, energy efficient single stage aeration blowers and controls will be installed (in lower building).

Ms. VanDerhoof has responsibility for SRF funding for the Onondaga and Canastota projects.

### Reference

1. Wastewater Infrastructure Needs of New York State, NYS Department of Environmental Conservation, March 2008.

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