Proposed Funding for 2014 Inflow & Infiltration (I&I) Mitigation

Report of Commissioner

Background

The Onondaga County Sanitary District owns, operates, and maintains an extensive network of trunk and interceptor sewers, over 150 pump stations, and six treatment plants. The district's ability to effectively manage the sewer system is directly affected by the proper maintenance of tributary sewer systems owned and operated by the partner municipalities within the district. These municipally-owned sewers collect sewage and other wastewater and discharge it to district-owned facilities for eventual treatment at the district's wastewater treatment plants. The introduction of large volumes of stormwater (inflow) or groundwater (infiltration) into the sanitary sewer system can result in sanitary sewer overflows (SSO) and combined sewer overflows (CSO) and the release into the environment of untreated sewage. The release of untreated wastes into the environment is directly contrary to the goals and objectives of Onondaga County, its Department of Water Environment Protection (WEP), and state and federal regulations. The community is adversely impacted by inflow and infiltration (I&I) as it can also result in basement backups, overflows, or consequences that may be detrimental to public health. I&I related overflows may cause property damage or may result in the creation of nuisance conditions if not addressed. As reported in WEP's June 12, 2013, Infrastructure Capacity Constraints report, WEP estimates that over thirty percent of the 29,000,000,000 gallons of flow that it manages in the typical year is extraneous flow caused by I&I. Electrical energy costs alone for this extraneous flow are estimated to average $1,130,000 per year, or ten percent of annual electric costs. Similar extrapolations of cost would apply to all of WEP's annual costs for treatment chemicals, equipment maintenance, and the replacement of consumable parts and supplies. Extraneous flows very directly cost the district millions of dollars every year in operations alone.

Recognizing these impacts on the environment, the public, and the budget, Local Law No. 1 of 2011 authorizes public works projects in order to cost-effectively remove sources of inflow and infiltration. The law further allows such a program of public works to include reimbursement to a municipality that has entered into an agreement with the County to undertake projects to reduce inflow and infiltration to municipally-owned and operated facilities.

Budget

The 2014 Budget authorized $800,000 for a program of public works for I&I removal by the municipalities as described in the local law.

The Proposed Public Works Program for I&I Removal for 2014

Town of Salina: Sewer Separation/Disconnect Project

Total Project Cost: $70,000

Project Description: The Town of Salina sewer separation project includes sanitary sewer removal and separation within the Mattydale/Pitcher Hill sewer district between Westview Avenue and Harford Road. This area has been determined a "hot spot" by the Onondaga County Department of Water Environment Protection and is an area of concern due to frequent maintenance and, more importantly, contribution to sanitary sewer overflow (SSO) concern within the area. The storm-to-sewer connection will be eliminated and all of this stormwater will be eliminated from the sanitary sewer system.

Proposed County Funding Contribution: $65,000

I&I Service Area Considerations: The Town of Salina previously experienced an I&I related consent order. This service area also contributes to the County's Ley Creek Pump Station and Forcemain which each have reported SSOs in the past several years. This area is serviced by the Metro Wastewater Treatment Plant; reduction of I&I from this portion of the service area would reduce bypass events at Metro.

Village of Baldwinsville: Pipe Lining & Manhole Repair Project

Total Project Cost: $565,806

Project Description: The Village of Baldwinsville proposes a televising, pipe lining, and manhole repair project. The village will evaluate sewer mains in two areas with a history of excessive infiltration by using remote television monitoring. When the most significant areas contributing to infiltration have been identified, a lining and repair contract will be prepared incorporating trenchless pipe lining technology to line and seal leaking sewer mains. Manhole structures will also be grouted and sealed. This project can be broken down from the project proposed by the village to attack areas of highest I&I.

Proposed County Funding Contribution: $145,000

I&I Service Area Considerations: The County-owned pump stations in the Baldwinsville service area see wet weather peaks of ten times dry weather flow. Pending and proposed disinfection regulatory upgrades to the disinfection system at the Baldwinsville-Seneca Knolls Wastewater

Treatment Plant will be adversely impacted and potentially experience inflated tank requirements and capital costs due to extraneous flow.

Village of Camillus: Manhole Rehabilitation Project

Total Project Cost: $195,300

Project Description: The Village of Camillus Sewer Rehabilitation Project aims to reduce inflow and infiltration (I&I) issues which adversely impact the village sanitary sewers serving the "Eastern Village" area of Camillus. The project will include rehabilitation of sewer manholes located in the village, including epoxy grouting to seal manhole walls and chimneys; replacement of manhole steps; raising/replacing manhole rims and covers that are at or below grade; installing manhole inserts on manholes that are subject to surface flooding; and replacing manholes with significant structure damage and missing bases.

