



City of Binghamton Village of Johnson City and Binghamton-Johnson City Joint Sewage Board

**Flow Management Plan
Binghamton-Johnson City
Joint Sewage Treatment Facilities**

FLOW MANAGEMENT PLAN
BINGHAMTON-JOHNSON CITY JOINT SEWAGE TREATMENT FACILITIES

Prepared For:

CITY OF BINGHAMTON
VILLAGE OF JOHNSON CITY
and
BINGHAMTON-JOHNSON CITY JOINT SEWAGE BOARD



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1 Summary and Recommendations

Since early 2008, the Binghamton-Johnson City Joint Sewage Board (Board), with the input from the municipal users of the Joint Sewage Treatment Plant (Plant) and other interested parties, has been developing a Flow Management Program. The Flow Management Program, as described in this Plan document, is the culmination of four years of work involving approximately 100 individuals and more than 4,000 hours of effort.

A Flow Management Program was required by the December 2007 Third Modification Consent Order between the New York State Department of Environmental Conservation (NYSDEC), the City of Binghamton (City), the Village of Johnson City (Village) and the Board. The Board coordinated the development of the Program on behalf of the City and the Village.

The purpose of the Flow Management Program is to proactively manage wet-weather wastewater flow so that the flows and loadings remain below the design and treatment capacity of the Joint Sewage Treatment Plant and the City's and Village's combined sewer overflows (CSOs). The Program should not be viewed as punitive, but rather a proactive management tool used to enhance economic development opportunities and community growth by promoting more efficient use of capacity in the current collection system as well as the Plant.

During the development of the Flow Management Program it was determined that:

- Each Outside User's connection conveys infiltration and inflow (I/I) to varying degrees.
- The City's and Village's sewer systems can convey the peak design flow rate (60 mgd) to the sewage treatment plant without experiencing combined sewer overflows.
- Prior to May 16, 2011, the Plant and the City and Village sewage collection systems were in compliance with the New York State discharge permits as modified by the consent orders. However, the Board, City and Village must take action to plan for the future in order to stay in compliance.

To remain in compliance with the New York State discharge permits, it is recommended by GHD Consulting Engineers, LLC that the Flow Management Program, as described in this Plan document be fully implemented. The four major components of the Flow Management Program are:

1. *Sewer Connection Application Program*, which is a formal application program that will be established to approve and account for new or modified connections to the sewage collection system.
2. *I/I Offset Program*, which will require that when adding more than 2,500 gallons per day of new sanitary sewage flow, the added flow must be offset by an equal amount of infiltration and inflow removal. The Program will be implemented and used as a capacity management tool to keep the Board, City, and Village in compliance while promoting and properly planning for economic development.
3. *Capacity, Management, Operation and Maintenance (CMOM) Program*, which on a long-term basis will help municipal users operate and maintain their sewage collection systems to the most current industry standards and prioritize sewer system repair and rehabilitation.



4. Treatment Management Plan, which is a plan that was developed as a tool for the Board to manage compliance at the Plant. The plan identifies triggers that forewarn of potential future non-compliance events and management strategies to correct for these trigger events so that compliance can be maintained at the Joint Sewage Treatment Plant.

Collectively, these components are referred to as the “cornerstone programs” of the Flow Management Program.



2 Approval and/or Endorsement of Sewage Board and Owners

The Flow Management Plan was presented to the City of Binghamton at the legislative meeting on December 5, 2011. The City Council of the City of Binghamton endorsed this Plan on December 7, 2011. The resolution from the City of Binghamton can be found in Appendix A.

The Flow Management Plan was presented to the Village of Johnson City at the legislative meeting on December 6, 2011. The Village Board of Johnson City endorsed this Plan on December 20, 2011. The resolution from the Village of Johnson City can be found in Appendix A.

The Binghamton-Johnson City Joint Sewage Board approved this Plan for submittal to the New York State Department of Environmental Conservation on January 27, 2012. The resolution from the Board can be found in Appendix A.



3 Background

3.1 Observations of Infiltration and Inflow

Flow metering was completed in 2006, 2008 and 2010 throughout the sewage collection system that is tributary to the Binghamton-Johnson City Joint Sewage Treatment Plant (Plant). These flow meters were installed where outside users' systems connected with an owner's system or at the Plant (in the case of Binghamton University and Town of Vestal). Flow meters were also installed throughout the City of Binghamton and Village of Johnson City to measure flow from the major sewer basins tributary to the permitted combined sewer overflows. Flow metering provides a continuous measurement of wastewater flow in the sewage collection system throughout the day and through both dry weather and wet weather periods during the time when the meters are installed. From these measurements two key observations and conclusions were made. The first observation is related to the dry weather diurnal pattern. The observed pattern mimicked the daily water use cycle, a pattern that reaches a peak flow rate in the morning when most residents are waking and preparing for daily activities and declines during the evening when most residents are sleeping. This is a very common and expected pattern, and thus provides validation that the flow meters were operating properly. The second observation is related to the wastewater flow response to wet weather. At most flow metering locations throughout the sewage collection system, the measured wastewater flow increased in response to rainfall, a clear indication of infiltration and inflow finding its way into the sewage collection system.

A selection of charts of wastewater flow and rainfall from the 2006, 2008 and 2010 flow metering efforts are presented in Appendix B. These charts show differing degrees of infiltration and inflow throughout the sewage collection system that is tributary to the Plant. For most of the outsider users' connection locations, when moderate to heavy rains occurred there was a rapid rise in flow rate during the rainfall event, most likely representing inflow and rapid infiltration from sources such as leaky manhole covers and roof leaders. At some of the outside users' connection locations the high flow rates decreased slowly representing infiltration after the rainfall event from sources such as sump pumps and leaky sewer pipe joints. At a few locations, there was not a sharp rise in flow rate, but a general increase in flow rate, most likely representing infiltration from sources such as leaky sewer pipes. The flow meters locations throughout the City and Village show significant increase in flow rate during rainfall events. This increase in flow rate is from stormwater inflow from legally connected catchbasins, but some of this increase in flow rate is associated with sources of infiltration and inflow from within the City and Village, as well as from the outside users.

The increase in wastewater flow rate from infiltration and inflow that was observed throughout the entire sewage collection system that is tributary to the Plant is the rationale for developing and ultimately implementing this Flow Management Plan. Infiltration and inflow can cause sewer backups into homes and illegal overflows from manholes in the upper reaches of the sewage collection system and throughout the system. Infiltration and inflow can also cause the City and Village's combined sewer overflows to discharge and cause operational difficulties and increased operational costs at the Facilities operated by the Board. The purpose of the Flow Management Program is to proactively manage wet weather wastewater flow so that the flows and loadings remain below the design and treatment capacity of the Plant, the City and Village combined sewer overflows, and the sewage collection system throughout the area tributary to the Plant.



3.2 Relationship of Municipal Users and Use of the Plant

The Plant, located at 4480 Vestal Road in Vestal, NY, Broome County, is owned by the City of Binghamton and the Village of Johnson City and managed by the Binghamton-Johnson City Joint Sewage Board (Board). The City and Village are referred to as owners, and the Board is made up of representatives of the two owners. The Board also manages a remote pumping station (known as the "Terminal Pumping Station" or "TPS") on Gates Road in Vestal, which pumps wastewater that has been piped across the Susquehanna River from Johnson City as well as wastewater from the Town of Vestal through a force main owned by the Village to the Plant. The collection systems that are owned and operated by the City of Binghamton and the Village of Johnson City were primarily designed and constructed as combined sewer systems, and both municipalities operate and maintain permitted combined sewer overflow (CSO) outfalls and/or satellite CSO control facilities. There are also municipalities (and Binghamton University's Vestal Campus) in the surrounding areas, known as outside users, which discharge wastewater into the City and Village collection systems or directly into the Board's facilities. The outside users include Binghamton University's Vestal Campus, the Village of Port Dickinson, and the Towns of Vestal, Union, Dickinson, Binghamton, Conklin, Kirkwood, Fenton. The outside users' collection systems are separated sanitary sewer systems, but all exhibit some degree of infiltration and inflow (I/I). The owners, outside users, and Binghamton University's Vestal Campus are known as municipal users. Figure 3-1 depicts the municipal users' sewer boundaries that are tributary to the Plant, as well as critical infrastructure such as the Plant, CSO, and pumping stations.

The use of the Plant is governed by the *Binghamton-Johnson City Joint Sewage Treatment Plant Law* (Plant Law) and the *Rules and Regulations Relating to Use of the Binghamton-Johnson City Joint Sewage Treatment Plant* (Rules and Regulations). The Plant Law is a local law of both owners which provides the fundamental purposes and guiding principles for the management, operation, and use of the Plant and its appurtenant structures and facilities. The Rules and Regulations specify conditions of the discharge of all waters to the Plant. The Plant Law and Rules and Regulations pertain to all users of the Plant, including the owners.

In addition to the Plant Law and Rules and Regulations, inter-municipal agreements (IMAs) exist between the City of Binghamton and the Village of Johnson City which establish the relationship between the City and Village at it relates to ownership and operation and maintenance of the Plant. Among other things, the IMAs between the City and Village established the Board and its authority. The principal intent of the Plant Law, Rules and Regulations, and IMAs is to protect public health by treating wastewater at the Plant, while at the same time protecting the Plant and TPS from damage-causing pollutants and flow rates.

There are also sewer use agreements between the City and Village and outside users that govern the discharge of all types of water into the City and Village's sewage collection systems tributary to the Plant. There is no sewer use agreement with Binghamton University covering its Vestal Campus; however, the University does have a discharge permit issued under the Board's Industrial Wastewater Pre-Treatment Program. The University is a significant user of the Plant, and its permit governs the University's discharges to the Plant similar to a sewer use agreement; therefore, the University is also considered a municipal user or outside user as to its Vestal Campus.

The Plant is physically interconnected to the sewage collection systems of part of Binghamton University and the Town of Vestal, the City and Village. In turn, the owners' sewage collection systems are physically interconnected to the sewage collection systems of the outside users. The Plant has physical



limitations, as do the sewage collection systems, such as conveyance capacity of the sewer pipes, CSOs, and pumping stations. Over time, components of this interconnected system of sewer pipes and treatment facilities have changed. In many cases, there have been improvements to the system; in other cases, infrastructure has degraded. The primary intent of this Flow Management Program is to recognize these changes and possible future changes to the system; and establish programs within the conditions of the Plant Law, Rules and Regulations, and IMAs that will continue to protect public health by treating wastewater at the Plant and protect the Plant and TPS from damage-causing pollutants and flow rates.

3.3 Discharge Permits and Consent Orders

The Plant is authorized by the New York State Department of Environmental Conservation (NYSDEC) to discharge treated wastewater effluent into the Susquehanna River in accordance with the conditions of State Pollutant Discharge Elimination System (SPDES) Permit No. NY0024414. This permit was originally issued in 1975 and has been revised several times since then, most recently in 2007. The Board was the sole holder (permittee) of the SPDES permit for the Plant through early 2008. The City of Binghamton and Village of Johnson City also became permittees in March 2008. Over time, water quality requirements have become more stringent under the federal *Clean Water Act* as well as regulations of the U.S. Environmental Protection Agency (USEPA) and therefore more stringent requirements have been imposed by the NYSDEC upon SPDES permit renewals for the Plant in 1997, 2002, and 2007. Future water quality requirements, such as New York State's Chesapeake Bay Watershed Implementation Plan may also be incorporated into the SPDES permit.

In April 1992, the City of Binghamton, the Village of Johnson City, and the Board entered into a Consent Order (Case #R7-0580-90-12) with the NYSDEC in settlement of enforcement actions initiated by the NYSDEC for 86 alleged violations under the Plant's SPDES permit (i.e., excessive flow, BOD₅, suspended and/or settleable solids, trace metals, chlorine residual) over a period of 22 months between January 1, 1989 and October 31, 1990. This Consent Order has been amended and/or modified several times since it originated, with three major modifications.

SPDES permits have also been issued by NYSDEC to the City of Binghamton (No. NY0024406) and the Village of Johnson City (No. NY002223981) authorizing the discharge of CSOs from the combined sewer system into the Chenango and Susquehanna Rivers. Due to alleged violations of these permits, both the City and Village have entered into separate Consent Orders. To comply with the Consent Orders and SPDES permits, the City and Village have closed some CSO outfalls and added screening equipment to others. The City and Village are also required to monitor the quantity and quality of CSOs throughout the year. Every five years, the City and Village are required to monitor CSO impact on the receiving waters; the most recent receiving water monitoring occurred in 2010.

3.4 Requirement for the Flow Management Program

On December 10, 2007, the Board, City of Binghamton, and Village of Johnson City entered into a Third Modified Consent Order with the NYSDEC, referred to herein as the Consent Order. The Consent Order requires that the Plant be brought into compliance with current state regulations and that flows received by the Plant from sewer collection systems be evaluated and managed so as to not overburden the Plant (design and operational capacities) or cause violation of the Plant's SPDES permit. Among other items, the Consent Order requires a Flow Management Evaluation Report and a Flow Management Plan, collectively referred to as the Flow Management Program.



According to NYSDEC, the goal of developing a Flow Management Program is to identify and implement reductions in hydraulic loading to publicly owned treatment works (POTWs) to stabilize annual average flows below the POTW design flow.

3.5 Flow Management Program History

The Consent Order required the development of a Flow Management Program. As the lead organization for the development of the program, the Board followed a three-step approach. The steps are described below.

3.5.1 Preparation of a Flow Management Evaluation Report

This report was completed in September 2009, and associated mapping was updated in July 2010, both by the team of GHD Consulting Engineers, LLC (GHD) and Shumaker Consulting Engineering & Land Surveying, P.C.. The report showed that all municipal users served by the Plant, including those with separated sewer collection systems, have some degree of I/I into their respective sewer collection systems that contributes to increased hydraulic flows during wet weather events and/or high groundwater table periods. The title of this report is, "*Flow Management Evaluation Report*", September 2009.

3.5.2 Updated Collection System Mapping and Modeling

This step of the program, also completed by the team of GHD and Shumaker, included mapping and modeling of collection system capacity, as well as sampling of sewage characteristics at various key points in the collection system. This work was completed in late January 2011. Modeling results showed that during a widespread regional rainfall event, the peak design flow rate could be conveyed to the Plant before the City of Binghamton and the Village of Johnson City CSOs activated. The mapping and modelling results were presented in a report titled, "*Flow Management Process, Collection System Mapping Enhancement and Modeling Study*", April 2011. The sampling results were presented in a report titled, "*Collection System Flow Characteristics Sampling Study*", July 2011.

3.5.3 Preparation of a Flow Management Plan

The third step of the development of the Flow Management Program included the creation of this NYSDEC-approvable Flow Management Plan, which was endorsed by the Board and the legislative bodies of the owners prior to submission to the NYSDEC for its approval. This Flow Management Plan describes the programmatic approach to identifying and implementing reductions in hydraulic loading to the Plant to ensure that future flows remain in compliance with the Plant's SPDES discharge permit requirements. In addition, new Articles to the Rules and Regulations have been developed and are included. The new Articles expressly require the municipal users to implement the components of the Flow Management Program.

3.6 Steering Committee Process and Member Composition

To ensure that municipal users had ample opportunity to participate in development of the Flow Management Program, the Board established a comprehensive public input process that included a Steering Committee comprised of representatives from the municipal users, the Board, and Broome County. The Steering Committee met throughout all steps of the Flow Management Program development, but more regularly throughout the third step of the program. The main purpose of the Steering Committee meetings was to gather information and input for the Flow Management Program as

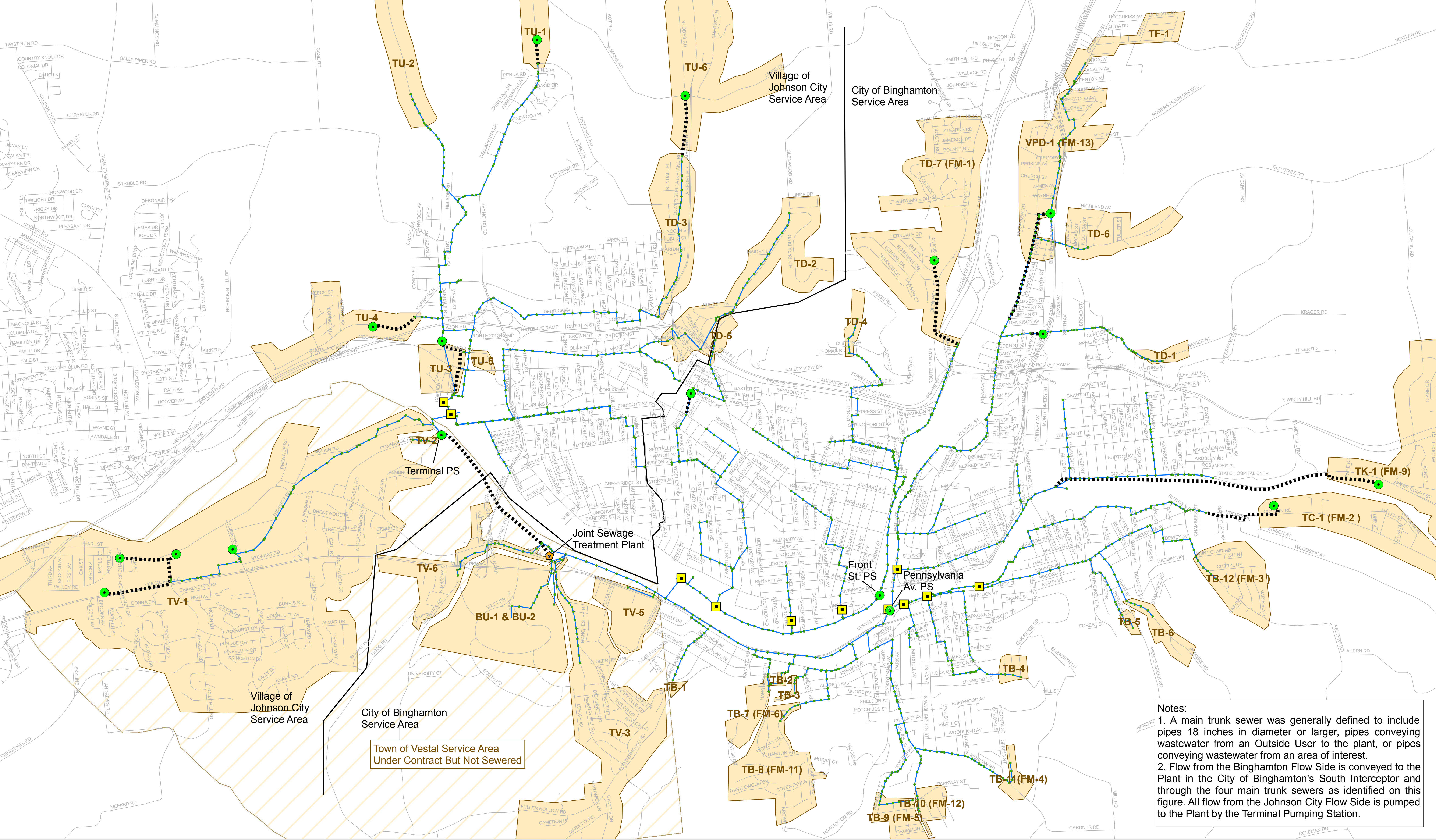


well as distribute and review draft components of the program. The meetings also served as a forum for municipal users to share information and offer feedback. Additional topic-specific meetings with municipal users were conducted throughout the project.

