

“The Rush Creek Interceptor—A Regional Solution to Address Water Quality”

By Joseph L. Fiegl, PE Deputy Commissioner, Erie County Department of Environment and Planning, Division of Sewerage Management

History – Southtowns Area

A report completed in 1956 entitled “Progressive Sewer Systems for a Greater Erie County” (Nussbaumer & Clarke, Inc.) documented that the provision of sewer services in Erie County was “developed in an uncoordinated, uneconomical, and unsatisfactory manner.” At that time, there were 42 public sewer systems with wastewater treatment plants (WWTPs) in various areas of Erie County – most of which were combined systems. Several of these treatment plants were municipally operated; some others were the responsibility of small special districts that were the equivalent of a neighborhood association. What was almost universal was that the facilities did not provide the needed level of protection for their discharge locations and could not support the needs of the community.

A “Report on Comprehensive Sewerage Study – Erie County, State of New York” (Greeley and Hansen, April 1968) set forth a long range master plan for water pollution control in Erie County. This study investigated options ranging from maintenance of 33 independently operated WWTPs scattered throughout the area to the recommended alternative: a “metropolitan” system (Figure 1). The metropolitan option included five large WWTPs that would provide treatment for the vast majority of the County, with three smaller WWTPs servicing the Village of Gowanda, the Village of Springville, and the Gowanda State Hospital Annex.

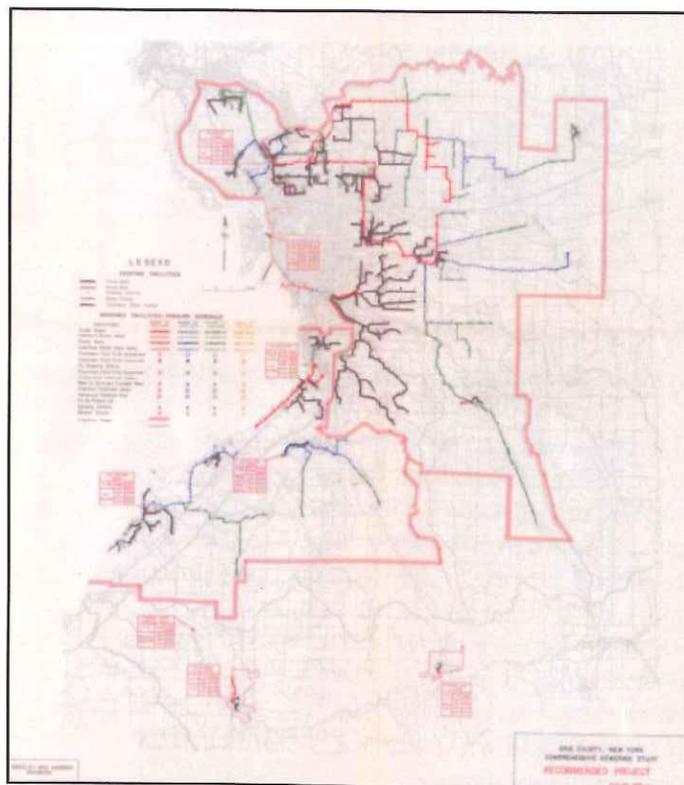


Figure 1—Recommended “metropolitan” system (1968); the red boxes and arrows point to the proposed locations of the WWTPs

Not all municipalities were in agreement with the recommended alternative. Several studies followed from various entities assessing the “metropolitan” system, which resulted in conflicting economic reports from different engineering firms. Greely and Hansen was hired again in 1972 to do an in-depth re-evaluation of certain areas in Erie County, taking into consideration the information provided by these municipalities. The re-evaluation generally confirmed that substantial upgrades would be needed at a number of facilities and that a more regional solution should be pursued.