Proposed County Funding Contribution: $168,000

I&I Service Area Considerations: This area is tributary to the Camillus Pump Station, the Camillus Forcemain, and the Westside Pump Station; each of these facilities experienced SSO events in the past four years. Tributary to the Metro Wastewater Treatment Plant, reduction of I&I from this portion of the service area would reduce bypass events at Metro.

Village of East Syracuse: Pipe Lining and Manhole Repair Project

Total Project Cost: $400,000

Project Description: The Village proposes to make cost-effective improvements to the sewer system to reduce inflow and infiltration (I&I) utilizing innovative infrastructure methods to reduce runoff into the sanitary system including cured-in-place-pipe (CIPP) and manhole rehabilitation using chemical grout, spray-on mortar, and epoxy resin liner coatings. These methods of improvement require little or no excavation or restoration. Manhole repair and sewer lining work can be broken down to attack the areas of highest I&I.

Proposed County Funding Contribution: $100,000

I&I Service Area Considerations: The Village of East Syracuse previously experienced an I&I related consent order. Tributary to the Metro Wastewater Treatment Plant, reduction of I&I from this portion of the service area would reduce bypass events at Metro.

Villages of Fayetteville & Manlius: Joint Repair & Green Infrastructure Projects

Total Project Cost: $511,277

Project Description: The villages of Fayetteville and Manlius collaborated in their application for SGIP funding for a joint innovative sanitary infrastructure rehabilitation project to remove inflow and infiltration (I&I) using green and innovative technologies.

The first part of the proposal includes conventional excavation/replacement and cured-in-place pipe (CIPP) lining to rehabilitate structurally unsound vitrified clay pipe (VCP) and VCP sewer with root intrusion in both villages. The joint project approach will increase opportunities for construction cost savings due to "economies of scale" and a single mobilization/demobilization and reduce engineering design, bidding, and construction costs.

The second component, the Pratt Lane/Feeder Street green infrastructure improvements, seeks to continue the green streetscape enhancements through the Lower Village area with pavement restoration and integration of green infrastructure to village-owned Pratt Lane and Feeder Street, including porous asphalt and bioretention practices. This will extend the green streetscape from their 2012 SGIP project further through the village, creating a green corridor.

Proposed County Funding Contribution: $200,000

I&I Service Area Considerations: These two villages are each tributary to the Meadowbrook Limestone Wastewater Treatment Plant. This treatment plant is under a state mandated flow management plan due to high levels of I&I in the service area. As a result of considerable issues related to extraneous flow, the County reported a permit exceedance at the Meadowbrook Limestone plant in 2014.

Village of Liverpool: Pipe Lining and Tree Planting Project

Total Project Cost: $86,200

Project Description: The Village of Liverpool proposes a project that includes a combination of green and gray infrastructure technologies to reduce infiltration in the sanitary sewers and manholes along Hiawatha Trail and along the portion of Third Street between Birch Street and Bass Street. The green component of this project will be planting street trees within the right-of-way along various streets throughout the Village of Liverpool, capturing stormwater and providing aesthetic streetscape improvements.

Proposed County Funding Contribution: $87,000

I&I Service Area Considerations: The Village of Liverpool service area was part of a consent order resulting in the County spending five million dollars to partially mitigate I&I problems. The sources of I&I have not been abated and, as a result, the County remains exposed to additional regulatory action. Tributary to the Metro Wastewater Treatment Plant, reduction of I&I from this portion of the service area would reduce bypass events at Metro.

Town of Geddes: Grand Ave. Stormwater Mitigation Project

Total Project Cost: $60,000

Project Description: The Town of Geddes Grand Ave Stormwater Mitigation Project will install approximately 12,000 square feet of porous pavement to replace the existing damaged pavement. This will infiltrate approximately 266,000 gallons of stormwater per year. The location of the proposed porous pavement lot is the eastern parking lots for Westvale Park in the Town of Geddes.

Proposed County Funding Contribution: $20,000

I&I Service Area Considerations: This area is tributary to the Westside Trunk Sewer and the Westside Pump Station. Each of these facilities experienced SSO events in the past four years. Tributary to the Metro Wastewater Treatment Plant, reduction of I&I from this portion of the service area would reduce bypass events at Metro.

Total Proposed Public Works Expenditure in all the Projects Above: $785,000

Respectfully submitted,

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Tom Rhoads, P.E.; Commissioner Date