Drawing on past members of the Steering Committee in earlier steps, the group for the third step consisted of:

1. Binghamton-Johnson City Joint Sewage Board members.
2. A core working group of Board members addressing the draft Flow Management Plan, and the sewer treatment facility superintendent.
3. Representatives of the City of Binghamton and Village of Johnson City.
4. Municipal officers, staff persons, engineering firm representatives, sanitation personnel planning board members, and town and village council members representing the outside users.
5. Representatives of Binghamton University.
6. Representatives of Broome County.
7. Other interested parties.

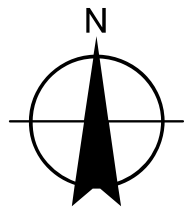
The steering committee process is described in more detail in Chapter 6.



Notes:

1. A main trunk sewer was generally defined to include pipes 18 inches in diameter or larger, pipes conveying wastewater from an Outside User to the plant, or pipes conveying wastewater from an area of interest.
2. Flow from the Binghamton Flow Side is conveyed to the Plant in the City of Binghamton's South Interceptor and through the four main trunk sewers as identified on this figure. All flow from the Johnson City Flow Side is pumped to the Plant by the Terminal Pumping Station.

1:18,000 (at ARCH D)
0 0.125 0.25 0.5
Miles



LEGEND

- Binghamton-Johnson City Joint Sewage Treatment Plant
- Main Trunk Sewer Force Main
- Pump and Lift Stations
- Main Trunk Gravity Sewer
- CSOs
- Outside Users

Map Projection: Transverse Mercator
NAD_1983_StatePlane_New_York_Central
Datum: D_North_American_1983

G:\8614545\GIS\Maps\Jan 2012\Figure 1_Critical Infrastructure.mxd

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Binghamton-Johnson City
Joint Sewage Board

Job Number 86-14545
Revision 2
Date 1 26 2012

Main Trunk Sewers And Critical Infrastructure

Figure 1

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4 Introduction

4.1 Flow Management Program Concept

Through the development of the Flow Management Program, it has been documented that the City of Binghamton's, the Village of Johnson City's and the outside users' sewer collection systems have varying degrees of infiltration and inflow. During this process, it was also documented that the City's and Village's sewer collection systems can convey the peak design flow rate to the Plant without experiencing CSOs and that the flow rates discharged to the Plant are within the design and permit limits of the Plant. The NYSDEC has approved these findings and stated the following two positions (this correspondence can be found in Appendix C):

1. The City and Village collection systems are currently in compliance with their Combined Sewer Overflow Long-Term Control Plans (CSO LTCPs).
2. However, both the City and Village must take action to plan for the future in order to remain in compliance.

As such, the Flow Management Program was developed to keep the Board, owners, and municipal users in compliance with the discharge permits for the Plant and CSOs. Further, through review of the I/I data, mapping and modeling results, and the legal authority of the Board, the Board believed it was more feasible and practical to implement a Flow Management Program that was programmatic in nature rather than one that was capital intensive. The concept is that rather than search for I/I and require specific sewer rehabilitation capital projects related to I/I reductions, the Board is better enabled to require programs that will both: (1) encourage best management practices in the operation and maintenance of the sewage collection systems; and (2) result in long-term sewer rehabilitation programs. The Board also believes that municipal users can utilize sewer funds more efficiently if they follow this approach.

4.2 Flow Management Program Goal

According to NYSDEC, the goal of developing a Flow Management Program is to identify and implement reductions in hydraulic loading to a publicly-owned treatment works (POTW) to stabilize annual average flows below the POTW's design flow. In the case of the Board, the City of Binghamton, and the Village of Johnson City, the goal of stabilizing flow rates below design flow rates pertains to both the sewage treatment plant and the City and Village's CSOs. The maximum month design flow at the Plant is 35 mgd and the peak design flow is 60 mgd. The CSO structures have design flows ranging from 10 to 100 mgd; however, a critical element with the CSOs is that, during an average precipitation year, 85 percent of the combined sewage volume is conveyed and treated at the Plant in compliance with USEPA's National CSO Policy.

Even though the flow rates to the Plant are currently well below design values and permit limits, and the City and Village collection systems are currently in compliance with their CSO LTCPs, the goal of the Flow Management Program continues to be reducing hydraulic loading and stabilizing annual average flows below design values and permit limits on a sustained basis. The approach is therefore forward-looking or proactive with the intent to maintain compliance (rather than being reactive to regain compliance). This proactive approach will assure future/long-term conveyance and treatment capacity through proper planning rather than through short-term capital intensive projects.



4.3 Flow Management Program Components

Based on the above concepts and goals, as well as data compiled during the first two steps, the Board believes that the Flow Management Program does not need to focus on immediate near-term mass remediation of existing I/I in a reactive manner. Rather, it should focus on managing flow in the future, of which I/I reduction is an important part.¹ Therefore, the Board believes there are three feasible, fundamental programs to be developed and ultimately implemented to manage hydraulic flows into the future as part of the overall Flow Management Program. In addition, a treatment management plan will be adopted by the Board to assure that influent flow loadings are maintained at a level which is within the Plant's treatment capacity.

4.3.1 New/Modified Connection Application Program

A formal application program will be established to approve and account for new or modified connections to the sewage collection system. The application program will be a multiple-tiered process. The first step will include review and approval by the municipal user where the sewer connection is being made. The second step will be review and approval by either the City or Village to ensure that the main trunk sewers have conveyance capacity for the new flow. The third step will be review and approval by the Board to ensure that the Plant has hydraulic and treatment capacity. The New/Modified Connection Application Program is presented and discussed in detail in Chapter 7 and Appendix F.

4.3.2 I/I Offset Program

An I/I Offset Program will be implemented and used as a capacity management tool as part of the larger proposed Capacity, Management, Operation and Maintenance (CMOM) Program discussed in Chapter 9. This I/I Offset Program is to keep the City, Village and Outside Users in compliance while promoting and properly planning for economic development. The I/I Offset Program is presented and discussed in detail in Chapter 8 and Appendices G and H).

4.3.3 CMOM Program

Each municipal user will be required to implement a CMOM Program which will address collection system degradation and repairs and help prioritize implementation of I/I reduction projects and sewer system repair and rehabilitation. Each municipal user's CMOM Program will follow the specifications set forth in this Flow Management Plan. The CMOM Program is presented and discussed in detail in Section 9 and Appendix I.

4.4 Addressing Alternative Components Inherent to Flow Management Programs

In the NYSDEC regulations pertaining to a Flow Management Plan (or Program), Article 6 NYCRR Section 750 2.9(c)(l)(ii)(a-f) cites six items that must be addressed in a Flow Management Plan. Nevertheless, the NYSDEC regulations do not define standards to assess feasibility even though feasibility is a material aspect of the assessment, as highlighted in the March 15, 2011 NYSDEC letter included in Appendix C. Because the Board believes it is more feasible and practical to implement a Flow

¹ Given that this Flow Management Plan is intended as a long-term means of ensuring compliance and environmental protection, the Plan does not address temporary conditions which impact the ability of the collection system, Terminal Pump Station, and/or Plant to capture, convey, and properly treat flows such as resulted from the May 16, 2011 collapse of the West C-Cell wall at the Plant or the flooding resulting from Tropical Storm Lee, September 7-9, 2011.



Management Program that is programmatic in nature rather than one that is capital intensive, not all of these items translate directly into feasible Flow Management Program components for the Plant, CSOs, or collection system. That said, provisions for most of the six items are included in the Flow Management Program, either directly through Board initiative or indirectly through the Board's programmatic requirements.

The Board regards "feasibility" as connoting:

An environmentally-prudent means or method, suitable to achieve an intended water quality goal or outcome, which is [i] technologically possible, [ii] legally permissible, and [iii] economically reasonable both from a cost-benefit standpoint and from the standpoint of the prevailing financial wherewithal of the implementing community, such means or method having a realistic probability of successful implementation on a sustained basis.

A discussion of each of the six cited items is provided below.

1. *Water conservation measures to reduce customer usage by measures including but not limited to customer metering, meter calibration, retrofitting existing plumbing fixtures with water conservation fixtures and revision of water rate structures*

Because the City and Village are combined sewer systems and varying degrees of I/I were observed in all municipal users' sewage collection systems, the amount of total I/I (including combined sewage from the City and Village) is significantly greater than sanitary sewage flow and any reductions that could occur from water conservation measures. Additionally, because the Board does not operate potable water distribution systems, it has no legal authority whatsoever to require water conservation measures. The owners also cannot require water conservation measures outside the bounds of their water distribution systems. Therefore, it is not legally permissible -- and thus not feasible -- for water conservation measures to be a direct, integral component of this Flow Management Plan. Accordingly, the focus of this Flow Management Program will be I/I reduction.

Despite the focus on I/I reduction in the Flow Management Plan, the issue of water conservation is important to the sustainable management of all the municipal users. Water conservation is required through the New York State Building Code, which requires water-conserving plumbing fixtures and devices. As shown in the water consumption graph in the "*Flow Management Evaluation Report*," Figure 2-7, there has been a decreasing trend in water consumption over the past 10 years. This decrease in water consumption is likely from a reduction in population and number of businesses; significant losses of housing and commercial buildings due to historic flooding events in 2005, 2006, and 2011; as well as the use of water-conserving plumbing fixtures and devices in new and rehabilitative construction.

2. *Reduction of infiltration and inflow through continuous measures including but not limited to sewer system metering, evaluation and rehabilitation, removal of roof leaders and footing drains from separate sanitary sewers and installation of separate storm sewers*

Reduction of I/I through Board-required programs is the focus of the Flow Management Program. The New/Modified Connection Application Program will work as an educational tool and ensure that connections are made only when the proper I/I reductions have been made and adequate hydraulic and treatment capacity exists. The I/I Offset Program will serve as the incentive for I/I



reduction. The CMOM Program will serve as a mechanism for municipal users to find sewage collection system deficiencies, set up, and follow a plan to rehabilitate these deficiencies.

3. *Prevention of future sources of infiltration and inflow where feasible through measures including but not limited to implementation of standards for sewer installation and requirements to provide for adequate drainage from roof leaders and footing drains in new construction*

Prevention of future sources of I/I will also be a focus of the Flow Management Program, through the New/Modified Connection Application Program, the I/I Offset Program, and the CMOM Program.

4. *Measures to maximize sewer system and sewage treatment works capacity at a minimum cost*

As part of the Flow Management Program, the Board has developed a Treatment Management Plan to be used as a management tool to guide the Board when making decisions about controlling and/or treating flows and pollutant loads reaching the Plant, with the goals of protecting the Plant processes and equipment and meeting effluent limits. The Treatment Management Plan will provide possible treatment management strategies for controlling and/or treating flows and pollutant loads.

Capital-intensive programs and projects such as: (a) constructing one or more additional sewage treatment facilities; (b) further expanding capacity of the existing Plant; (c) carrying out a concentrated, aggressive near-term sewer separation program within the owners' boundaries; and (d) constructing a large-scale system of wastewater storage, lagoon, and/or wetland systems with combined holding capacity of at least 30 million gallons (148,534 cubic yards), although technologically possible, are not considered to be economically reasonable "minimum cost" alternatives given the combined magnitude of such projects' initial capital costs, long-term financing (debt service) costs, and sustained additional operating and maintenance costs.

5. *Approvable engineering reports and/or plans and specifications to assure annual average flows do not exceed 95 percent of the POTW treatment plant design flow*

The Plant's maximum month design flow rate is 35 million gallons per day (mgd) and the SPDES permit is 35 mgd on a 12-month rolling average. Ninety-five percent of this design flow rate is 33 mgd. The actual average influent flow rate is approximately 19 mgd, or approximately 57 percent of the design and permit flow, which is significantly lower than the regulatory trigger of 95 percent. Further, the City and Village collection systems are currently in compliance with their CSO LTCPs (NYSDEC correspondence, Appendix C). Inasmuch as approvable engineering reports, plans, and specifications are not necessary under these circumstances, and thus would not effectively contribute to successful implementation of the Plan on a sustained basis, the Flow Management Plan does not include engineering reports and/or plans. However, provisions will be made for both through the CMOM Program should conditions change.

6. *Capital improvements necessary to assure annual average flows do not exceed 95 percent of the POTW treatment plant design flow*

Specific capital improvement projects are not identified in this Flow Management Plan for similar reasons mentioned above for the exclusion of engineering reports and/or plans and specifications. However, provisions will be made for specific capital improvement projects to assure that flow



rates remain within compliance through the New/Modified Connection Application Program, the I/I Offset Program, and the CMOM Program.

4.5 Revisions to the Plant Law and the Rules and Regulations

The owners have authority to revise the Plant Law, and the Broome County District Attorney (as to prosecution of criminal violations) and the Board (as to redress of civil violations) have jurisdiction and authority to enforce it. The Board has the authority to revise and enforce the Rules and Regulations. Further, it states in each municipal user's local sewer ordinance that the municipality shall follow the Rules and Regulations. Therefore, through this Flow Management Plan, the owners and the Board have made provisions for revising the Plant Law and the Rules and Regulations. Among other revisions, the Plant Law will be updated to re-define I/I and sanitary sewage in accordance with federal principles using the current understanding of how the Plant and the sewage collection system are negatively affected by wet weather and high groundwater. The Rules and Regulations will be revised to include three new Articles, one each for the New/Modified Connection Application Program, the I/I Offset Program, and the CMOM Program. The one variance from this legal approach is applicable to Binghamton University's Vestal Campus, which does not have an agreement. Binghamton University's Vestal Campus will be regulated through the Board's Industrial Wastewater Pretreatment Program, and corresponding revisions will be made to its Industrial Wastewater Discharge Permit.

4.6 No Revisions to be Made to the Sewer Use Agreements and Inter-Municipal Agreements

There are IMAs between the City of Binghamton and the Village of Johnson City. There are also IMAs and sewer use agreements between the City and/or Village and outside users that govern the aspects of discharging all types of water into the City and Village sewage collection systems tributary to the Plant. The Board, which took the lead on developing the Flow Management Program, is not a party to the owners' agreements between themselves or between the owners and outside users and, therefore, has no jurisdiction to develop revised agreements or enforce a requirement to revise the agreements. The Board's authority is expressed through the IMAs, the sewer use agreements, the Plant Law, and the Rules and Regulation. Although it can enforce aspects of each, the Board has authority to revise only the Rules and Regulations. Revisions to the Plant Law and the Rules and Regulations are discussed in Section 4.5.

4.7 Prioritization of Sewage Collection System Repair and Rehabilitation Projects

Although this Flow Management Plan describes a programmatic approach to reducing I/I, the focus of the overall Flow Management Program is the reduction of I/I through sewage collection system repair and rehabilitation projects. These projects will be identified through an on-going condition assessment of the sewage collection system, which is a requirement of the CMOM Program. The CMOM Program also requires that these projects be prioritized and documented in an annual report to the Board. The motivation for completing these projects will be through the I/I Offset Program, which requires each municipal user to remove I/I before increased sanitary sewage flow from new or modified connections can be discharged into the sewage collection system.



5 Legal Structure and Legal Authority

5.1 Background

The use of the Plant is governed by the Plant Law and the Rules and Regulations. In addition, IMAs exist between the City of Binghamton and the Village of Johnson City. There are also sewer use agreements between the City and Village and outside users that govern the aspects of discharging all types of water into the City and Village sewage collection systems tributary to the Plant. There is no sewer use agreement with Binghamton University covering its Vestal Campus; however, the University holds a discharge permit issued under the Board's Industrial Wastewater Pretreatment Program.

By Section 13 of Appendix A of Inter-municipal Agreement No. 2 (IMA No. 2) between the City of Binghamton and the Village of Johnson City, outside users are bound to send all of their sewage to the Plant, while the owners are bound to furnish sufficient facilities to transport within their boundaries and treat the sewage.

The obligations set forth in IMA No. 2 (December 7, 1967) are carried through to the sewer use agreements between the owners and the outside users (except Binghamton University as noted above). Through the sewer use agreements, the outside users have explicitly agreed to furnish all of their sewage originating within the outside users' boundaries for treatment. Also, through the sewer use agreements, the owners have explicitly agreed, for life of the existing agreements with outside users, to furnish sufficient facilities for treatment of sewage from the outside users. Also, through the sewer use agreements, the owners have explicitly agreed, for life of the existing agreements with outside users, to "receive and dispose of sewage from the sewer system of the" outside users, except for the Town of Vestal and the Vestal Central School District (which are required to deliver their sewage to the Plant or Terminal Pumping Station), and Binghamton University's Vestal Campus (no agreement as noted above).

Several of the outside user agreements do not limit, or cap, the amount of sewage that the outside user can discharge into the system, whereas other agreements guarantee treatment for a specified quantity of sewage. Table 5-1 is a summary of outside users with and without specified limits on quantities of sewage.

Table 5-1 Identification of Outside Users With and Without Specified Quantities of Sewage

Outside Users Without Specified Limit on Quantity of Sewage in Sewer Use Agreement	Outside Users With Specified Limit on Quantity of Sewage in Sewer Use Agreement
Town of Kirkwood	Town of Vestal (2,000,000 gallons per day [gpd])
Town of Union	Town of Conklin (320,000 gpd)
Town of Dickinson	Town of Fenton (125,000 gpd)
Town of Binghamton	
Village of Port Dickinson	
Binghamton University Vestal Campus ⁽¹⁾	

(1) No agreement.