Several municipal sewer service providers in the suburbs immediately south of the City of Buffalo participated in an effort to enact Greely and Hansen’s recommendations for their communities. As a result, the Erie County Southtowns Treatment Agency (“Agency”) was formed at the end of 1974. At that time, the Agency consisted of the County of Erie (already providing service to a number of municipalities in the area), the Town of Hamburg, the Wanakah Sewer Commission, and the Mount Vernon Sewer Commission. The Agency completed a “Wastewater Facilities Report” (Nussbaumer & Clarke, Inc., December 1974); however, soon after the Village of Hamburg decided to forgo upgrading its treatment plant and joined the Agency. As the Village of Hamburg WWTP was one of the five larger “metropolitan” WWTPs, the potential service area for the Agency grew substantially. This led to a September 1975 revision to the “Wastewater Facilities Report” and proved to be the basis for the planning of the Southtowns Advanced Wastewater Treatment Facility (AWTF).

Village of Blasdell WWTP Service Area

New York is a “home rule” state, meaning smaller municipal governments are afforded the right to provide services to their local residents. Therefore, while the Agency studied the provision of sewer services for an entire corridor, there was ultimately no requirement to join.

Prior to the completion of the 1974 “Wastewater Facilities Report,” the Village of Blasdell rejected being part of the Agency. The Village referenced that it had “spent a substantial amount of money repairing, remodeling and improving” its WWTP and it had “been upgraded to a level that makes it prohibitive, economically, to even consider abandonment of the plant in favor of consolidation.” Similarly, the Woodlawn Sewer Commission also declined joining the Agency, citing that their WWTP was “more than efficient enough to comply with all the state and local regulations.”

Figure 2 presents the manner in which treatment services were provided in the “Southtowns” area in 1975 (areas further south are not shown for clarity). All told, there were 13 WWTPs—along with a large area that received treatment at the Buffalo Sewer Authority—in this corridor. The Agency decided to plan for sewerage this entire area, even though the Village of

Blasdell and Woodlawn Sewer Commission still desired to maintain their WWTPs and other municipalities had not even created sewer districts. Within a few years, this decision proved to be wise; in 1978 the Woodlawn Sewer Commission changed course and chose to eliminate their WWTP.

By time the Southtowns AWTF went online in December 1980, plans were in place to eliminate the Buffalo Sewer Authority connections and 12 of the 13 facilities in this corridor. Figure 2 also presents the infrastructure installed to enact the Southtowns Agency’s vision. All trunk sewers, interceptor sewers and pumping stations, with the exception of Woodlawn’s (in green) would ultimately be constructed by the Agency. The Village of Blasdell WWTP (in black on Figure 2), would remain in service roughly one mile away from the new Southtowns facility.

The Blasdell WWTP was upgraded and operation/maintenance was retained by the Village. Figure 3 shows the sewershed for the Blasdell WWTP. The Village owned roughly 60% of the collection system (in blue), with the Town of Hamburg owning the remaining portion of the Blasdell WWTP sewershed (in red). Essentially, within a few square miles, the Village of Blasdell, the Town of Hamburg, and the County of Erie all performed the same services, each having their own equipment, staff and resources to operate and maintain these sewer systems.

Under this service structure, problems within individual systems were generally evaluated following municipal boundaries instead of investigating solutions that may be more regional in nature. Both the Village of Blasdell and Town of Hamburg had recurring overflows in their systems. Figure 3 presents three sanitary sewer overflow (SSO) locations, each of which is tributary to waterways that flow into nearby Woodlawn Beach State Park area.

Woodlawn Beach State Park was opened in the 1990s directly north of the Southtowns AWTF property. During its history, there have been beach closings due to water quality issues associated with bacteria. The New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP) completed a “Woodlawn Beach State Park Beach Sanitary Survey Report” (January 2010; addendum March 2015) which identified several potential bacteria sources. A common misperception was that the Southtowns AWTF was a potential cause; however, the NYSOPRHP study identified stormwater outfalls, urban runoff, contaminated stream drainage, algae/leafy debris, and the aforementioned overflows in the Village of Blasdell and Town of Hamburg as the potential bacteria sources.

