



River Remedy

Pennsylvania groups join forces to control regional overflow events

By Tracy Schubert

In recent years, an underground, out-of-sight problem has surfaced to become one of the most costly public works projects ever faced by the municipalities in Allegheny County, a 730-sq-mile area of southwestern Pennsylvania. While the solutions will not be cheap—some experts estimate a price tag totaling \$3.5 billion to \$10 billion—the municipalities, authorities and nonprofit environmental organization 3 Rivers Wet Weather (3RWW) have been working together over the last decade to develop the most cost-effective, sustainable plan to remedy wet-weather sewage overflows.

Frequency & Magnitude

With nearly every rainfall event, untreated sewage and storm water rushes into streets, streams and rivers throughout Pittsburgh and surrounding communities. While an average rainfall is 0.25 in., as little as 0.1 in. can spur these overflows, which threaten the quality of abundant water resources in

an area best known for its three rivers.

During the recreational season—May 15 to Sept. 30—overflow warnings are in effect, on average, 50% of the time. The warnings alert river users of the public health risks associated with the polluted water, which also serves as the drinking water source for 90% of the county's population. Sewage overflows of this frequency and magnitude have impeded economic development opportunities due to capacity restrictions.

A Collaboration is Born

In 2001, after decades of neglecting the aging and deteriorated sewage collection system in favor of more visible projects, local municipal officials accepted an invitation from 3RWW to join neighboring communities to solve the problem. Thus, the 3RWW Basin Groups were formed, representing 83 municipalities in Allegheny County, each owning anywhere from 3 miles to 1,200 miles of the sewage collection system. What the member municipalities all share in common is a single treatment plant: the Allegheny County Sanitary Authority (ALCOSAN). The largest wastewater treatment facility in the Ohio River Valley, it processes up to 225 million gal of wastewater daily.

The fragmented operation and maintenance of the sewage infrastructure, along with parochial attitudes of municipalities, made progress slow at first. But slow and steady can prove to be successful, as evidenced by 3RWW's consensus-building campaign. It brought the municipalities and regulatory agencies to the table for more than 150 meetings in 18 months to negotiate an unprecedented consent order for assessment, repair and long-term planning.

Environmental Protection Agency and enforced locally by the Pennsylvania Department of Environmental Protection and the Allegheny County Health Department, the order—signed by the ALCOSAN communities in early 2004—includes no penalties for past violations of the Clean Water Act and outlines consistent requirements and deadlines for all communities.

3RWW saw this uniform order as the basis for regional approaches to managing collection systems throughout the county and assisting municipalities in compliance. Beginning in 2004, 3RWW used its funding to create one integrated map of the ALCOSAN service area's sewage collection system using GPS technology and survey crews. The completed map, which revealed that the sewage infrastructure spans 4,000 miles rather than the previously estimated 3,000 miles, continues to serve as a foundation for regional long-term planning and consolidation.

3RWW and its team of experts then assisted communities by mapping more than 80,000 manholes, developing a regional flow monitoring plan that reduced the number of flowmeters from 900 to 500 and creating a calibrated radar rain gauge network that delivers highly distributed online real-time rainfall data for every square kilometer throughout Allegheny County. All mapping and flow monitoring data was collected using standardized engineering protocols and quality-control measures. Municipalities can access the data, share information and create compliance reports through a special password-protected section of the 3RWW website.

Because the municipal consent orders will end in a few years, 3RWW has intensified its efforts to move the region toward long-term sustainable solutions to the wet-weather overflow problem. From a policy perspective, that means consolidation of the operation and



In the Pittsburgh area, overflow warnings are in effect for about half of the recreational season.

Consent Order Unites a Region

Mandated by the U.S.



maintenance of the sewer systems.

Over the past 12 years, 3RWW has torn down municipal barriers to consolidation in the following ways:

- Demonstrating cost savings of regional approaches;
- Mining municipal data—sewer rates, budgets, debt and assets—necessary for communities to discuss consolidation; and
- Funding a demonstration project in which a municipal authority assumed operation and maintenance of a neighboring community’s sewage infrastructure.

Painting the Region Green

From a technical perspective, 3RWW is working to move the Pittsburgh region toward green infrastructure, particularly for managing the excess storm water that is such a critical part of the sewage overflow problem. The municipalities currently are completing feasibility studies—analyzing alternatives to managing sewage and storm water—under their consent orders. As the region’s long-term control plan is due to be developed by the municipalities and ALCOSAN over the next three years, the timing is right for demonstrating the benefits of green roofs, green streets, bioswales and pervious pavement as technologies that need to be incorporated into the plan prior to developing gray alternatives (e.g., retention tanks and satellite treatment).

Leaders also have stepped up to support green solutions. Allegheny County’s chief executive has created a green infrastructure agenda; local public health organizations and universities have become strong advocates through their implementation of green solutions; and the region’s largest municipal authority is now evaluating the need and concept for a storm water utility that would create incentives for managing storm water more effectively.

Bringing Wet Weather to Light

While a short decade ago the wet-weather issue was buried underground, great progress has been made as sewage

and storm water solutions have risen to the forefront of the region’s priorities. Ultimately, 3RWW’s mission is to ensure that the region’s most costly public works project employs the most cost-effective, sustainable approaches for improving and protecting water quality for generations to come. **[SWS]**

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