Consideration must be given to the unused allocation of sanitary sewage from outside users with specified quantities of sewage in their sewer use agreement. In total, 2,445,000 gpd of treatment capacity is guaranteed to the Towns of Vestal, Conklin, and Fenton. Of this total allocation, approximately 1,000,000 gpd was used in 2009, leaving approximately 1,400,000 gpd unused. It is important to note that the value of 1,000,000 gpd was based on the water supplied, which by agreement can be used as a surrogate for sanitary sewage. As part of this Flow Management Program, sanitary sewage will be defined differently to recognize the flow components typically found in sewage collection system, i.e., sanitary sewage, infiltration, and inflow. The balance of the guaranteed flow will be reconciled through future flow metering as part of the CMOM Program in 2018. The Board, through its administration of the Flow Management Program, should keep track of these guaranteed sewage flows and consider them as existing flows when making decisions about approving future new or modified sewer connections. The City and Village should also keep apprised of these guaranteed sewage flows with respect to CSO permit compliance and approval of future new or modified sewer connections. These guaranteed flows do not exempt the Towns of Vestal, Conklin, and Fenton from removing I/I as an offset for increased sewage flow from future new or modified sewer connections.

In addition to obligating the outside users and owners to either furnish or accept sewage, the sewer use agreements include provisions which require the outside users to adopt a Sewer Use Ordinance. Furthermore, each agreement expressly requires that such Sewer Use Ordinance must be modified as required by the Board. With the exception of the agreement with the Town of Vestal and the Vestal Central School District, every outside user agreement includes a provision that specifically and additionally subjects the user to the Rules and Regulations and any amendments or modifications. As discussed below, even in the absence of the Consent Order with the NYSDEC under which development of a Flow Management Plan is required, these specific obligations give the Board the authority to require and enforce the Flow Management Program.

5.2 Opinion of Legal Authority to Require Flow Management Program

A legal review of the following documents was completed by an independent law firm to formulate an opinion on whether the Board possesses authority to require the outside users as well as the City of Binghamton, Village of Johnson City, and Binghamton University to comply with the Flow Management Program:

- Binghamton-Johnson City Joint Sewage Treatment Plant Law
- Rules and Regulations Relating to Use of the Binghamton-Johnson City Joint Sewage Treatment Plant
- Inter-municipal Agreements
- Sewer Use Agreements
- Industrial Wastewater Treatment Program Permits
- New York State Environmental Facilities Corporation Project Finance Agreement

A legal opinion letter by Pannone, Lopes, Devereaux & West LLC is provided in Appendix D. The opinion letter includes references to the documents identified above and cites those that give authority to the owners and Board to amend the Plant Law and the Rules and Regulations, as well as those that obligate the owners and outside users to comply with the Plant Law and the Rules and Regulations.



5.3 Revisions to the Plant Law and Rules and Regulations

The legal opinion letter (Appendix D) concludes that flow control regulations (i.e., the Flow Management Program) can be promulgated which are enforceable against all of the outside users, the owners, and Binghamton University. The opinion letter states that the simple and effective way to promulgate flow control regulations is for the owners to amend the Plant Law and the Board to amend the Rules and Regulations. In the case of Binghamton University, the Board must amend the Industrial Wastewater Discharge Permit.

The New/Modified Connection Application Program, the I/I Offset Program, and the CMOM Program are described in general terms in the following chapters of this Flow Management Plan. For each program description, there is a reference to a legal article, which was developed and written to be adopted as a new Article in the Rules and Regulations.

5.3.1 Amendments to the Plant Law

Section 2.01 of the *Binghamton-Johnson City Joint Sewage Treatment Plant Law* shall be amended by the legislative bodies of the City of Binghamton and Village of Johnson City to add definitions for "Infiltration/Inflow (I/I)", "Infiltration", and "Inflow" as set forth in Chapter 13 of this plan document, and the definitions of "Sewage" and "Wastewater" shall be revised to read as set forth in Chapter 13 of this plan document.

5.3.2 Amendments to the Plant Use Rules and Regulations

Following amendment of the Plant Law as described above, Section 2.01 of the *Rules and Regulations Relating to Use of the Binghamton-Johnson City Joint Sewage Treatment Plant Law* shall be amended by the Joint Sewage Board to add definitions for "Infiltration/Inflow (I/I)", "Infiltration", "Inflow", and "Sewage" as set forth in Chapter 13 of this plan document, and the definition of "Wastewater" shall be revised to read as set forth in Chapter 13 of this plan document.



6 Steering Committee Process and Development of the Flow Management Program

A consensus-building strategy was used to develop this Flow Management Program. Consensus building between the municipal users and the Board was critical in the program's development and remains critical in its ultimate success. Throughout the development of the Flow Management Program, the consensus-based strategy initiated and integrated stakeholder engagement using a Steering Committee made up of representatives from the Board, the municipal users, and other interested parties.

6.1 Meetings of the Steering Committee

Steering Committee meetings were conducted on April 26, June 7, June 28, July 19, July 26, August 16, 2011 and January 17, 2012. Summary reports from these meetings can be found in Appendix E. The main purpose of the meetings was to explain the components of the draft Flow Management Program and to obtain feedback and recommendations from the Board and municipal users. Specific meeting agendas were as follows:

1. A group orientation meeting was conducted, including discussion of the Steering Committee process and how a two-way communication plan would be conducted to assure community input. The elements of the proposed Flow Management Program and the planned schedule of activity were also presented (April 26).
2. Key components of an I/I Offset Program and New/Modified Connection Application Program were presented to the Steering Committee (June 7).
3. Key components of the CMOM Program were presented to the Steering Committee, as well as presentations by the NYSDEC regarding its visions for CMOM and enforcement of a Flow Management Program. A question-and-answer forum was included (June 28).
4. A draft plan of the I/I Offset Program and New/Modified Sewer Connection Application Program was presented to the Steering Committee (July 19).
5. A draft plan of the CMOM Specification Program was presented to the Steering Committee; and opportunity for feedback and questions regarding the CMOM Specification Program, I/I Offset Program, and New/Modified Connection Application Program was provided (July 26).
6. A presentation was given to the Steering Committee and opportunity for comments, questions, and feedback regarding the methodology used for a financial feasibility assessment, as well as the determination regarding the Joint Sewage Board's legal authority to implement the Flow Management Program (August 16).
7. Based on feedback from previous meetings, the Flow Management Program was finalized and a presentation of the final Flow Management Program was presented to the Steering Committee (January 17).



6.2 Additional Meetings

Additional working sessions were conducted to gain input specifics on each component of the Flow Management Program. Meetings were also conducted to gain endorsement of the Flow Management Program, including:

1. CMOM development meetings with the owner (five meetings through June and July).
2. Informational presentations at legislative sessions of the owners (June 6 at City of Binghamton and June 14 at the Village of Johnson City).
3. A coordination meeting with the owners on June 21.
4. A CMOM discussion with outside users on July 12.
5. Conference calls were scheduled with each of the outside users, as well as Binghamton University, to discuss the legal aspects of Flow Management Program implementation and enforcement. The project's legal consultant conducted the calls, provided an assessment of each outside users' IMA and status, and responded to questions and comments (August).
6. A working meeting with owners to establish the approach to transfer flow credits to outside users (November 2).
7. Presentations of the final Flow Management Program to legislative bodies of the owners (December 5 at the City of Binghamton and December 6 and 20 at the Village of Johnson City).

6.3 Reporting

The above meetings were supported by an approach to assure a continual flow of communication to and from the Board to the Steering Committee and interested parties, both before and after meetings. Communication activities included:

1. Sending advance notices to Steering Committee members and other interested parties of the meeting dates and locations for scheduled meetings, along with agenda topics (with reminders sent once or twice before each meeting), circulated via email.
2. Recording meeting discussions and summarizing presentations. These were transcribed into reports and distributed to all Steering Committee members and interested parties. The summary reports were also posted to a dedicated, project web site. These summary reports are presented in Appendix E.
3. An overview brochure providing details about the project was produced for use by Steering Committee members, their municipal boards, and other interested parties, as well as for public distribution. Printed copies and an electronic file of the brochure were provided so committee members could duplicate for further distribution throughout their communities.

6.4 Individual Outreach

Additional outreach was conducted with individual members of the Steering Committee including owners, outside users, and others attending on a regular basis. Phone calls were placed by the project communications staff members who facilitated the Steering Committee meetings. The outreach involved follow-up on subjects raised during Steering Committee meetings regarding ideas, input, questions, and



issues that committee members might want to raise or have placed on the agendas of upcoming meetings. Throughout the process, the consultants remained available to accept input, suggestions, comments, or convey information to the Board and engineering firm via one-to-one conversations in person or by phone.

6.5 Input Survey

Through email and a handout sheet, the committee members were periodically surveyed to identify their special interests, issues, or questions. The survey also invited comment on what factors would contribute to successful implementation of the Flow Management Program.



7 New/Modified Connection Application Program

The New/Modified Connection Application Program is one of the four cornerstone programs of the overall Flow Management Program. The purpose of this program is to control sewer flow to the Plant and maintain compliance with the City of Binghamton's and the Village of Johnson City's CSO LTCPs, as required by the U.S. Environmental Protection Agency (USEPA). The goal of the program is to promote a unified, consistent, and coordinated process for evaluating the effects of new or modified sewer connections and assuring that new or modified sewer connections do not exceed the capacity of the sewage collection system.

The New/Modified Connection Application Program will be promulgated through a new Article in the Rules and Regulations. The Article has been developed and is provided in Appendix F. The New/Modified Connection Application Program process is illustrated in Figure 7-1.

7.1 Sewer Connection Application

Each municipal user shall develop a Sewer Connection Application, required to be completed by an applicant and approved by the municipal user before a sewer connection can be made. The municipal user to whose sewer collection system the new or modified connection is being made is referred to as the "principal municipal user". The applicant is the developer or owner of the parcel that requires a sewer connection. The Sewer Connection Application will include, at a minimum, a parcel I.D. number (i.e., tax map number), estimated date for completion of the new or modification development construction, and an estimate of the pre- and post-construction/modification sewage flow rates. An example application is provided in the Article (Appendix F).

7.2 Sewer Extension Engineering Report

If a sewer connection or modification results in new sewage flows of more than 2,500 gpd, the connection is defined as a Sewer Extension and the application requires approval from the affected owner, Board, and possibly an intermediate municipal user. The application must be accompanied by a Sewer Extension Engineering Report.

The Sewer Extension Engineering Report will include a sewer system capacity analysis of the municipal user's and, if applicable, the intermediate municipal user's sewage collection system from the point of the new or modified sewer connection to the affected owner's sewage collection system. The Sewer Extension Engineering Report must certify that there is available sewer capacity or make provisions for providing available sewer capacity before submitting the Sewer Connection Application and report for approval.

7.3 New or Modified Sewer Connection Sewage Flow Rates

The NYSDEC "*Design Standards for Wastewater Treatment Works*", 1988 edition or future revisions, will be used to establish the sewage flow from residential, commercial, and restaurants. For industrial and other facilities, the sewage flow rates will be determined at the time of application based on similar type and size of business.



7.4 New or Modified Sewer Connection (Less Than or Equal to 2,500 gpd)

For sewer connections less than or equal to 2,500 gpd, the applicant will submit a Sewer Connection Application to the principal municipal user.

The principal municipal user is obligated to disapprove a new or modified sewer connection if such action is required for reasons set forth in the local ordinances or if the flows associated with the new or modified sewer connection will exceed the capacity of the principal municipal user's sewage collection system.

Upon approval of the Sewer Connection Application by the principal municipal user and other governing agencies (if applicable), the applicant can proceed with the new or modified sewer connection. The approved application shall be sent to the intermediate municipal user (if applicable); the affected owner; the Board; and (5) other governing agencies (if applicable) for record keeping purposes.

7.5 New or Modified Sewer Connection (Greater Than 2,500 gpd)

For sewer connections greater than 2,500 gpd, the applicant will submit a Sewer Connection Application and Sewer Extension Engineering Report to: (1) the principal municipal user; (2) the intermediate municipal user; (3) the affected owner; (4) the Board; and (5) other governing agencies (if applicable).

The principal municipal user is obligated to disapprove a new or modified sewer connection if such action is required for reasons set forth in the local ordinances or if the flows associated with the new or modified sewer connection will exceed the capacity of the principal municipal user's sewage collection system.

Upon approval of the Sewer Connection Application and Sewer Connection Engineering Report by the principal municipal user and (if applicable) the intermediate municipal user, the applicant shall submit the application and report to the affected owner and Board. The affected owner will perform a sewer capacity analysis from the point of the outside user's connection to the treatment plant, and the Board will perform a hydraulic and pollutant loading capacity analysis at the Plant. The affected owner and Board will approve or approve-with-conditions the application based on available capacity or provisions for providing capacity.

Upon approval of the Sewer Connection Application by the parties listed above, the applicant can proceed with the new or modified sewer connection.



8 I/I Offset Program

The I/I Offset Program is one of the four cornerstone programs of the overall Flow Management Program. The basic principle of the I/I Offset Program is to remove one part of I/I for every one part of new sanitary sewage connected or input into the sewage collection system. The accounting mechanism for tracking I/I removed is herein referred to as flow credits.

The program is intended to be a long-term capacity management tool to control sewer flow to the Plant and maintain compliance with the City of Binghamton's and the Village of Johnson City's CSO LTCPs, as required by the USEPA. The goal of this program is to ensure adequate hydraulic capacity throughout the sewage collection system and adequate hydraulic and treatment capacity at the Plant.

The I/I Offset Program will be promulgated through a new Article in the Rules and Regulations. The Article has been developed and is provided in Appendix G.

8.1 Background

8.1.1 One-to-One Offset

Through the development of the Flow Management Program, it has been documented that the City of Binghamton, the Village of Johnson City, and the outside users' sewer collection systems can convey the peak design flow rate to the Plant without experiencing CSOs. As such, the I/I Offset Program is intended to help keep the City and Village in compliance with their LTCPs and the USEPA's *National CSO Policy* while facilitating development in all portions of the service area and promoting proper planning. This is in contrast to many I/I offset programs that result from non-compliance issues, and therefore are used as a punitive measure to reduce I/I and bring the entity into compliance while allowing continued opportunity for development.

Because the intent of the I/I Offset Program is as a long-term capacity management tool and not a punitive measure to reduce I/I, the program approach calls for a one-to-one I/I offset. The concept is that the City, Village, and outside users are currently in compliance and will remain so by ensuring that an equal amount of I/I is removed to compensate for new sanitary sewage flows. In practice, because the written procedures in the I/I Offset Program have conservativeness built into the flow calculation methods, the credit for I/I reductions will generally be less than actual and the debits or flow added will have a peaking factor applied to them. Further, the CMOM Program is being designed to properly operate and maintain the sewer collection systems to prevent or minimize new I/I on a "net" basis as well as reduce existing I/I by requiring implementation of long-term cyclical inspection and collection system asset management activities.

8.1.2 Receiving Flow Credits for Past Work

The City of Binghamton and Village of Johnson City LTCPs were approved in 2001. The major components of the LTCPs were to maximize flow to the Plant, close some CSOs, as well as maximize in-line storage and provide floatables controls at the CSO structures. The closing of CSOs and installation of floatables control equipment was completed throughout 2001 and 2002, and the upgrades to the primary treatment process at the Plant, which allowed "maximum" flow to the Plant, were completed in November 2007.



The goal of the City and Village LTCPs is to capture and provide primary treatment for at least 85 percent by volume of the combined sewer collection system's wet weather hydraulic flow (volume) on a system-wide annual average basis in an "average year" by maximizing flow to the Plant. Through sewer system modeling performed between 1998 and 2000, it was established that 85 percent capture could be achieved if the Plant could process a peak flow rate of 60 mgd. This sewer system model was developed and calibrated using data from 1998; in other words, the baseline sewer system conditions for capturing 85 percent of the average annual combined sewer volume are circa 1998. This means that any changes to the sewer collection systems after 1998 would change the percent capture. Because the Plant processes a peak flow rate of 60 mgd as validated by the most recent modeling (calibrated based on various wet weather events between August 29, 2006 and November 17, 2010), reductions in I/I throughout the collection system would have the effect of increasing the average annual combined sewer volume capture beyond what was approved as the minimum required capture. Conversely, increases in sanitary sewage flows would have the effect of decreasing the average annual combined sewer volume capture below what was approved.

Given that: (1) multiple sewer separation projects have occurred since 1998; (2) there has been a decreasing trend in service-area-wide water usage; and (3) housing and commercial building stock has been lost in the service area due to historic flooding events in 2005, 2006 and 2011, it is reasonable to conclude that the average annual combined sewer volume is less than the baseline conditions of 1998. Also, because the Plant is accepting 60 mgd before CSOs occur, it is also reasonable to conclude that there is less CSO reaching the Chenango and Susquehanna Rivers than the baseline condition that was approved by NYSDEC.

An analysis was completed to estimate the quantity of I/I removed from the sewage collection systems of the owners as a result of the sewer separation projects since 1998. To be conservative, a ratio of two parts of I/I removed for every one flow credit was used in this analysis. A memorandum describing this analysis is provided in Appendix H. The results of the analysis are presented in Table 8-1, and the flow credits are tracked by I/I remediation basins (illustrated in Figure 8-1). The analysis finds that the City of Binghamton has generated 2,180,000 gpd flow credits since 1998, and the Village of Johnson City has generated 191,000 gpd flow credits since 1998.



Table 8-1 City of Binghamton and Village of Johnson City Potential I/I Offset Credits⁽¹⁾ Resulting From Historical Sewer Separation Projects⁽²⁾

CSO Basin	Inflow Reduction (Gallons)	Potential I/I Offset Credits (gpd)
City of Binghamton		
I/I Remediation Basin 001	0	0
I/I Remediation Basin 002	1,000,000	500,000
I/I Remediation Basin 003	540,000	270,000
I/I Remediation Basin 004	750,000	375,000
I/I Remediation Basin 005	0	0
I/I Remediation Basin 006	300,000	150,000
I/I Remediation Basin 007	570,000	285,000
I/I Remediation Basin 009	200,000	100,000
I/I Remediation Basin 013	620,000	310,000
I/I Remediation Basin STP	380,000	190,000
Village of Johnson City		
I/I Remediation Basin 001	42,000	21,000
I/I Remediation Basin 002	340,000	170,000

(1) Based on a generation of flow credits at a ratio of one offset credit for each two units removed (i.e., 1:2).

(2) From 1998 to 2011.

Following approval of the Flow Management Plan by NYSDEC and the adoption of the new Article in the Rules and Regulations as provided in Appendix G, outside users and the owners will be able to apply for recognition of other I/I offset credits for past work retroactive to 1998 upon submission of approvable supporting documentation.