Rush Creek and Blasdell Creek were specifically targeted for further study by NYSOPRHP and others. Rush Creek and its tributaries have been listed on the New York State Department of Environmental Conservation’s (NYSDEC’s) Section 303(d)

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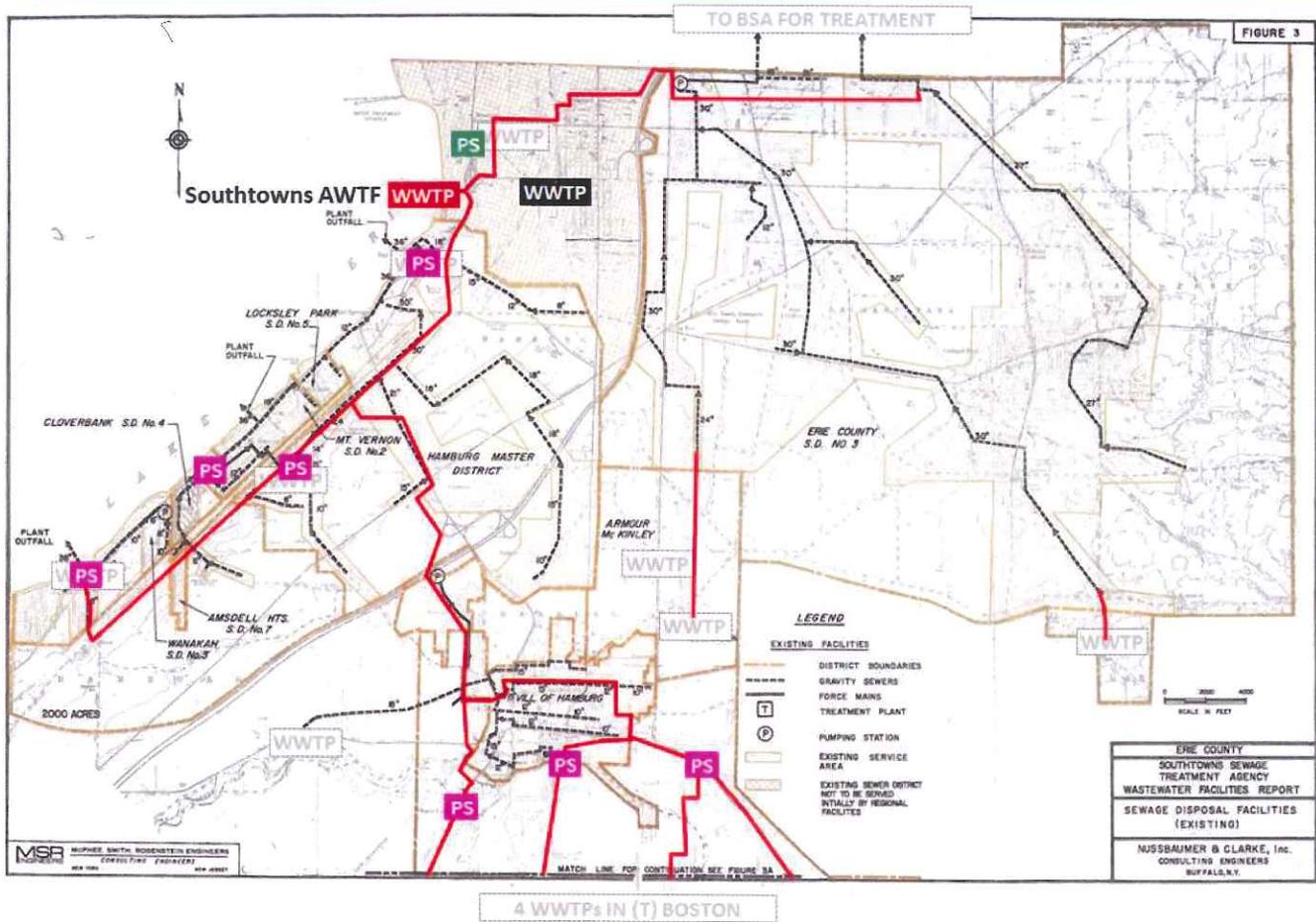


Figure 2—Southtowns AWTF planning area (Agency constructed assets in red/pink; eliminated facilities in gray)

List of impaired waters in “Part 1” of the listing, with a designation as an individual waterbody segment that requires development of a total maximum daily load (TMDL). The impairments targeted were phosphorus and pathogens, with one listed cause being overflows. The Village and Town were under Orders on Consent from the NYSDEC to address the three overflow points.

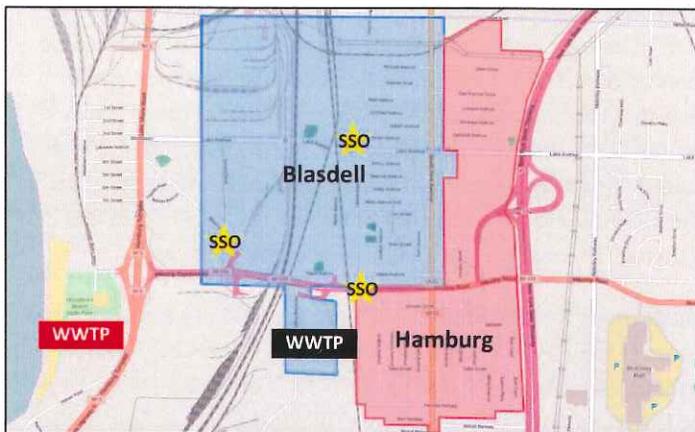


Figure 3 - Blasdell WWTP Sewershed (shaded in “blue” and “red”)

Rush Creek Interceptor Project

A lot had changed since the 1970s. What were once permitted overflow points now were the subject of Orders on Consent. A State Park with a beach was constructed in the area. Regulations had become more stringent and more difficult to administer. Components of the Blasdell WWTP that had “been upgraded to a level that makes it prohibitive, economically, to even consider abandonment of the plant” were now approaching the end of their useful life.

In the early 2000s there was a regionalism effort within Erie County. There were discussions about merging local police departments, consolidating the administration of parks, and even doing away with County government in favor of a “Regional City of Buffalo.” While there was opposition from certain factions in the community on many of these regional initiatives, when it came to sewer services there was generally a more practical and pragmatic approach: if the services could be provided more efficiently and cost effectively, then it should be considered.

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The Village of Blasdell was one of the first municipalities to discuss a potential merger with Erie County during this time period. The Town of Hamburg soon followed. Ultimately, the County took control of the Village and Town sanitary sewer systems in 2003 and 2007, respectively. During the course of finalizing the merger with the Village, Erie County Sewer District No. 3 (ECSD No. 3) issued a request for proposals to retain an engineering firm to identify a regional solution to eliminate pumping stations in the area, the overflows in the Blasdell WWTP sewershed, and the Blasdell WWTP itself.

As noted previously, the planning for the Agency included the Blasdell WWTP service area. Upon evaluating the inverts of the various pumping stations and gravity sewers, it was determined that all of the pumping stations conveying flows to the Blasdell WWTP could be eliminated by a gravity sewer. The alignment of this potential gravity sewer generally followed the natural topography along Rush Creek; therefore, the concept was referred to as the Rush Creek Interceptor.

In January 2005, a study was completed entitled "Elimination of Pumping Stations and the Blasdell Wastewater Treatment Plant" (URS Corporation). This preliminary design report summarized: flow monitoring efforts; stormwater management model (SWMM) simulations; facility planning and sizing calculations; and cost estimates for the elimination of all pumping stations in the Blasdell WWTP service area, the Blasdell WWTP itself, the three overflows, and the future elimination of four additional pumping stations further upstream. SWMM simulations (Figure 5) indicated that the existing interceptor sewer system of the Southtowns AWTF could handle the additional future flows outside of the highest peaks. To ensure that surcharge conditions would not be increased as a result of the Rush Creek Interceptor, wet weather relief provisions were proposed including a force main directly to the Southtowns AWTF.