8.2 Allocating and Selling Flow Credits by the City and Village

8.2.1 Past or Retroactive Flow Credits

The City of Binghamton and the Village of Johnson City both appropriate and spend money from an enterprise Sewer Fund. The monies in the Sewer Fund are used to operate and maintain the sewage collection system within their respective municipalities. The monies spent on operation and maintenance range from administration to labor to sewer pipe replacement/repair. A portion of the monies is allocated to “local system costs” taken into account in the annual financial billing reconciliation computation for the Joint Sewage Project. In the past, the portion of the Sewer Fund allocated to local system costs has typically ranged between 20 and 40 percent of the total Sewer Fund expenditures of the respective owners. The allocated local system costs are then proportioned among all municipal users, including the City and Village, based on water consumption. The City and Village both pay the majority of the local system costs accounted for in the annual financial billing reconciliation computation.

In past years (2007, 2008, and 2009), between 20 and 37 percent of the City’s and Village’s total Sewer Fund has been allocated to local system costs. Not all of the allocated local system costs were specifically dedicated to I/I remediation projects that generated retroactive flow credits. Nonetheless, upon approval of the Flow Management Plan and adoption of the new Article in the Rules and Regulations, the City and



Village are allocating 25 percent of the retroactive flow credits in the same proportion as the local system costs during the year 2009.

The allocated retroactive flow credits were distributed to each outside user in their respective I/I remediation basin(s). Tables 8-2 (following page) and 8-3 (below) show the allocation of the retroactive flow credits by I/I remediation basin for the City of Binghamton and Village of Johnson City, respectively.

Table 8-3 Village of Johnson City Allocation of Retroactive Flow Credits

	JC001	JC002	Total
NYSDEC-approved retroactive flow credits (gpd)	21,000	170,000	191,000
Allocated retroactive flow credits (gpd)	5,250	42,500	47,750

Municipal User	Portion of Total 2009 Sewer Fund Costs Paid via Local System Costs	Allocated Shares (gpd)		Total Allocated Shares (gpd)
		JC001	JC002	
Village of Johnson City	15.2%	397	29,107	29,504
Town of Vestal	5.8%	0	11,258	11,258
Town of Dickinson	1.1%	0	2,135	2,135
Town of Union	2.5%	4,853	0	4,853
Totals	24.6%			47,750

The City of Binghamton and the Village of Johnson City have allocated retroactive flow credits proportionately to the allocated local system costs. Because the City and Village have not allocated 100 percent of the operations and maintenance costs, they have not allocated 100 percent of the retroactive flow credits and have therefore retained ownership of retroactive flow credits which result from monies paid from their respective enterprise Sewer Funds which were not allocated to the local systems costs accounted for in the annual financial billing reconciliation computation for the Joint Sewage Project. It is therefore the sole discretion of the City of Binghamton and the Village of Johnson City to sell, hold, or use the retroactive flow credit that they own. Accordingly, the terms and conditions of transferring or selling additional retroactive flow credits will be negotiated between the City or Village and the outside users on a case-by-case basis.



Table 8-2 City of Binghamton Allocation of Retroactive Flow Credits

	B001	B002	B003	B004	B005	B006	B007	B009	B0013	BSTP	Total
NYSDEC-approved retroactive flow credits (gpd)	0	500,000	270,000	375,000	0	150,000	285,000	100,000	310,000	190,000	2,180,000
Allocated retroactive flow credits (gpd)	0	125,000	67,500	93,750	0	37,500	71,250	25,000	77,500	47,500	545,000

Municipal User	Portion of Total 2009 Sewer Fund Costs Paid via Local System Costs	Allocated Shares (gpd)										Total Allocated Shares (gpd)
		B001	B002	B003	B004	B005	B006	B007	B009	B0013	BSTP	
Binghamton (C)	15.1%	0	114,290	67,500	93,750	0	37,500	65,300	15,877	153	-35,004	359,367
Vestal (T)	1.6%	0	0	0	0	0	0	0	0	0	38,079	38,079
Kirkwood (T)	2.3%	0	0	0	0	0	0	0	0	54,738	0	54,738
Binghamton University	1.7%	0	0	0	0	0	0	0	0	0	40,459	40,459
Dickinson (T)	0.9%	0	10,710	0	0	0	0	0	0	10,710	0	21,419
Binghamton (T)	0.5%	0	0	0	0	0	0	5,950	1,983	0	3,967	11,900
Port Dickinson (V)	0.4%	0	0	0	0	0	0	0	0	9,250	0	9,520
Conklin (T)	0.3%	0	0	0	0	0	0	0	1,740	0	0	7,140
Fenton (T)	0.1%	0	0	0	0	0	0	0	0	2,380	0	2,380
Totals	22.9%	0	125,000	67,500	93,750	0	37,500	71,250	25,000	77,500	47,500	545,000



8.2.2 Future Flow Credits

Moving forward, the City of Binghamton and the Village of Johnson City will create a separate budget line item for I/I Remediation Projects. This line item will not be allocated to the local system costs accounted for in the annual financial billing reconciliation computation for the Joint Sewage Project; therefore, no future flow credits will be allocated to municipal users based on in-City or in-Village I/I Remediation Projects. However, the opportunity to acquire future flow credits will be offered to all outside users with respect to such projects.

The City of Binghamton and the Village of Johnson City will enter into a Memorandum of Understanding with each of the outside users. The Memorandum of Understanding will be premised on the City's and Village's pledge to offer the opportunity for outside users to purchase flow credits in advance of an I/I Remediation Project. The flow credits will be sold at the actual cost per flow credit associated with the specific project. For example, in the future, the City of Binghamton may propose an I/I Remediation Project in Basin 009. During the planning and budgeting phase of the I/I Remediation Project, as documented in the Memorandum of Understanding, the City would be obligated to engage the Town of Conklin and offer the Town the opportunity to purchase future flow credits that result from the project within the basin. If the Town of Conklin wishes to purchase future flow credits created as a result of the I/I Remediation Project, an agreement for the sale of the flow credits would be developed. The cost of the flow credits would be based on the actual cost of the I/I Remediation Project, including only those components of work required to remove I/I such as sanitary sewer pipe installation or slip-lining, and resurfacing of streets, but would not include work such as upgrading other utilities (e.g., potable water distribution or previously separated stormwater systems).

If an outside user elects not to purchase future flow credits during the planning and budgeting phase of an I/I Remediation Project, as documented in the Memorandum of Understanding, the City or Village would be the sole owner of the resulting flow credits. It is the sole discretion of the City of Binghamton and the Village of Johnson City to sell, hold, or use flow credit owned by them. The terms and conditions of transferring or selling flow credits will be negotiated between the City or Village and the outside users on a case-by-case basis.

8.3 I/I Offset Program Requirements

New or modified sewer connections adding greater than 2,500 gpd sanitary sewage flow must be offset by an equal quantity of I/I removal. This offset is a one-to-one offset. The offset of I/I must occur in the same I/I remediation basin as the new or modified sewer connection, unless otherwise approved in writing by the Board. The I/I remediation basins are geographic boundaries and are identified in Figure 8-1.

I/I removal will be the result of I/I Remediation Projects and the projects will be completed prior to a new or modified sewer connection being completed. A system to account for the balance between I/I removal and new and modified sewer connection sewage flows is herein referred to as the Sewer Flow Credit Bank (Bank). The Sewer Flow Credit Bank will be administered by the Board or its designee, the Bank Administrator.

8.4 Exemptions From I/I Remediation Projects

As set forth in the I/I Offset Program Article (Appendix G), there are some circumstances in which a municipal user may be exempt from completing an I/I Remediation Project within its own municipal



boundaries. Even though a municipal user may be exempt from completing an I/I Remediation Project within the municipal boundary, all new or modified sewer connections greater than 2,500 gpd (i.e., sewer extensions) must be offset by removal of an equal volume of I/I within the tributary I/I remediation basin or upstream of a known sanitary sewer overflow or known bottleneck in the sewage collection system. In such cases, flow credits must be secured from within the I/I remediation basin by purchase or other transactions with one or more Flow Credit Holders.

8.5 Sewer Flow Credit Bank

The Bank is a mechanism administered by the Board, or its designee, through which flow credits generated from the successful completion of I/I Remediation Projects can be deposited, and then withdrawn or transferred for new or modified sewer connections. Once an I/I Remediation Project is certified complete, flow credits generated by I/I Remediation Projects shall be deposited into a separate sub-account within the Bank for the use by the Municipal User having jurisdiction over the site of the I/I Remediation Project. A Municipal User may, at its sole option, grant, sell, or otherwise transfer flow credits to entities other than the Municipal User, whether on a case-by-case basis or by operation of generally applicable local law, provided written notice of such transaction and/or local law is furnished to the Bank Administrator.

If an I/I Remediation Project performed by any entity generates more flow credits than necessary for a specific new or modified sewer connection, then all excess flow credits will remain “on deposit” in the Municipal User’s sub-account having jurisdiction over the site of the I/I Remediation Project with no expiration date.

It is important to note that the existence of flow credits “on deposit” or posted to the account or sub-account of any entity creates no “vested rights” or entitlement whatsoever to make a new or modified sewer connection until all requirements and conditions applicable at the proposed new or modified sewer connection site are satisfied in the judgment and discretion of the governmental entity having jurisdiction thereof and in accordance with the New/Modified Connection Application Program described in Chapter 7 and Appendix F.

Once “on deposit,” flow credits can be withdrawn for the purpose of a new or modified sewer connection. Flow credits will only be made available if there is available capacity of both the affected sewers and the Plant to accommodate the estimated peak sewage flow associated with such credits. The Bank Administrator will verify that the Sewer Connection Application and Sewer Connection Engineering Report have been approved and verify that flow credits are available within the I/I remediation basin for which the new or modified sewer connection is being made, and that the applicant owns the requested flow credits. Upon verification, the Bank Administrator shall issue a pre-approval “Flow Credit Note” which can be used for the purpose of a new or modified sewer connection.

8.6 I/I Remediation Projects

Municipal users shall identify specific I/I Remediation Projects located on publicly owned property or on private property, including system improvements, repairs, and upgrades, that reduce I/I flow rates within the area tributary to permitted CSOs, known sanitary sewer overflows, or known bottlenecks in the sewage collection system. These I/I Remediation Projects will be identified on an annual basis through the CMOM Program (see Chapter 9 and Appendix I).



Municipal users may undertake the work of I/I Remediation Projects on public property using in-house staff or by contract. Developers may undertake an I/I Remediation Project on their private property and on public property upon approval of the municipal user.

An Engineering Report for I/I Remediation Projects shall be prepared by a professional engineer licensed in the State of New York. The I/I Remediation Engineering Report will include a calculation of estimated I/I flow rate reduction.

The I/I quantification guidelines presented in Tables 8-4 and 8-5 will be used to calculate I/I removed from the system by I/I Remediation Projects. The quantification of I/I shall be prepared by a professional engineer licensed in the State of New York, and presented in an I/I Remediation Engineering Report.

Infiltration flow contribution for specific defects will be according to the guidelines shown in Table 8-4. Inflow flow contribution for specific defects will be determined according to the Natural Resources Conservation Service methodology in Technical Release 55 (TR-55) and the guidelines shown in Table 8-5.

Table 8-4 Infiltration Guidelines

Problem Type		Contribution (gpm)	Reference
Manholes	Joint leaks- paved areas ⁽¹⁾	Heavy- 1.1 gpm ⁽¹⁾ Moderate- 0.65 gpm ⁽¹⁾ Minor- 0.27 gpm ⁽¹⁾ or To be determined on a case-by-case basis ⁽²⁾	ASCE Manual of Practice No. 92
	Joint leaks- unpaved areas ⁽¹⁾	Heavy- 4.6 gpm ⁽¹⁾ Moderate- 2.3 gpm ⁽¹⁾ Minor- 1.1 gpm ⁽¹⁾ or To be determined on a case-by-case basis ⁽²⁾	ASCE Manual of Practice No. 92
	Defective covers/ frames exposed to surface water	To be determined on a case-by-case basis ⁽²⁾	
Pipe segments		To be determined for each specific project by using calculations, flow metering, and/or televised inspection and data from previously completed studies ⁽²⁾	
Laterals/ other connections		To be determined for each specific project by using calculations , flow metering, and/or televised inspection and data from previously completed studies ⁽²⁾	

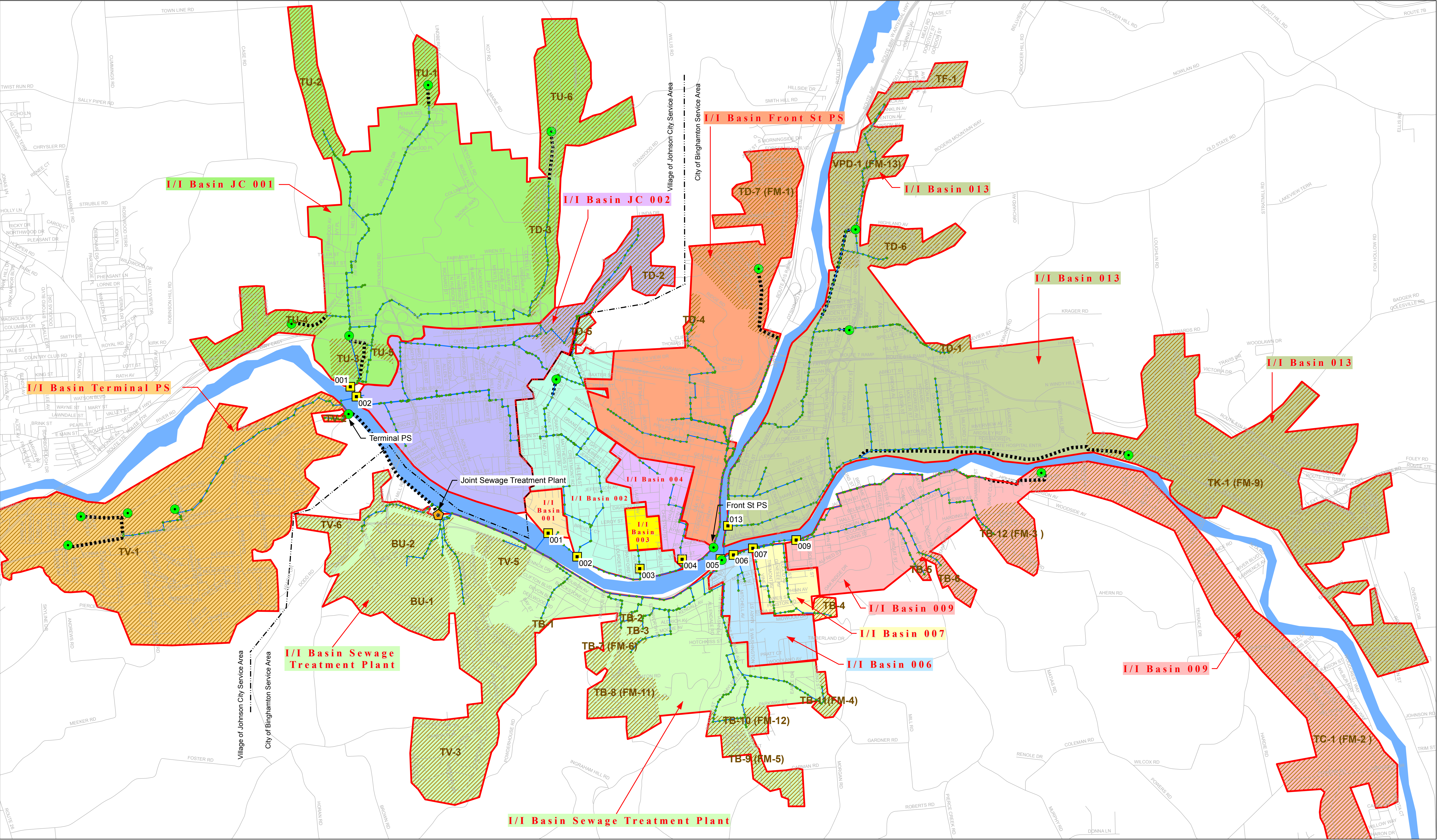
- (1) Based on condition of manhole. "Heavy" means severe cracks and cracks throughout manhole. "Moderate" means moderate cracks within manhole. "Minor" means minor cracks within manhole.
 (2) Calculations must be prepared by a New York State licensed professional engineer.



Table 8-5 Inflow Guidelines

Problem Type	Contribution	Reference
Sump pumps	5 gpm ⁽¹⁾	Gould's Model ST51 at 20 feet of head pressure
Roof drains, catch basins, drainage through manhole covers, cross connections and sewer separation projects.	To be calculated based on Natural Resources Conservation Service methodology TR-55. The 1-year, 24-hour storm event utilizing the Type II Standard Rainfall Distribution will be used. One-year storm rainfall amount is 2.1 inches for the City of Binghamton per Northeast Regional Climate Center.	TR-55

(1) Based on 5 gpm over a 24-hour per day period.





9 CMOM Program

The CMOM Program is one of the four cornerstone programs of the overall Flow Management Program. The purpose of this program is to control sewer flow to the Plant and maintain compliance with the City of Binghamton's and the Village of Johnson City's CSO LTCPs, as required by the USEPA. The goal of this program is to ensure adequate hydraulic capacity throughout the sewage collection system and adequate hydraulic and treatment capacity at the Plant. The CMOM Program will promote consistent use of current industry standards for the operation and maintenance of the sewage collection system throughout the area tributary to the Plant.

The CMOM Program will be promulgated through a new Article in the Rules and Regulations. The Article has been developed and is provided in Appendix I.

9.1 General Requirements

Each municipal user will have their own CMOM Program, developed in accordance with the CMOM Program Article (Appendix I) and the USEPA *"Guide for Evaluation Capacity, Management, Operation, and Maintenance (CMOM) Programs for Sanitary Sewer Collection Systems,"* January 2005 or latest revision. Each municipal user will develop and maintain a CMOM Program Document that describes their CMOM Program. Within the CMOM Program document, the municipal user will provide a status for each CMOM Program requirement (either "complete" or "incomplete"). These requirements are listed below and described in more details in the CMOM Program Article (Appendix I). For CMOM Program requirements that are incomplete, the municipal user shall provide an implementation schedule or justification that the requirement does not apply in the CMOM Program document. The status of incomplete requirements will be documented in an annual report to the Board.

9.2 CMOM Program Requirement

9.2.1 Annual Sewer-Capital Improvement Plan

An Annual Sewer-Capital Improvement Plan will include:

1. Progress of CMOM Program implementation.
2. Condition assessment results.
3. A description and schedule of work to repair defects found during inspections.
4. A description and identification of funding to be committed to carry out the capital aspects of the CMOM Program.

9.2.2 Sewer System Capacity Evaluation

A Sewer System Capacity Evaluation will include:

1. Flow monitoring.
2. Capacity assurance (sewer system modeling and I/I offset program status).
3. Sewer system testing.
4. Sewer system inspection.