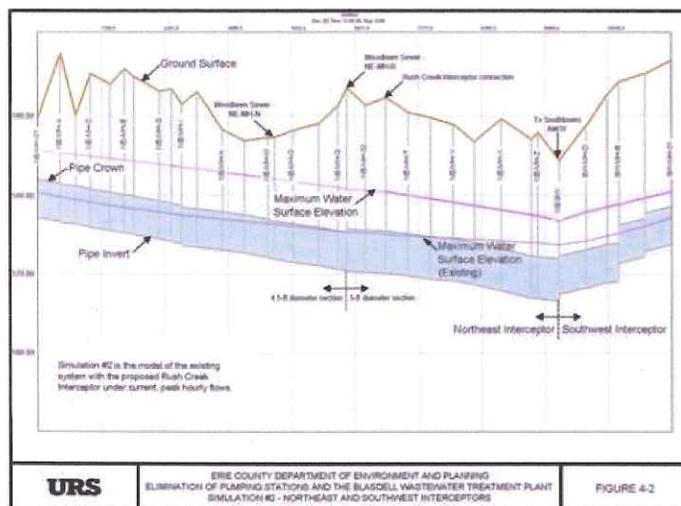


Figure 5 - SWMM simulation results for the Rush Creek Interceptor's impact on existing Southtowns AWTF interceptors

The Rush Creek Interceptor preliminary design report was submitted to the NYSDEC in February 2005. While the project certainly had its merits, there were several complicating factors including:

- The NYSDEC was in the process of drafting State Pollutant Discharge Elimination System (SPDES) modifications for the Southtowns AWTF and Blasdell WWTP.
- A "Basis of Design Report, Southtowns AWTF Phase II Expansion" (Stearns and Wheeler, LLC, July 2005) was completed around the same time. This effort recommended a new influent pumping station, modifications to the secondary treatment process, new disinfection methods, and improvements to the solids handling process. All told, over \$40 million worth of improvements were proposed. This report was also under review by the NYSDEC.
- The NYSDEC had concerns about peak flows to the Southtowns AWTF and the potential impact on the onsite overflow retention facility (ORF).

While the NYSDEC conducted its review of the Rush Creek Interceptor concept, ECSD No. 3 completed a construction project in the former Village and Town sanitary sewer systems tributary to the Blasdell WWTP (study by Malcolm Pirnie and CRA; engineering design and construction phase services by CRA; contractor Sicar). The intention of this project was to improve the structural integrity of the sewers, remove infiltration/inflow (I/I) where practical, and increase the reliability of the system. A total of \$3.4 million was spent to address these collection system assets. Furthermore, ECSD No. 3 implemented its standard collection system operation/maintenance procedures, as well as its standard I/I identification protocols which included televising, dye testing, smoke testing, flow monitoring, and house inspections. These efforts led to an overall decrease in the frequency of overflows in the Blasdell WWTP sewershed.

The Rush Creek Interceptor project was still a major priority for ECSD No. 3; however, regulatory review of the project was tied in with several concurrent initiatives and the project had stalled for a number of years. Two items proved to be tipping points for this project to proceed ahead. First, ECSD No.3 was awarded a NYSDEC 2010 Water Quality Improvement Project grant based on the merits of the concept. Second and most importantly, Erie County and the NYSDEC were able to successfully negotiate SPDES permits for the Southtowns AWTF and Blasdell WWTP in the Fall of 2012. The new SPDES permits addressed the concerns of the NYSDEC, while providing for the ability to proceed with critical initiatives that

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ECSD No. 3 wanted to complete. With new permits in place that provided additional regulatory clarity, ECSD No. 3 was able to finalize the engineering reports to address the NYSDEC concerns. Formal regulatory approval of all components of the Rush Creek Interceptor was garnered by July 2013.