9.2.3 Sewer System Management

Sewer system management will include:

1. Sewer system information (mapping).
2. Organizational structure.
3. Staff training.
4. Communication procedures.
5. Customer service procedures.
6. Work Order System.
7. Management Information Systems.
8. Sanitary Sewer Overflow Notification Program.

9.2.4 Sewer System Operation

Sewer system operation will include:

1. Budgeting procedures.
2. Water quality monitoring by Board.
3. Hydrogen sulfide monitoring by Board, and possible monitoring and control by Municipal User.
4. Staff safety training.
5. Emergency preparedness and response.
6. Map repository.
7. Sewer system modeling.
8. New sewer construction and sewer rehabilitation
9. Pump station O&M information.

9.2.5 Equipment and Sewer System Maintenance

Equipment and sewer system maintenance will include:

1. Planned and unplanned maintenance procedures.
2. Sewer cleaning.
3. Parts and equipment inventory.



10 Treatment Management Plan

The Treatment Management Plan is one of the four cornerstone programs of the overall Flow Management Program. Through implementation of the Flow Management Program, greater attention will be given to the sewage collection system tributary to the Plant to reduce I/I and to keep the City of Binghamton, Village of Johnson City, and the Board in compliance with their SPDES permits. Equally important is to keep the Plant in compliance with the permit requirements; therefore, a Treatment Management Plan was developed. The Treatment Management Plan is provided in Appendix J, and a summary follows.

The Treatment Management Plan will assist the Board with the management and monitoring of wastewater flow and pollutant load discharges into the sewage collection system tributary to the Plant, with the goals of protecting the Plant processes and equipment and meeting effluent limits. The Treatment Management Plan is intended to be used as a management tool by the Board in guiding it when making decisions about controlling and/or treating flows and pollutant loads reaching the Plant.

In general, the Treatment Management Plan:

1. Establishes levels of pollutants and flow (i.e., triggers) that, if reached or exceeded, warrant management strategies for control before the Plant becomes non-compliant with permit requirements.
2. Provides a summary of actual, measured levels of pollutants and flow at the Plant and a comparison of the measured data to the trigger levels.
3. Identifies pollutants that require action or implementation of a management strategy.
4. Describes alternative management strategies.

10.1 Trigger Events

Specific influent and effluent levels of pollutants and flow were established as triggers, which will be used to initiate an appropriate management strategy. Influent levels or triggers were generally established based on the Plant's ability to treat the pollutants and flow. The effluent levels or triggers were generally established based on SPDES permit limits. Reserves or safety factors were used in establishing influent and effluent trigger levels so that management strategies could be implemented proactively instead of reactively. Table 10-1 presents the influent (i.e., headworks) and effluent trigger levels.

All the maximum allowable headworks loads (or MAHLs) presented herein have been reduced by a reserve or safety factor. For instance, maximum loads were calculated based on established criteria, such as a design load or an inhibiting pollutant concentration, and then these loads or values were reduced to reflect allowable loads. The MAHLs for the metal pollutants have been reduced by a 25 percent reserve whereas the MAHLs for CBOD, TSS, and TKN have been reduced by a 10 percent safety factor.

Similar to influent loads, a safety factor was applied to the SPDES permit limits. A 10 percent safety factor was applied to the SPDES permit limits to create the effluent trigger levels.



Table 10-1 Influent and Effluent Trigger Levels

Parameter	Maximum Allowable Headworks Load (Reduced by Reserve) (lbs/d)	Effluent Trigger [Permit Limit Reduced by Safety Factor] (lbs/d unless noted)
Flow		12-month rolling average - 31.5 mgd
CBOD	59,200	Weekly average - 7,093 lbs/d Monthly average - 4,729 lbs/d
TSS	82,800	Weekly average - 7,881 lbs/d Monthly average - 5,254 lbs/d
TKN	6,350	Daily maximum - 12,330 lbs/d
TN		Monthly average - 5.4 mg/L
NH ₃		Monthly average - 1,980 lbs/d
TP		Monitor
Arsenic	2.5	
Cadmium	18	
Chromium	21	
Copper	17	18 lbs/d
Cyanide	4	9 lbs/d
Iron	2,175	261 lbs/d
Lead	35	16.2 lbs/d
Nickel	17	
Mercury	0	180 ng/L
Silver	5.1	1.5 lbs/d
Zinc	67	

10.2 Management Strategies

The trigger events include occasions when, for example, the influent load is greater than the maximum allowable headworks load or the effluent consistently exceeds the permit limit less reserve. Once a trigger is acknowledged, a study or an investigation into the source is warranted. A study could include increased sampling and monitoring, data analysis, alternative analysis, and reporting; and would ultimately result in a recommendation of the most appropriate management strategy to control the trigger.

If investigation into the source discloses that an illicit discharge caused the trigger to be exceeded, appropriate steps would be taken under the Board's Enforcement Response Plan. If investigation discloses a new industrial user which had not applied for an Industrial Wastewater Discharge Permit, appropriate steps to require an application, issue a permit, and regulate the discharger would be pursued. Otherwise, the three most prevalent treatment management strategies would be to enhance treatment at the Plant, amend the Plant Laws pertaining to the use of the Plant, or modify the Industrial Pretreatment Program. For example, if a new effluent limit was imposed by the NYSDEC for total phosphorus and the current total phosphorus effluent levels exceeded the limit, this would represent a trigger event and an



engineering study would be conducted. In this example, the engineering study would likely recommend enhanced treatment at the Plant.

10.3 Parameters Requiring Action

While developing the Treatment Management Plan, it was observed that some of the parameters require action for various reasons. Those parameters are total nitrogen (TN), chromium, mercury, and nickel.

10.3.1 Total Nitrogen

The TN SPDES permit level is 6 mg/L and the Plant is having difficulty meeting this level on a consistent basis. Ammonia levels are well below permit discharge levels, indicating that the nitrification (conversion of ammonia to nitrate) process is working properly.

There are known problems with the methanol feed of the denitrification system at the Plant. Once these problems are fully resolved, it is recommended that the Plant operators examine the denitrification process further to evaluate its effectiveness. One measure could be to sample the nitrate levels before and after the denitrification filters to evaluate the denitrification efficiency.

10.3.2 Chromium

Chromium is over-allocated because the permitted industrial load (29.1 lbs/d) is approximately 8 lbs/d greater than the maximum allowable headworks load (21 lbs/d). The permitted industrial load is also approximately 2 lbs/d greater than the maximum load (27 lbs/d), which is the maximum allowable headworks load prior to reduction by the reserve of 6 lbs/d. A mitigation measure for over-allocation of chromium is to modify local limits. Many industrial users have a chromium limit of 2.77 mg/L; others have limits of 4 mg/L, which is the current local limit. One industry (Industrial Electroplaters) has a limit of 2.46 mg/L. It is recommended to the Board to consider revising the chromium local limit.

10.3.3 Mercury

Mercury levels at the Plant headworks do not appear to be of concern; however, when evaluating the *"Collection System Flow Characteristics Sampling Study,"* it was found that several sampling locations had high levels of mercury. Further evaluation into the sources of this mercury should be done along with possible identification of industries which may require permitting.

10.3.4 Nickel

Nickel, similar to chromium, is over-allocated with respect to the maximum allowable headworks load. However, the permitted industrial load is approximately 2 lbs/d less than the maximum load of 22 lbs/d, which is the maximum allowable headworks load prior to the reduction by the reserve percentage. Similar to chromium, a specific mitigation measure for over-allocation is to modify the local limits for nickel (currently 1.5 mg/L); however in the case of nickel it could be decided to use the reserve as a safety factor.



11 Financial Capability Analysis

11.1 Introduction

A Financial Capability Analysis (FCA) was completed for each of the cities, towns and villages serviced by the Binghamton-Johnson City Joint Sewage Treatment Plant. The FCAs assess the financial impacts of the Board's proposed initiatives, including the Flow Management Program, on the municipal users. The FCAs were performed using guidelines and methodology set forth by the USEPA in a February 1997 publication entitled *"Combined Sewers Overflows - Guidance for Financial Capability Assessment and Schedule Development."* The FCAs may be used to assess whether the additional costs of implementing the Board's initiatives pose unreasonable burdens on the residents of the municipal users. In addition to the Flow Management Program, several other potential future capital projects were included in the analysis to determine future wastewater costs and municipal user burden levels.

An FCA was prepared for each of the following municipal users: City of Binghamton; the Villages of Johnson City and Port Dickinson, and the Towns of Vestal, Kirkwood, Dickinson, Union, Binghamton, Conklin, and Fenton. The Binghamton University Vestal Campus, while tributary to the Plant, does not bill individual residential users like municipal users do; therefore, an FCA was not prepared. However, Binghamton University's anticipated future costs associated with the Flow Management Program and other potential future wastewater treatment scenarios were estimated for the University's planning purposes.

The USEPA FCA methodology relies on a combination of two phases to assess the ability of a municipal user to take on additional wastewater costs. The first phase develops a "Residential Indicator" and the second phase develops a "Permittee Financial Indicator" for each municipal user.

The Residential Indicator is the ratio between the respective Cost per Household of wastewater costs and the Median Household Income for residential units within each municipal user. It is one of the most important indicators of the ability of individual households to pay higher wastewater rates and for the system to incur additional costs.

The six components of the Permittee Financial Indicator evaluate the debt, socioeconomic, and financial conditions of each of the municipal user's service area. The Permittee Financial Indicator characterizes each municipal user's financial capability as weak, mid-range, or strong. This indicator is used in conjunction with the Residential Indicator to determine the Financial Capability Matrix Category for a given municipal user. The resulting category assesses whether the additional costs constitute a high, medium, or low burden to each municipal user's service area.

11.2 Adjustments for Inflation

This FCA includes both current and future wastewater costs. Where noted, future costs were adjusted for inflation. In order to be conservative and build a margin of safety into the FCA's computations, the 6.1 percent per annum trailing five-year average ending 2010 for the "Water and Sewerage Maintenance" category of the U.S. Bureau of Labor Statistics' "All Urban Consumers" class "U.S. City Average" Consumer Price Index (CPI) rate (Series ID: CUUR0000SEHG01) is used for computing future inflation pertaining to wastewater infrastructure operation, maintenance, and capital costs. (The USEPA's guidelines require use of a five-year average CPI value, as opposed to the CPI value for a single year.)



11.3 Establishing Wastewater Costs

In order to develop the Residential Indicator, it was necessary to determine what residents currently pay for wastewater services. Additionally, projected cost increases due to the Flow Management Program, future capital programs, future debt issuance, and any expected increase in O&M or other costs were estimated.

The FCA for each municipal user included the following cost scenarios:

1. Current wastewater costs.
2. Future wastewater costs without Flow Management Program costs.
3. Future wastewater costs plus Flow Management Program costs.
4. Future wastewater costs plus Flow Management Program costs and possible sewer rehabilitation costs.

11.3.1 Current Wastewater Costs

Current wastewater costs for each municipal user were determined by: (1) interviews with and questionnaires sent to the municipal users, and (2) financial operating data for the Plant provided by the Board. A municipal user's wastewater costs generally arise from four different sources: (1) internal sewage collection system costs; (2) fees for conveying sewage through another municipal user's sewage collection system; (3) fees for pumping and wastewater treatment at the Plant; and (4) debt service costs on Plant and other wastewater infrastructure. Table 11-1 presents the 2009/2010 wastewater costs for each municipal user. (The Board's most recent available costs are for 2009. Municipal costs are from 2010.)

Table 11-1 Municipal Users' Annual Wastewater Costs

Municipal User	Current Annual Wastewater Costs
City of Binghamton	\$8,144,921
Village of Johnson City	\$2,641,757
Village of Port Dickinson	\$214,778
Town of Binghamton	\$369,221
Town of Conklin	\$264,198
Town of Fenton	\$60,939
Town of Dickinson	\$689,196
Town of Kirkwood	\$1,347,624
Town of Union	\$440,147
Town of Vestal	\$2,004,626
Binghamton University	\$900,000
Total	\$17,077,407



11.3.2 Future Wastewater Costs Without Flow Management Program Costs

Through the interview and questionnaire process, if a municipal user identified future wastewater cost increases, these costs were included in this part of the FCA. None of the municipal users anticipated any significant increases in future wastewater costs for their sewage collection systems.

The Board identified several future capital projects at the Plant. These capital projects and associated costs are presented in Table 11-2 and include projects such as: (1) Board-projected capital maintenance projects; (2) New York State Chesapeake Bay Watershed Implementation Plan projects, adjusted for inflation; and (3) annual incremental capital projects. Only capital projects that will require financing are included in this cost scenario.

These future, potential capital projects are not part of Flow Management Program, and this Flow Management Plan document does not obligate the Board to implement these capital projects. This cost scenario was included in the FCA as a means of understanding how the implementation of the Flow Management Program would integrate with potential future costs from a feasibility standpoint. Further, to the extent that grant funding (for example, grants from the USEPA, Federal Emergency Management Administration, New York State agencies, etc.) or funds from other sources can be obtained or recovered by the owners or the Board to finance all or part of these projected costs, the ultimate costs could be less. Accordingly, the costs presented below should be understood to be “worst case” projections.

Table 11-2 Board’s Future Wastewater Capital Project Costs

Capital Project	Cost Estimate⁽¹⁾ (in 2011 Dollars)	Annual Debt Service or PAYGO⁽²⁾ Payment Cost⁽³⁾
Repair of C-cell wall, etc.	\$7,000,000 ⁽⁴⁾	\$508,542
Flood protection walls	\$16,762,900 ⁽⁵⁾	\$1,217,806
Phosphorus removal for the Chesapeake Bay Initiative	\$20,000,000 ⁽⁶⁾	\$1,452,978
Annual Capital Projects	\$3,000,000	\$1,380,050 ⁽⁷⁾
Total Annual Cost		\$4,559,376

(1) Costs provided by Board unless noted.

(2) “Pay as you go” basis.

(3) Annual cost estimate based on 30-year bond at an interest rate of 6 percent.

(4) If successful, some portion of this cost may be defrayed or recovered through claims against insurance policies and/or litigation. (For purposes of this analysis, success cannot be assumed as to such claims).

(5) Estimated by Board to be \$16,762,900 in 2011 dollars in August 2010 submission of 2011 budget documents to owners. Some portion of this cost may qualify for reimbursement from the Federal Emergency Management Agency and/or State Emergency Management Agency. (For purposes of this analysis, qualification for reimbursement cannot be assumed.)

(6) Ballasted coagulation/flocculation technology that removes 50 to 80 percent phosphorus. Cost scaled from Onondaga County Metro Plant ballasted coagulation/flocculation system.

(7) The Board estimates that there will be \$3,000,000 in capital projects added to the budget. In 2009, \$1,619,950 of these planned projects was incorporated into the billing. The remaining unbudgeted amount \$1,380,050 was included as future costs in the FCA.



These future wastewater costs were then distributed proportionately to the municipal users based on the formulae set forth in the IMAs and sewer user agreements using 2009 billed flows to compute the proportions: (1) proportionate to total flow for facility operating expenses; (2) proportionate to total flows for debt service costs, but at a 25 percent premium rate for outside users other than the Town of Vestal and Binghamton University's Vestal Campus; and (3) proportionate to the sum of flows on the respective "flow side" (Binghamton or Johnson City) with respect to pumping costs and local systems costs.

The summation of the municipal users' current annual wastewater costs and the Board's distributed future wastewater costs results in the future wastewater costs for each municipal user. These costs are presented in Table 11-3.

Table 11-3 Municipal Users' Future Annual Wastewater Costs From Capital Projects

Municipal User	Current Annual Wastewater Costs (from Table 11-1)	Board's Distributed Future Annual Wastewater Costs for Capital Projects (from Table 11-2)	Future Annual Wastewater Costs
City of Binghamton	\$8,144,921	\$2,119,902	\$10,264,823
Village of Johnson City	\$2,641,757	\$710,740	\$3,352,497
Village of Port Dickinson	\$214,778	\$60,160	\$274,938
Town of Binghamton	\$369,221	\$79,212	\$448,433
Town of Conklin	\$264,198	\$52,373	\$316,571
Town of Fenton	\$60,939	\$20,172	\$81,111
Town of Dickinson	\$689,196	\$222,924	\$912,120
Town of Kirkwood	\$1,347,624	\$384,950	\$1,732,574
Town of Union	\$440,147	\$184,354	\$624,501
Town of Vestal	\$2,004,626	\$498,551	\$2,503,177
Binghamton University	\$900,000	\$226,038	\$1,126,038
Total	\$17,077,407	\$4,559,376	\$21,636,783

11.3.3 Future Wastewater Costs Plus Flow Management Program Costs

The Flow Management Program costs includes inflation-adjusted administrative and implementation costs for the CMOM Program, I/I Offset Program, and New/Modified Connection Application Program. The costs associated with administering and implementing the Flow Management Program were estimated by projecting known costs from the City of Oswego, NY. The municipal users tributary to the Plant are in a similar circumstance to the City of Oswego because the City of Oswego was recently (2010) required to develop and implement a CMOM Program, an I/I Offset Program, and an enhanced Sewer Connection Approval Program. The City of Oswego had a program in place to operate and maintain their sewage collection system; however, their O&M practices and documentation of their work procedures and work completed needed to be updated. Therefore, the available financial data for the City of Oswego to develop and implement their CMOM, I/I Offset, and Sewer Connection Approval Programs was applied to the municipal users tributary to the Binghamton-Johnson City Plant.



Table 11-4 presents the increased O&M costs incurred by the City of Oswego and the costs planned for the development and implementation of the CMOM, I/I Offset, and Sewer Connection Approval Programs. Further, the costs in Table 11-4 represent the average annual amount that the City of Oswego estimates will be spent on their CMOM, I/I Offset, and Sewer Connection Approval Programs over the next 10 years.

Table 11-4 City of Oswego – Annual Costs for CMOM, I/I Offset, and Sewer Connection Approval Programs^(1, 2)

Task	City of Oswego Annual Cost (10-Year Annual Average)
CMOM Plan Development	\$3,500
CMOM Administration	\$7,000
CMOM Related Work:	
Mapping	\$37,000
Training	\$2,000
Work Order system	\$2,500
Computerized maintenance system	\$8,000
Sewer Overflow Response Plan	\$1,000
Modeling	\$5,000
Sewer inspections	\$55,500
CMOM Program Subtotal	\$121,500
I/I Offset Program Administration (Subtotal)	\$10,000
Sewer Connection Approval Administration (Subtotal)	\$10,000
Flow Management Plan Total	\$141,500

(1) These costs are in excess of current O&M costs

(2) These costs include increased administration and O&M, but not costs for sewer rehabilitation.

Not all of the above component costs would be expected to be incurred on a “level” basis during the 10-year average period. Some costs, such as mapping, are “front-loaded” and primarily incurred in the initial years, while others are incurred at a higher level after the initial years. For planning and estimating purposes, the use of this average cost on an annual basis over the 10-year period is reasonable for input into the FCA.

Table 11-5 presents the estimated cost increase for the municipal users to develop and implement their CMOM, I/I Offset, and New/Modified Connection Application Programs based on the City of Oswego’s financial data. The City of Oswego’s costs were extrapolated proportionately based on miles of pipe in each entity’s sewage collection system to estimate the municipal users’ costs. In addition to the estimated cost to be incurred by each municipal user, an estimate for the Board’s administrative cost for the Flow Management Program is included. It was estimated that the Board would expend \$30,000 per year to administer the Flow Management Program, and this cost was distributed proportionately to the municipal users based on the formulae set forth in the IMAs and sewer user agreements (proportionate to total flow for this expense, which will become a facility operating expense).

The ongoing additional annual cost for Flow Management Program ranges from \$474,126 for the City of Binghamton to \$21,341 for the Town of Fenton. These estimates should be considered planning level



costs used for assessing the financial impacts of the Flow Management Program. The actual costs will vary depending on the actual condition of each municipal user's sewer collection system and their associated O&M practices, as well as the actual future inflation rate in relation to the assumed future inflation rate used in this analysis.

Table 11-5 Annual Cost Increase for Flow Management Program

Municipal User	Sewer Pipe (Miles)	Annual Cost Increase for CMOM Program	Annual Cost Increase for I/I Offset Program	Annual Cost Increase for Sewer Connection Application Program	Board's Distributed Flow Management Program Costs	Annual Combined Cost for Flow Management Programs
Oswego	35	\$121,500	\$10,000	\$10,00	--	\$141,500
City of Binghamton	200	\$420,532	\$19,590	\$19,590	\$14,414	\$474,126
Village of Johnson City	45	\$92,862	\$7,236	\$7,236	\$4,833	\$112,167
Village of Port Dickinson	7	\$39,948	\$2,510	\$2,510	\$349	\$45,317
Town of Binghamton	14	\$64,524	\$4,630	\$4,630	\$460	\$74,244
Town of Conklin	12	\$54,016	\$4,420	\$4,420	\$304	\$63,160
Town of Fenton	2	\$18,864	\$1,180	\$1,180	\$117	\$21,341
Town of Dickinson	14	\$87,232	\$5,794	\$5,794	\$1,293	\$100,113
Town of Kirkwood	13	\$113,044	\$7,030	\$7,030	\$2,234	\$129,338
Town of Union	10	\$59,790	\$5,620	\$5,620	\$1,070	\$72,100
Town of Vestal	53	\$261,108	\$19,890	\$19,890	\$3,390	\$304,278
Binghamton University	8	\$77,080	\$5,100	\$5,100	\$1,536	\$88,816
Total		\$1,289,000	\$83,000	\$83,000	\$30,000	\$1,485,000

The FCA presented in this Flow Management Plan document is a conservative or worst case projection, to the extent that the projected CMOM Program costs may be greater than the actual costs because: (1) a municipality may already be performing some CMOM activities, in which case it will not need to incur the full projected cost set forth in the third column of Table 11-5; and (2) removal of I/I should reduce O&M costs for both the sewage collection system and the Board's operation and maintenance costs for the treatment facilities (i.e., electricity and pump maintenance [to the extent based on run time] as well as chemical costs).

Table 11-6 presents the projected future annual wastewater cost for each municipal user, which includes costs associated with future capital projects (Table 11-3) and the costs associated with developing and implementing the Flow Management Program (Table 11-5).



Table 11-6 Municipal Users' Future Annual Wastewater Costs Plus Flow Management Program Costs

Municipal User	Annual Future Wastewater Costs (from Table 11-3)	Annual Cost for Flow Management Programs (from Table 11-5)	Annual Wastewater Costs Plus Flow Management Program Costs
City of Binghamton	\$10,264,823	\$474,126	\$10,738,949
Village of Johnson City	\$3,352,497	\$112,167	\$3,464,664
Village of Port Dickinson	\$274,938	\$45,317	\$320,255
Town of Binghamton	\$448,438	\$74,244	\$522,677
Town of Conklin	\$316,571	\$63,160	\$379,731
Town of Fenton	\$81,111	\$21,341	\$102,452
Town of Dickinson	\$912,120	\$100,113	\$1,012,233
Town of Kirkwood	\$1,732,574	\$129,338	\$1,861,912
Town of Union	\$624,501	\$72,100	\$696,601
Town of Vestal	\$2,503,177	\$304,278	\$2,807,455
Binghamton University	\$1,126,038	\$88,817	\$1,214,855
Total	\$21,636,788	\$1,485,001	\$23,121,784

11.3.4 Future Wastewater Costs Plus Flow Management Program Costs and Possible Sewer Rehabilitation Costs

The implementation of the CMOM Program will, in all likelihood, reveal sewage collection system defects that need to be repaired or rehabilitated. Through the implementation of the CMOM Program and according to the principles of CMOM, an annual increase in sewer repair or rehabilitation will likely occur, at least in the short-term. The extent of the increased repair/rehabilitation will depend on the condition of a given municipal user's sewage collection system.

Possible sewer rehabilitation costs were added to the future wastewater costs and Flow Management Program costs. Possible sewer rehabilitation costs included the potential long-term sewer rehabilitation schedule of 1 percent, and 2 percent sewer pipe rehabilitation per year, adjusted for inflation.

For this part of the FCA, two cases were considered. It was assumed that 1 percent and 2 percent of a municipal user's sewage collection system would be rehabilitated per year. For the City of Binghamton, the Village of Johnson City, and the Town of Vestal, which have larger diameter pipes, it was assumed that the unit price for sewer rehabilitation was \$100 per foot, which would include complete rehabilitation (joint sealing, sewer lining, and lateral connection rehabilitation). For the other municipal users, with smaller sewer pipe diameters, \$75 per foot was used and included joint sealing, sewer lining, and lateral connection rehabilitation. Table 11-7 presents the rehabilitation costs for each municipal user.



Table 11-7 Annual Sewer Rehabilitation Costs

Municipal User	Sewer Pipe (Miles)	1 Percent Sewer Rehabilitation Per Year	2 Percent Sewer Rehabilitation Per Year
City of Binghamton	200	\$689,568	\$1,379,136
Village of Johnson City	45	\$143,273	\$286,546
Village of Port Dickinson	7	\$45,672	\$91,344
Town of Binghamton	14	\$77,616	\$155,232
Town of Conklin	12	\$62,304	\$124,608
Town of Fenton	2	\$14,256	\$28,512
Town of Dickinson	14	\$114,523	\$229,046
Town of Kirkwood	13	\$158,136	\$316,272
Town of Union	10	\$71,676	\$143,352
Town of Vestal	53	\$407,616	\$815,232
Binghamton University	8	\$105,600	\$211,200
Total		\$1,890,240	\$3,780,480

Table 11-8 and Table 11-9 present the total future wastewater costs plus Flow Management Program costs and possible sewer rehabilitation costs.

Table 11-8 Total Estimated Future Wastewater Costs Including 1 Percent Per Year Sewer Rehabilitation Costs

Municipal User	Annual Wastewater Costs Plus Flow Management Program Costs (from Table 11-6)	1 Percent Sewer Rehabilitation Per Year (from Table 11-7)	Total Annual Future Wastewater Costs (With 1 Percent per Year Rehabilitation)
City of Binghamton	\$10,738,949	\$689,568	\$11,428,517
Village of Johnson City	\$3,464,664	\$143,273	\$3,607,937
Village of Port Dickinson	\$320,255	\$45,672	\$365,927
Town of Binghamton	\$522,677	\$77,616	\$600,293
Town of Conklin	\$379,731	\$62,304	\$442,035
Town of Fenton	\$102,452	\$14,256	\$116,708
Town of Dickinson	\$1,012,233	\$114,523	\$1,126,756
Town of Kirkwood	\$1,861,912	\$158,136	\$2,020,048
Town of Union	\$696,601	\$71,676	\$768,277
Town of Vestal	\$2,807,455	\$407,616	\$3,215,071
Binghamton University	\$1,214,855	\$105,600	\$1,320,455
Total	\$23,121,784	\$1,890,240	\$25,012,024



Table 11-9 Total Estimated Future Wastewater Costs Including 2 Percent Per Year Sewer Rehabilitation Costs

Municipal User	Annual Wastewater Costs Plus Flow Management Program Costs (from Table 11-6)	2 Percent Sewer Rehabilitation Per Year (from Table 11-7)	Total Annual Future Wastewater Costs (With 2 Percent per Year Rehabilitation)
City of Binghamton	\$10,738,949	\$1,379,136	\$12,118,085
Village of Johnson City	\$3,464,664	\$286,546	\$3,751,210
Village of Port Dickinson	\$320,255	\$91,344	\$411,599
Town of Binghamton	\$522,677	\$155,232	\$677,909
Town of Conklin	\$379,731	\$124,608	\$504,339
Town of Fenton	\$102,452	\$28,512	\$130,964
Town of Dickinson	\$1,012,233	\$229,046	\$1,241,279
Town of Kirkwood	\$1,861,912	\$316,272	\$2,178,184
Town of Union	\$696,601	\$143,352	\$839,953
Town of Vestal	\$2,807,455	\$815,232	\$3,622,687
Binghamton University	\$1,214,855	\$211,200	\$1,426,055
Total	\$23,121,784	\$3,780,480	\$26,902,264

11.4 Financial Capability Analysis and Results

The purpose of producing the FCAs is to assess whether the additional costs of implementing the Board's initiatives impose unreasonable financial burdens on the residents of the municipal users under the USEPA's methodology, which is based in its National CSO Policy. To do this, the current costs, the costs associated with the Flow Management Program and the costs of any potential future capital projects outside of the scope of the Flow Management Program were considered.

As presented above, costs were estimated for the following scenarios:

1. Current wastewater costs.
2. Future wastewater costs without Flow Management Program costs.
3. Future wastewater costs plus Flow Management Program costs.
4. Future wastewater costs plus Flow Management Program costs and possible sewer rehabilitation costs.

A financial capability analysis was performed for each of these cost scenarios according to the USEPA's "Combined Sewer Overflows-Guidance for Financial Capability Assessment and Schedule Development." The results of these analyses are presented below by municipal user.

Using the cost scenario information developed above, a Residential Indicator was determined for each municipal user for each of the cost scenarios. The Residential Indicator is the wastewater cost per household divided by the median household income for that municipal user. Next, using information provided by the municipal users, the Permittee Financial Indicator was calculated for each municipal user.



Finally, the Permittee Financial Indicator was used in conjunction with the Residential Indicator to determine the Financial Capability Matrix Category for a given municipal user from a table included in the USEPA guidance publication. The resulting category assesses whether the additional costs constitute a high, medium, or low burden to each residential household in the municipal user's service area.

The following sections and charts present the details of these calculations and analyses.

11.4.1 Residential Indicator

Tables 11-10 through 11-19 show the Residential Indicator calculations and results for each of the municipal users under the different cost scenarios. On average, residents are currently paying between 0.24 percent (Town of Fenton) and 1.30 percent (Town of Dickinson) of the household median income for wastewater services. Under this current cost scenario, the City of Binghamton and Town of Dickinson have a Residential Indicator of medium impact for current wastewater services and the remaining municipal users have a Residential Indicator of low impact for current wastewater services.

When considering potential future capital costs, on average, residents would pay between 0.32 percent (Town of Fenton) and 1.72 percent (Town of Dickinson) of the household median income for future wastewater services if the Board were to implement each of the potential capital projects without external funding sources (i.e. solely paid for by users of the system). Under this cost scenario, the City of Binghamton, Village of Johnson City, Village of Port Dickinson, Town of Dickinson, and Town of Union have a Residential Indicator of medium impact for potential future wastewater services; the remaining municipal users have a Residential Indicator of low impact for potential future wastewater services. It is important to note that this Flow Management Plan does not obligate the Board to implement these potential capital projects nor are they a part of the Flow Management Program. These potential future costs and their financial impacts were included as a means of disclosing and informing the municipal users of future potential costs.

Considering the scenario that includes potential future capital costs plus the Flow Management Program plus 1 percent sewer rehabilitation per year, on average, residents would pay between 0.46 percent (Town of Fenton) and 2.13 percent (Town of Dickinson) of the household median income for these wastewater services. Under this cost scenario, the Town of Dickinson would be elevated to have a Residential Indicator of high impact, and the Towns of Conklin, Fenton, Kirkwood, and Vestal would remain in the low impact category. The remaining municipal users would have a Residential Indicator of medium impact.



Table 11-10 City of Binghamton Residential Indicator Results

Item	Current Annual Wastewater Costs (Table 11-1)	Future Annual Wastewater Costs (Table 11-3)	Future Annual Wastewater Costs PLUS Flow Management Program Costs (Table 11-6)	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 1% Sewer Rehabilitation (Table 11-8)	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 2% Sewer Rehabilitation (Table 11-9)
Total Municipal User Costs	\$ 8,144,921	\$ 10,456,630	\$ 10,911,166	\$ 11,600,734	\$ 12,979,870
Residential Share of Total Wastewater Treatment and Sewer Costs	\$ 4,160,426	\$ 5,341,246	\$ 5,573,423	\$ 5,925,655	\$ 6,630,117
Total Number of Households in Service Area	12,064	12,064	12,064	12,064	12,064
Cost Per Household	\$ 345	\$ 443	\$ 462	\$ 491	\$ 550
Municipality's Adjusted Median Household Income (MHI)	\$ 30,409	\$ 30,409	\$ 30,409	\$ 30,409	\$ 30,409
Residential Indicator	1.13% Medium Impact	1.46% Medium Impact	1.52% Medium Impact	1.62% Medium Impact	1.81% Medium Impact



Table 11-11 Village of Johnson City Residential Indicator Results

Item	Current Annual Wastewater Costs (Table 11-1)	Future Annual Wastewater Costs (Table 11-3)	Future Annual Wastewater Costs PLUS Flow Management Program Costs (Table 11-6)	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 1% Sewer Rehabilitation (Table 11-8)	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 2% Sewer Rehabilitation (Table 11-9)
Total Municipal User Costs	\$ 2,641,757	\$ 3,352,497	\$ 3,464,664	\$ 3,607,937	\$ 3,751,210
Residential Share of Total Wastewater Treatment and Sewer Costs	\$ 2,197,235	\$ 2,788,381	\$ 2,881,674	\$ 3,000,839	\$ 3,120,003
Total Number of Households in Service Area	5,934	5,934	5,934	5,934	5,934
Cost Per Household	\$370	\$470	\$486	\$506	\$526
Municipality's Adjusted MHI	\$ 37,618	\$ 37,618	\$ 37,618	\$ 37,618	\$ 37,618
Residential Indicator	0.98% Low Impact	1.25% Medium Impact	1.29% Medium Impact	1.34% Medium Impact	1.40% Medium Impact



Table 11-12 Village of Port Dickinson Residential Indicator Results

Item	Current Annual Wastewater Costs (Table 11-1)	Future Annual Wastewater Costs (Table 11-3)	Future Annual Wastewater Costs PLUS Flow Management Program Costs (Table 11-6)	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 1% Sewer Rehabilitation (Table 11-8)	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 2% Sewer Rehabilitation (Table 11-9)
Total Municipal User Costs	\$ 214,778	\$ 274,938	\$ 320,255	\$ 365,927	\$ 411,599
Residential Share of Total Wastewater Treatment and Sewer Costs	\$ 191,152	\$ 244,695	\$ 285,027	\$ 325,675	\$ 366,323
Total Number of Households in Service Area	568	568	568	568	568
Cost Per Household	\$ 337	\$ 431	\$ 502	\$ 573	\$ 645
Municipality's Adjusted MHI	\$ 41,480	\$ 41,480	\$ 41,480	\$ 41,480	\$ 41,480
Residential Indicator	0.81% Low Impact	1.04% Medium Impact	1.21% Medium Impact	1.38% Medium Impact	1.55% Medium Impact



Table 11-13 Town of Binghamton Residential Indicator Results

Item	Current Annual Wastewater Costs (Table 11-1)	Future Annual Wastewater Costs (Table 11-3)	Future Annual Wastewater Costs PLUS Flow Management Program Costs (Table 11-6)	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 1% Sewer Rehabilitation (Table 11-8)	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 2% Sewer Rehabilitation (Table 11-9)
Total Municipal User Costs	\$ 369,221	\$ 448,433	\$ 522,677	\$ 602,293	\$ 677,909
Residential Share of Total Wastewater Treatment and Sewer Costs	\$ 358,144	\$ 434,980	\$ 506,997	\$ 584,224	\$ 657,572
Total Number of Households in Service Area	891	891	891	891	891
Cost Per Household	\$ 402	\$ 488	\$ 569	\$ 656	\$ 738
Municipality's Adjusted MHI	\$ 63,596	\$ 63,596	\$ 63,596	\$ 63,596	\$ 63,596
Residential Indicator	0.63% Low Impact	0.77% Low Impact	0.89% Low Impact	1.03% Medium Impact	1.16% Medium Impact



Table 11-14 Town of Conklin Residential Indicator Results

Item	Current Annual Wastewater Costs (Table 11-1)	Future Annual Wastewater Costs (Table 11-3)	Future Annual Wastewater Costs PLUS Flow Management Program Costs (Table 11-6)	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 1% Sewer Rehabilitation (Table 11-8)	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 2% Sewer Rehabilitation (Table 11-9)
Total Municipal User Costs	\$ 264,198	\$ 316,571	\$ 379,731	\$ 442,035	\$ 504,339
Residential Share of Total Wastewater Treatment and Sewer Costs	\$ 57,648	\$ 69,076	\$ 82,857	\$ 96,452	\$ 110,047
Total Number of Households in Service Area	194	194	194	194	194
Cost Per Household	\$ 297	\$ 356	\$ 427	\$ 497	\$ 567
Municipality's Adjusted MHI	\$ 52,609	\$ 52,609	\$ 52,609	\$ 52,609	\$ 52,609
Residential Indicator	0.56% Low Impact	0.68% Low Impact	0.81% Low Impact	0.95% Low Impact	1.08% Medium Impact