Figure 5 presents an overview of both phases of the project. Phase I includes upgrades to the Southtowns AWTF to improve influent pumping and peak flow management so that additional flows may be handled at the facility. Specifically, a new 55 million gallon per day (MGD) submersible pumping station at the Southtowns AWTF is being installed. This submersible pumping station (Figure 6) is proposed to be the main influent pumping station in the future, but at present it will augment the existing facilities, enhance peak wet weather flow conveyance, and essentially eliminate the emergency “slot” bypass at the Southtowns AWTF. Additionally, a new chlorine contact tank in the Southtowns ORF is being constructed. The existing ORF utilizes its outfall for contact time; the new construction work will provide a minimum of 15 minutes contact time within the ORF itself under all anticipated flows. This will also allow for dechlorination to meet future chlorine residual limitations in the Southtowns AWTF SPDES permit. Construction commenced in 2014 for this phase and it is anticipat-

ed that all work will be complete in Spring 2016 (contractors: Kandey Company, South Buffalo Electric, and Quackenbush). Engineering design and construction phase services provided by GHD.

Phase II of the project includes all work outside of the Southtowns AWTF, essentially construction of a new interceptor sewer and a wet weather relief structure with a force main to convey flows from the Blasdell WWTP sewershed to the Southtowns AWTF. Specifically, the project includes approximately 3,500 lineal feet of 24-inch diameter force main from the Blasdell Milestrip Pumping Station to the Southtowns AWTF, a peak flow diversion structure at the Blasdell Milestrip Pumping Station with two 10-inch portable pumps, approximately 4,330 lineal feet of gravity interceptor sewer ranging from 24-inch to 30-inch diameter, and approximately 630 lineal feet of 15-inch diameter sewer to eliminate the Labelle Pumping Station overflow. Jacking and boring of the force main and the gravity interceptor sewer will occur at a number of locations, including the Route 5/Route 179 traffic circle and beneath eight sets of railroad tracks operated by four separate railroad companies. Notice to Proceed for this work was effective July 2015 and the project is expected to be complete by the end of 2016 (contractors: Kandey Company and IPL). Engineering design and construction phase services provided by AECOM.



Figure 5 - Overview of the Rush Creek Interceptor project

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Figure 6 - Phase I construction of the new submersible pumping station at the Southtowns AWTF

Summary

The Rush Creek Interceptor project is an important component of Erie County Executive Mark Poloncarz's "Initiatives for a Smart Economy" and is the result of coordination between Local, County, and State partners. This project is a significant investment that will benefit ECSD No. 3 ratepayers and the environment. Specifically, the project will:

- Eliminate three existing overflows that ECSD No. 3 took over from other municipalities in the 2000s. This will reduce pollutants, including bacteria, entering local waterways. The Rush Creek Interceptor addresses one of the five potential Woodlawn Beach bacteria sources identified in the January 2010 NYSOPRHP study. As a result, this project should positively impact beach water quality.
- Eliminate the Blasdel WWTP and three pumping stations – all of which are aging facilities that would require future upgrades.

- Eliminate electrical loads from the pumping stations and the Blasdel WWTP. This will reduce the carbon footprint of providing sewer services in the corridor.
- Eliminate duplication of services.

The total cost of the construction work is approximately \$16 million. Funding is partially from the \$5 million NYSDEC 2010 Water Quality Improvement Project grant. The remaining funding will be through both capital reserves and low interest loans provided by the New York State Environmental Facilities Corporation. Capital reserve funding and payment of the principal and interest for the long-term financing will be by ECSD No. 3.

The Rush Creek Interceptor enacts a vision that was put forth almost 50 years ago. The Southtowns Agency in its infancy had the wisdom to provide flexibility in the design of its facilities should conditions change. Hence, when the approach to sewer services in the Southtowns area evolved, everyone involved were the beneficiaries of the Agency's planning.