Table 11-15 Town of Fenton Residential Indicator Results

Item	Current Annual Wastewater Costs (Table 11-1)	Future Annual Wastewater Costs (Table 11-3)	Future Annual Wastewater Costs PLUS Flow Management Program Costs (Table 11-6)	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 1% Sewer Rehabilitation (Table 11-8)	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 2% Sewer Rehabilitation (Table 11-9)
Total Municipal User Costs	\$ 60,939	\$ 81,111	\$ 102,452	\$ 116,708	\$ 130,964
Residential Share of Total Wastewater Treatment and Sewer Costs	\$ 21,572	\$ 28,713	\$ 36,268	\$ 41,315	\$ 46,361
Total Number of Households in Service Area	192	192	192	192	192
Cost Per Household	\$ 112	\$ 150	\$ 189	\$ 215	\$ 241
Municipality's Adjusted MHI	\$ 46,895	\$ 46,895	\$ 46,895	\$ 46,895	\$ 46,895
Residential Indicator	0.24% Low Impact	0.32% Low Impact	0.40% Low Impact	0.46% Low Impact	0.51% Low Impact



Table 11-16 Town of Dickinson Residential Indicator Results

Item	Current Annual Wastewater Costs (Table 11-1)	Future Annual Wastewater Costs (Table 11-3)	Future Annual Wastewater Costs PLUS Flow Management Program Costs (Table 11-6)	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 1% Sewer Rehabilitation (Table 11-8)	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 2% Sewer Rehabilitation (Table 11-9)
Total Municipal User Costs	\$ 689,196	\$ 912,120	\$ 1,012,233	\$ 1,126,756	\$ 1,241,279
Residential Share of Total Wastewater Treatment and Sewer Costs	\$ 606,493	\$ 802,666	\$ 890,765	\$ 991,546	\$ 1,092,326
Total Number of Households in Service Area	992	992	992	992	992
Cost Per Household	\$ 611	\$ 809	\$ 898	\$ 1,000	\$ 1,101
Municipality's Adjusted MHI	\$ 46,910	\$ 46,910	\$ 46,910	\$ 46,910	\$ 46,910
Residential Indicator	1.30% Medium Impact	1.72% Medium Impact	1.91% Medium Impact	2.13% High Impact	2.35% High Impact



Table 11-17 Town of Kirkwood Residential Indicator Results

Item	Current Annual Wastewater Costs (Table 11-1)	Future Annual Wastewater Costs (Table 11-3)	Future Annual Wastewater Costs PLUS Flow Management Program Costs (Table 11-6)	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 1% Sewer Rehabilitation (Table 11-8)	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 2% Sewer Rehabilitation (Table 11-9)
Total Municipal User Costs	\$ 1,347,624	\$ 1,732,574	\$ 1,861,912	\$ 2,020,048	\$ 2,178,184
Residential Share of Total Wastewater Treatment and Sewer Costs	\$ 139,021	\$ 178,732	\$ 192,075	\$ 208,388	\$ 224,701
Total Number of Households in Service Area	443	443	443	443	443
Cost Per Household	\$ 314	\$ 403	\$ 434	\$ 470	\$ 507
Municipality's Adjusted MHI	\$ 50,894	\$ 50,894	\$ 50,894	\$ 50,894	\$ 50,894
Residential Indicator	0.62% Low Impact	0.79% Low Impact	0.85% Low Impact	0.92% Low Impact	1.00% Medium Impact



Table 11-18 Town of Union Residential Indicator Results

Item	Current Annual Wastewater Costs (Table 11-1)	Future Annual Wastewater Costs (Table 11-3)	Future Annual Wastewater Costs PLUS Flow Management Program Costs (Table 11-6)	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 1% Sewer Rehabilitation (Table 11-8)	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 2% Sewer Rehabilitation (Table 11-9)
Total Municipal User Costs	\$ 440,147	\$ 624,501	\$ 696,601	\$ 768,277	\$ 839,953
Residential Share of Total Wastewater Treatment and Sewer Costs	\$ 238,163	\$ 337,917	\$ 376,931	\$ 415,715	\$ 454,498
Total Number of Households in Service Area	662	662	662	662	662
Cost Per Household	\$ 360	\$ 510	\$ 569	\$ 628	\$ 687
Municipality's Adjusted MHI	\$ 44,065	\$ 44,065	\$ 44,065	\$ 44,065	\$ 44,065
Residential Indicator	0.82% Low Impact	1.16% Medium Impact	1.29% Medium Impact	1.43% Medium Impact	1.56% Medium Impact



Table 11-19 Town of Vestal Residential Indicator Results

Item	Current Annual Wastewater Costs (Table 11-1)	Future Annual Wastewater Costs (Table 11-3)	Future Annual Wastewater Costs PLUS Flow Management Program Costs (Table 11-6)	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 1% Sewer Rehabilitation (Table 11-8)	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 2% Sewer Rehabilitation (Table 11-9)
Total Municipal User Costs	\$ 2,004,626	\$ 2,503,177	\$ 2,807,455	\$ 3,215,071	\$ 3,622,687
Residential Share of Total Wastewater Treatment and Sewer Costs	\$ 1,196,453	\$ 1,494,011	\$ 1,675,618	\$ 1,918,902	\$ 2,162,186
Total Number of Households in Service Area	3,030	3,030	3,030	3,030	3,030
Cost Per Household	\$ 395	\$ 493	\$ 553	\$ 633	\$ 714
Municipality's Adjusted MHI	\$ 63,779	\$ 63,779	\$ 63,779	\$ 63,779	\$ 63,779
Residential Indicator	0.62% Low Impact	0.77% Low Impact	0.87% Low Impact	0.99% Low Impact	1.12% Medium Impact



11.4.2 Permittee Financial Capability Indicator

Tables 11-20 through 11-29 show the Permittee Financial Capability Analysis and results for each of the municipal users. It should be noted that the sixth factor, the property tax collection rate, is 100 percent for all municipal users by virtue of consolidated property tax collection agreements, whereby Broome County government makes the municipal users “whole” for any shortfall in property tax collection (in exchange for which the County government obtains an interest in future tax liens and tax lien foreclosure sale revenues). Each of the municipal users is characterized as having a mid-range Permittee Financial Capability Indicator, except for the Town of Vestal which is characterized as strong.

Table 11-20 City of Binghamton Permittee Financial Capability Indicator Results

Item	Value	Matrix Score (Category)	Matrix Score (Numerical)
Bond rating	A1 - Moody's	Strong	3
Overall net debt/FMPV	9.72%	Weak	1
Unemployment rate	9.6%	Mid-range	2
Municipality's adjusted MHI	\$30,409	Weak	1
Property tax revenues as percent of FMPV	1.97%	Strong	3
Property tax collection rate	100%	Strong	3
Permittee Financial Capability Indicator		Mid-range	2.17

Table 11-21 Village of Johnson City Permittee Financial Capability Indicator Results

Item	Value	Matrix Score (Category)	Matrix Score (Numerical)
Bond rating	A3 - Moody's	Strong	3
Overall net debt/FMPV	7.05%	Weak	1
Unemployment rate	8.8%	Mid-range	2
Municipality's adjusted MHI	\$37,618	Weak	1
Property tax revenues as percent of FMPV	1.24%	Strong	3
Property tax collection rate	100%	Strong	3
Permittee Financial Capability Indicator		Mid-range	2.17



Table 11-22 Village of Port Dickinson Permittee Financial Capability Indicator Results

Item	Value	Matrix Score (Category)	Matrix Score (Numerical)
Bond rating	N/A	N/A	N/A
Overall net debt/FMPV	2.92%	Mid-range	2
Unemployment rate	8.8%	Mid-range	2
Municipality's adjusted MHI	\$41,480	Mid-range	2
Property tax revenues as percent of FMPV	0.51%	Strong	3
Property tax collection rate	100%	Strong	3
Permittee Financial Capability Indicator		Mid-range	2.40

Table 11-23 Town of Binghamton Permittee Financial Capability Indicator Results

Item	Value	Matrix Score (Category)	Matrix Score (Numerical)
Bond rating	A1 - Moody's	Strong	3
Overall net debt/FMPV	4.70%	Mid-range	2
Unemployment rate	8.8%	Mid-range	2
Municipality's adjusted MHI	\$63,596	Mid-range	2
Property tax revenues as percent of FMPV	0.43%	Strong	3
Property tax collection rate	100%	Strong	3
Permittee Financial Capability Indicator		Mid-range	2.50

Table 11-24 Town of Conklin Permittee Financial Capability Indicator Results

Item	Value	Matrix Score (Category)	Matrix Score (Numerical)
Bond rating	A2 - Moody's	Strong	3
Overall net debt/FMPV	5.61%	Weak	1
Unemployment rate	8.8%	Mid-range	2
Municipality's adjusted MHI	\$52,609	Mid-range	2
Property tax revenues as percent of FMPV	0.38%	Strong	3
Property tax collection rate	100%	Strong	3
Permittee Financial Capability Indicator		Mid-range	2.33



Table 11-25 Town of Fenton Permittee Financial Capability Indicator Results

Item	Value	Matrix Score (Category)	Matrix Score (Numerical)
Bond rating	N/A	N/A	N/A
Overall net debt/FMPV	5.06%	Weak	1
Unemployment rate	8.8%	Mid-range	2
Municipality's adjusted MHI	\$46,895	Mid-range	2
Property tax revenues as percent of FMPV	0.19%	Strong	3
Property tax collection rate	100%	Strong	3
Permittee Financial Capability Indicator		Mid-range	2.2

Table 11-26 Town of Dickinson Permittee Financial Capability Indicator Results

Item	Value	Matrix Score (Category)	Matrix Score (Numerical)
Bond rating	A1 - Moody's	Strong	3
Overall net debt/FMPV	6.47%	Weak	1
Unemployment rate	8.8%	Mid-range	2
Municipality's adjusted MHI	\$46,910	Mid-range	2
Property tax revenues as percent of FMPV	0.27%	Strong	3
Property tax collection rate	100%	Strong	3
Permittee Financial Capability Indicator		Mid-range	2.33

Table 11-27 Town of Kirkwood Permittee Financial Capability Indicator Results

Item	Value	Matrix Score (Category)	Matrix Score (Numerical)
Bond rating	N/A	N/A	N/A
Overall net debt/FMPV	7.35%	Weak	1
Unemployment rate	8.8%	Mid-range	2
Municipality's adjusted MHI	\$50,894	Mid-range	2
Property tax revenues as percent of FMPV	0.31%	Strong	3
Property tax collection rate	100%	Strong	3
Permittee Financial Capability Indicator		Mid-range	2.20



Table 11-28 Town of Union Permittee Financial Capability Indicator Results

Item	Value	Matrix Score (Category)	Matrix Score (Numerical)
Bond rating	Aa2 - Moody's	Strong	3
Overall net debt/FMPV	6.47%	Weak	1
Unemployment rate	8.5%	Strong	3
Municipality's adjusted MHI	\$44,065	Mid-range	2
Property tax revenues as percent of FMPV	0.30%	Strong	3
Property tax collection rate	100%	Strong	3
Permittee Financial Capability Indicator		Mid-range	2.50

Table 11-29 Town of Vestal Permittee Financial Capability Indicator Results

Item	Value	Matrix Score (Category)	Matrix Score (Numerical)
Bond rating	AA- -S&P	Strong	3
Overall net debt/FMPV	3.23%	Mid-Range	2
Unemployment rate	8.3%	Strong	3
Municipality's adjusted MHI	\$63,779	Mid-Range	2
Property tax revenues as percent of FMPV	0.44%	Strong	3
Property tax collection rate	100%	Strong	3
Permittee Financial Capability Indicator		Strong	2.67

11.4.3 Results of the Financial Capability Matrix Analysis

The following matrix is from a February 1997 USEPA publication entitled “*Combined Sewers Overflows-Guidance for Financial Capability Assessment and Schedule Development.*” The results of the Residential Indicator and the Permittee Financial Capability Indicators analyses were combined in the Financial Capability Matrix to evaluate the level of financial burden on each municipal user to implement potential future capital projects and the Flow Management Program according to the following matrix.

Permittee Financial Indicator Score	Residential Indicator		
	Low Impact (Below 1.0%)	Mid-Range Impact (Between 1.0 and 2.0%)	High Impact (Above 2.0%)
Weak (below 1.5)	Medium burden	High burden	High burden
Mid-range (between 1.5 and 2.5)	Low burden	Medium burden	High burden
Strong (above 2.5)	Low burden	Low burden	Medium burden

Tables 11-30 through 11-39 present the Financial Capability Matrix burden category results for each of the municipal users for each of the cost scenarios.



Table 11-30 City of Binghamton Financial Capability Analysis Results

Item	Current Annual Wastewater Costs	Future Annual Wastewater Costs	Future Annual Wastewater Costs PLUS Flow Management Program Costs	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 1% Sewer Rehabilitation	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 2% Sewer Rehabilitation
Residential Indicator	1.13% Medium Impact	1.46% Medium Impact	1.52% Medium Impact	1.62% Medium Impact	1.81% Medium Impact
Permittee Financial Capability Indicator	2.17 Mid-Range	2.17 Mid-Range	2.17 Mid-Range	2.17 Mid-Range	2.17 Mid-Range
Financial Capability Matrix Result (Burden)	Medium Burden	Medium Burden	Medium Burden	Medium Burden	Medium Burden

Table 11-31 Village of Johnson City Financial Capability Analysis Results

Item	Current Annual Wastewater Costs	Future Annual Wastewater Costs	Future Annual Wastewater Costs PLUS Flow Management Program Costs	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 1% Sewer Rehabilitation	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 2% Sewer Rehabilitation
Residential Indicator	0.98% Low Impact	1.25% Medium Impact	1.29% Medium Impact	1.34% Medium Impact	1.40% Medium Impact
Permittee Financial Capability Indicator	2.17 Mid-Range	2.17 Mid-Range	2.17 Mid-Range	2.17 Mid-Range	2.17 Mid-Range
Financial Capability Matrix Result (Burden)	Low Burden	Medium Burden	Medium Burden	Medium Burden	Medium Burden



Table 11-32 Village of Port Dickinson Financial Capability Analysis Results

Item	Current Annual Wastewater Costs	Future Annual Wastewater Costs	Future Annual Wastewater Costs PLUS Flow Management Program Costs	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 1% Sewer Rehabilitation	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 2% Sewer Rehabilitation
Residential Indicator	0.81% Low Impact	1.04% Medium Impact	1.21% Medium Impact	1.38% Medium Impact	1.55% Medium Impact
Permittee Financial Capability Indicator	2.40 Mid-Range	2.40 Mid-Range	2.40 Mid-Range	2.40 Mid-Range	2.40 Mid-Range
Financial Capability Matrix Result (Burden)	Low Burden	Medium Burden	Medium Burden	Medium Burden	Medium Burden

Table 11-33 Town of Binghamton Financial Capability Analysis Results

Item	Current Annual Wastewater Costs	Future Annual Wastewater Costs	Future Annual Wastewater Costs PLUS Flow Management Program Costs	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 1% Sewer Rehabilitation	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 2% Sewer Rehabilitation
Residential Indicator	0.63% Low Impact	0.77% Low Impact	0.89% Low Impact	1.03% Medium Impact	1.16% Medium Impact
Permittee Financial Capability Indicator	2.50 Mid-Range	2.50 Mid-Range	2.50 Mid-Range	2.50 Mid-Range	2.50 Mid-Range
Financial Capability Matrix Result (Burden)	Low Burden	Low Burden	Low Burden	Medium Burden	Medium Burden



Table 11-34 Town of Conklin Financial Capability Analysis Results

Item	Current Annual Wastewater Costs	Future Annual Wastewater Costs	Future Annual Wastewater Costs PLUS Flow Management Program Costs	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 1% Sewer Rehabilitation	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 2% Sewer Rehabilitation
Residential Indicator	0.56% Low Impact	0.68% Low Impact	0.81% Low Impact	0.95% Low Impact	1.08% Medium Impact
Permittee Financial Capability Indicator	2.33 Mid-Range	2.33 Mid-Range	2.33 Mid-Range	2.33 Mid-Range	2.33 Mid-Range
Financial Capability Matrix Result (Burden)	Low Burden	Low Burden	Low Burden	Low Burden	Medium Burden

Table 11-35 Town of Fenton Financial Capability Analysis Results

Item	Current Annual Wastewater Costs	Future Annual Wastewater Costs	Future Annual Wastewater Costs PLUS Flow Management Program Costs	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 1% Sewer Rehabilitation	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 2% Sewer Rehabilitation
Residential Indicator	0.24% Low Impact	0.32% Low Impact	0.40% Low Impact	0.46% Low Impact	0.51% Low Impact
Permittee Financial Capability Indicator	2.2 Mid-Range	2.2 Mid-Range	2.2 Mid-Range	2.2 Mid-Range	2.2 Mid-Range
Financial Capability Matrix Result (Burden)	Low Burden	Low Burden	Low Burden	Low Burden	Low Burden



Table 11-36 Town of Dickinson Financial Capability Analysis Results

Item	Current Annual Wastewater Costs	Future Annual Wastewater Costs	Future Annual Wastewater Costs PLUS Flow Management Program Costs	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 1% Sewer Rehabilitation	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 2% Sewer Rehabilitation
Residential Indicator	1.30% Medium Impact	1.72% Medium Impact	1.91% Medium Impact	2.13% High Impact	2.35% High Impact
Permittee Financial Capability Indicator	2.33 Mid-Range	2.33 Mid-Range	2.33 Mid-Range	2.33 Mid-Range	2.33 Mid-Range
Financial Capability Matrix Result (Burden)	Medium Burden	Medium Burden	Medium Burden	High Burden	High Burden

Table 11-37 Town of Kirkwood Financial Capability Analysis Results

Item	Current Annual Wastewater Costs	Future Annual Wastewater Costs	Future Annual Wastewater Costs PLUS Flow Management Program Costs	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 1% Sewer Rehabilitation	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 2% Sewer Rehabilitation
Residential Indicator	0.62% Low Impact	0.79% Low Impact	0.85% Low Impact	0.92% Low Impact	1.00% Medium Impact
Permittee Financial Capability Indicator	2.20 Mid-Range	2.20 Mid-Range	2.20 Mid-Range	2.20 Mid-Range	2.20 Mid-Range
Financial Capability Matrix Result (Burden)	Low Burden	Low Burden	Low Burden	Low Burden	Medium Burden



Table 11-38 Town of Union Financial Capability Analysis Results

Item	Current Annual Wastewater Costs	Future Annual Wastewater Costs	Future Annual Wastewater Costs PLUS Flow Management Program Costs	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 1% Sewer Rehabilitation	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 2% Sewer Rehabilitation
Residential Indicator	0.82% Low Impact	1.16% Medium Impact	1.29% Medium Impact	1.43% Medium Impact	1.56% Medium Impact
Permittee Financial Capability Indicator	2.50 Mid-Range	2.50 Mid-Range	2.50 Mid-Range	2.50 Mid-Range	2.50 Mid-Range
Financial Capability Matrix Result (Burden)	Low Burden	Medium Burden	Medium Burden	Medium Burden	Medium Burden

Table 11-39 Town of Vestal Financial Capability Analysis Results

Item	Current Annual Wastewater Costs	Future Annual Wastewater Costs	Future Annual Wastewater Costs PLUS Flow Management Program Costs	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 1% Sewer Rehabilitation	Future Annual Wastewater Costs PLUS Flow Management Program Costs PLUS Annual Costs for 2% Sewer Rehabilitation
Residential Indicator	0.62% Low Impact	0.77% Low Impact	0.87% Low Impact	0.99% Low Impact	1.12% Medium Impact
Permittee Financial Capability Indicator	2.67 Strong	2.67 Strong	2.67 Strong	2.67 Strong	2.67 Strong
Financial Capability Matrix Result (Burden)	Low Burden	Low Burden	Low Burden	Low Burden	Low Burden



11.5 Financial Capability Analysis and Results

It is clear that increased operation and maintenance costs resulting from prevailing market forces, the potential future capital projects at the facilities, the Flow Management Program, and potential sewer rehabilitation projects will all increase wastewater service costs.

The FCA shows that residential households in all of the municipal users are considered to have a low financial burden with respect to current wastewater service costs except for those in the City of Binghamton and the Town of Dickinson, which are considered to have a medium financial burden.

When considering the potential future capital projects, which are outside of the scope of the Flow Management Program, residential households in five of the ten municipal users would have a medium financial burden, including the City of Binghamton, Village of Johnson City, Village of Port Dickinson, Town of Dickinson, and Town of Union. The remaining municipal users continue to sustain a low financial burden.

The same financial burdens result when the projected Flow Management Program costs, including projected CMOM Program costs (but without sewer rehabilitation costs), are added to the analysis; residential households in five of the ten municipal users continue to shoulder a medium financial burden, while residential users in the remaining five municipal users continue to sustain a low financial burden.

The analysis shows that the projected future costs of sewer rehabilitation under the Flow Management Program, when added to the current and potential future wastewater costs as well as the Flow Management Program costs result in a high burden to residential households in only one of the municipal users: the Town of Dickinson. This occurs under both the one percent and two percent per year sewer rehabilitation scenarios. Nevertheless, a closer analysis demonstrates that the Town of Dickinson could commit at least an additional \$44,000 per year (in present value dollars) to sewer rehabilitation work and still maintain a medium financial burden for its residential households. This equates to slightly more than three-eighths of one percent sewer rehabilitation project work per year.

With one percent sewer rehabilitation per year, households in four municipal users (the Towns of Conklin, Fenton, Kirkwood, and Vestal) continue to sustain a low financial burden, while households in the five (the Villages of Johnson City and Port Dickinson, the Towns of Binghamton and Union, and the City of Binghamton) can be expected to shoulder a medium financial burden.

With two percent sewer rehabilitation per year, residential households in 2 of the 10 municipal users (the Towns of Fenton and Vestal) continue to sustain a low financial burden while a medium financial burden results for the remaining households in the service area tributary to the Plant (i.e., those in the City of Binghamton, Villages of Johnson City and Port Dickinson, the Towns of Binghamton, Conklin, Kirkwood, and Union), except in the Town of Dickinson which, as noted above, would shoulder a high financial burden.

The variations in financial burden category indicate that either the implementation schedule or the programs, or both, should to be tailored to lower or distribute the costs and thus avoid imposing unreasonable financial burdens on the residents in keeping with the USEPA methodology. The differences in financial capability of the households in the various municipal users can be addressed through the proposed implementation schedule or scope of programs, as can the fact that the actual cost of implementing the Flow Management Program will largely be dependent upon the extent to which CMOM practices are currently being implemented by each municipal user. There is flexibility, specifically within



the CMOM Program requirements Article proposed to be added to the Rules and Regulations (Appendix I), to allow each municipal user to develop its own schedule and scope so as to create a CMOM Program that does not impose an unreasonable financial burden on its residents.

Even so, it must also be emphasized that this Flow Management Plan cannot provide specific direction or suggestions to the municipal users regarding the means to pay for the additional costs projected above. The reason for this is that under the IMAs, it is specifically reserved unto each municipal user to determine the methods of generating revenue to finance its sanitary sewer collection system and wastewater treatment costs. Most of the municipal users charge “user fees” to property owners connected to the sanitary sewer collection system. Three municipal users (the Towns of Binghamton, Kirkwood, and Vestal) also impose an *ad valorem* assessment on property tax bills as a means of collecting revenue to pay certain sewer system costs, although recent New York State legislation directed at capping future rates of increase in property taxes may make such an approach less sustainable going forward. Generally, the municipal users also appear to finance some of their stormwater drainage system costs from the same funding source[s] from which sanitary sewer collection system and wastewater treatment costs are paid. Possible funding/grant sources for sewer rehabilitation are identified in Appendix K. (Stormwater management and drainage costs, both present and future, are outside the scope of this plan document.)

This FCA should be updated from time to time -- at least every decade after Federal Census results are released -- and used as a tool to plan for and prioritize future programs and projects to assure they proceed in an economically sustainable manner that does not impose an unreasonable financial burden on the residents of a given municipal user.



12 Schedule of Implementation of the Flow Management Plan

Within 45 days after NYSDEC approval of this Flow Management Plan, the Board will initiate the process to amend the Plant Law by submitting requests for legislation to the legislative bodies of the City and Village, and meeting with their committees of jurisdiction. Each body has its own rules and scheduling for how such legislation is considered. Publication of legal notices in the owners' official newspaper, public hearings and comment periods, as well as consideration of comments received are necessary steps. Further, certain local laws and amendments thereto require filings with the New York State Department of State before becoming effective. The goal is to finalize and have effective the amendments to the Plant Law within seven months from NYSDEC approval of this Plan.

Within 45 days after NYSDEC approval of this Flow Management Plan, the Board will initiate process to amend Binghamton University's IWPP Discharge Permit. The goal is to finalize and have effective the amended permit within six months from the NYSDEC approval of this Plan.

Within 45 days after NYSDEC approval of this Flow Management Plan, the Board will initiate the process to amend the Rules and Regulations. This process involves [i] publication of a legal notice in the Board's official newspaper, [ii] a public hearing/comment period, [iii] consideration of comments received, and [iv] submission of the approved amending resolution[s] to owners' clerks for a mandatory waiting period before becoming effective. The goal is to finalize and have effective the amendments to the Rules and Regulations within nine months from NYSDEC approval of this Plan.

The amendments to the Rules and Regulations will include an effective date for three of the four cornerstone programs (the New or Modified Sewer Connection Application, I/I Offset, and CMOM Programs).

- If the NYSDEC approves the Plan before April 1, 2012 (approval scenario 1), then the Flow Management Program will have an effective date of January 1, 2013.
- Due to the municipal budgeting process and schedule, however, if the NYSDEC approves the Plan between April 1, 2012 and March 31, 2013 (approval scenario 2), then the Flow Management Programs will have an effective date of January 1, 2014.

With respect to the New or Modified Sewer Connection Application and the I/I Offset Programs, sewer connections and connection modifications that are given approval by December 31, 2012 (approval scenario 1) or December 31, 2013 (approval scenario 2) will not be subject to the requirements of these two programs, whereas sewer connections and connection modifications not approved by this date will be subject to the programs in their entirety. Each municipal user shall have their sewer application finalized and on file with the Board by November 1, 2012 (approval scenario 1) or November 1, 2013 (approval scenario 2). The Board, or its designated Bank Administrator, will have the Sewer Flow Credit Bank established before December 1, 2012 (approval scenario 1) or December 1, 2013 (approval scenario 2) and issue the first Annual Statement as of December 31, 2012 (approval scenario 1) or December 31, 2013 (approval scenario 2). The Board, or its designated Bank Administrator, will report annually regarding the Sewer Flow Credit Bank. The municipal user shall report annually regarding I/I Remediation Projects.



With respect to the CMOM Program:

- The first CMOM Program Document will be submitted by October 1, 2013 (approval scenario 1) or October 1, 2014 (approval scenario 2) and as required thereafter, but not less frequently than once every five years (due to the Board by October 1 of the year in which the report is due).
- The Annual Sewer-Capital Improvement Plan is due to the Board by April 1 of each year starting April 1, 2014 (approval scenario 1) or April 1, 2015 (approval scenario 2).
- The Communication Plan shall be updated annually and submitted to the Board by April 1 of each year starting April 1, 2014 (approval scenario 1) or April 1, 2015 (approval scenario 2).
- Historic as-built/record drawings shall be submitted to the Board by April, 2015 (approval scenario 1) or April, 2016 (approval scenario 2), and new drawings submitted to Board annually by April 1. If no new drawings have been developed during the annual reporting period, a "negative report" letter shall be provided to the Board.
- Each Municipal User's Sewer System Model Table shall be developed and submitted to the Board by January 1, 2015 (approval scenario 1) or January 1, 2016 (approval scenario 2), and shall be updated annually and submitted to the Board by April 1 of each year beginning April 1, 2016 (approval scenario 1) or April 1, 2017 (approval scenario 2). If no changes to the sewer system have occurred during the annual reporting period, a "negative report" letter shall be provided to the Board.
- Agreement(s) between Municipal User and Satellite Community shall be submitted to the Board by April 1, 2014 (approval scenario 1) or April 1, 2015 (approval scenario 2), and resubmitted as amended.

The proposed Rules and Regulation Articles set forth in Appendices F, G and I for the New or Modified Sewer Connection Application, I/I Offset, and CMOM Programs have been written stating effective dates based on approval scenario 1, so if approval scenario 2 were to become applicable instead, the dates will need to be adjusted accordingly before adoption. Further, because the process for adoption of these Articles and amendment of Plant Law as discussed above includes public hearings and public comment, with due consideration of the public input received, the owners and Board must therefore reserve the right to make changes to the wording set forth in the proposed Articles and amendments as required or as advisable so as to incorporate comments received from the public before final adoption. The owners or Board will, as part of the approval process, commit to giving the NYSDEC 30 days advance written notice of any intention to make such changes, together with the exact wording/change[s] proposed.

In addition to the three cornerstone programs discussed above, the Board will implement the Treatment Management Plan. The Treatment Management Plan states that the Board should formally track influent and effluent pollutant loads and flows, compare them to specified levels, and take appropriate management steps if warranted. The Board will adopt the Treatment Management Plan prior to November 1, 2012 (approval scenario 1) or prior to November 1, 2013 (approval scenario 2). The Board will begin tracking influent and effluent pollutant loads and flows according to the Treatment Management Plan effective January 1, 2013 under approval scenario 1; otherwise, January 1, 2014 for approval scenario 2.



13 Glossary

Whenever used in this Plan, the following terms and their definitions shall apply to only this Plan unless otherwise expressly stated or required by subject matter of context:

Affected Owner shall mean the Owner whose sewage collection system will transport or convey the wastewater from the new or modified sewer connection.

Affected sewers shall mean the sewer pipes that convey sewage from a new or modified sewer connection.

Applicant shall mean an entity that requests approval for a new or modified sewer connection and/or sewer extension.

Annual Sewer-Capital Improvement Plan shall mean the written document including description and schedule of work to repair defects found during the annual inspection of the previous year.

Area tributary to refers to a series of pumping stations, force mains, and gravity sewers owned by various municipalities that together convey wastewater to a specific location, such as the treatment plant or a CSO, in the sewage collection system.

As-built/record drawing shall mean a complete set of drawings which depict the actual as-built conditions of the completed construction and provides the user with a permanent record of each project feature.

Available sewer capacity shall be the difference between a sewer pipe's theoretical full pipe capacity calculated using Manning's equation, and the average wastewater flow in the pipe based on 2006, 2008 and 2010 flow metering data plus the estimated peak sewage flow rate increase from the new or modified sewer connection. The 2006 and 2008 flow metering data was presented in Appendix C of the September 2009 "*Flow Management Evaluation Report*" (approved by NYSDEC in October 2009). The 2010 flow metering data was presented in Section 7 of the April 2011 "*Flow Management Process, Collection System Mapping Enhancement and Modeling Study*" (approved by NYSDEC in March 2011).

Bank Administrator shall mean the Board or its designee. The Bank Administrator will manage the Sewer Flow Credit Bank and review and sign off on all approved applications for flow credit creation, Bank deposits, withdrawals, and transfers.

Board or Joint Sewage Board shall mean the Binghamton-Johnson City Joint Sewage Board, established under the agreement between the City of Binghamton and the Village of Johnson City for the operation of the joint wastewater treatment facilities. The term includes any duly authorized designee, agent, or representative of the Board.

Capacity assurance refers to operation and maintenance, projects, and programs that adequately preserve and/or enhance the capacity of the sewage collection system to transport current and future wastewater flows.

Capacity, Management, Operation, and Maintenance (CMOM) Program shall mean the program used by municipal users to operate and manage the sewage collection system. The CMOM Program consists of a set of Best Management Practices developed by the industry and applied over the entire life cycle of the sewage collection system and treatment plant. BMPs include design and construction for operation and



maintenance; knowing what comprises the system (inventory and physical attributes); knowing the location of the system (maps); knowing the condition of the system (assessment); planning and scheduling work based on condition and performance; repairing, replacing, and rehabilitating system components based on condition and performance; managing timely, relevant information to establish and prioritize appropriate CMOM activities; and training of personnel.

CMOM Program Document shall mean the written document which includes all of the elements of the CMOM Program as outlined in its definition and the United States Environmental Protection Agency (USEPA) EPA 305-B-05-002 *"Guide for Evaluating Capacity, Management, Operation, and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems,"* January 2005 or latest revision.

CMOM Program requirements shall mean all elements in the USEPA's *"Guide for Evaluating Capacity, Management, Operation, and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems."*

Combined sewer overflow (CSO) shall mean the portion of flow from a combined sewer system that discharges into a water body from an outfall located upstream of the headworks of a publicly owned treatment works (POTW), usually during a rainfall event. Also the outfall pipe which carries this discharge.

Default shall mean if a certificate of occupancy has not been issued within one year from the time of issuance of the flow credit note or, if later, within the additional time allowed for issuance of the certificate of occupancy when extended as provided herein.

Developer shall mean an Applicant applying to make a new or modified sewer connection and/or sewer extension, and who may or may not be responsible for the construction of a new or modified sewer connection and/or sewer extension and an I/I Remediation Project.

Effective date shall mean the date upon which an act of legal significance such as an Agreement or a contract is considered to take effect and which may be different from the date upon which the event described therein actually occurred or is recorded.

Emergency work shall mean activities (typically repairs) performed in response to serious equipment or line failure where action must be taken immediately.

Extreme occurrences refers to infrequent sanitary sewer overflows (SSOs) and other non-compliance events that, based on regulatory discretion, do not result in an enforcement action.

Fees in lieu of mitigation shall mean money paid by an Applicant into a fund so the Applicant may use available flow credits rather than funding and undertaking an I/I Remediation Project.

Flow Credits shall mean gallons per day of flow capacity available for proposed new or modified sewer connections that are generated through I/I Remediation Projects, which are projects that reduce infiltration and inflow into the sewage collection system.

Flow Credit Holder shall mean the entity that owns the flow credits associated with a given "I/I Remediation Project".

Flow Credit Note shall mean an agreement between the Board and the Applicant that flow credits shall be made available to the Applicant, Developer, or a municipal user under specific terms.

Flow Management Plan is specific to the Third Modification Consent Order (Case #R7-0580-90-12) between the NYSDEC and respondents City of Binghamton, Village of Johnson City, and the Binghamton-Johnson City Joint Sewage Board; and refers to the written document approved by the NYSDEC which



describes a programmatic approach to convey to, receive, and treat wastewater at the treatment plant and ensure current and future flows receive adequate treatment.

Flow monitoring shall mean the collection of flow measurement information utilizing flow metering instruments and visual inspections.

Flow-through costs refer to the fee charged by a municipal user to another municipal user for the use of their sewage collection system to transport sewage to the treatment facility.

Hydraulic and Pollutant Loading Capacity Analysis refers to comparing the average wastewater flow rate and pollutant design values of each unit process at the Plant to the average wastewater flow rate and pollutant load plus the estimated peak sewage flow rate and pollutant load from the new or modified sewer connection.

Hydrogen sulfide (H₂S) shall mean a colorless, flammable poisonous gas having a characteristic rotten-egg odor and used as an antiseptic, bleach, and reagent.

Industry standards shall mean a set of criteria within an industry relating to the standard functioning and carrying out of operations in their respective fields of production.

Infiltration/inflow (I/I) shall mean the total quantity of water from both Infiltration and Inflow, without distinguishing the source.

Infiltration shall mean water, other than sewage, that enters a sewage collection system (including sewer service connections) from the ground through such means as defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, inflow.

Inflow shall mean water, other than sewage, that enters a sewage collection system (including sewer service connections) from sources such as roof leaders, cellar drains, sump pumps, missing or defective cleanout caps, swimming pools, yard drains, area drains, foundation drains, drains from springs and swampy areas, manhole covers, cross connections between stormwater sewers and sanitary sewers, catch basins, cooling towers, stormwaters, surface runoff, street wash waters, or drainage. Inflow does not include, and is distinguished from, infiltration.

I/I Offset Flow Credits shall mean gallons per day of flow capacity available for proposed new or modified sewer connections that are generated through I/I Remediation Projects, which is a project that reduces I/I into the sewage collection system.

I/I remediation basin shall mean the sewage collection system, in its entirety, that is tributary to a particular component of the POTW, such as a CSO or pumping station. I/I remediation basins represent the areas for which sewer connections need to be offset by I/I reductions in the same area. An I/I remediation basin may cross municipal boundaries.

I/I remediation projects shall mean specific projects including system improvements, repairs, and upgrades that reduce I/I gallons conveyed by the sewage collection system. Improvements, repairs, and upgrades, such as manhole sealing, pipe joint grouting, and sewer lining, are considered I/I remediation projects.

I/I Remediation Engineering Report shall refer to the document that provides information on the scope of a project designed to remove infiltration and/or inflow from the sewage collection system, and an estimate of the expected infiltration and/or inflow removal.



Intermediate municipal user shall mean the municipal user whose sewage collection system will transport or convey new or modified sewage flow from the principal municipal user's sewage collection system to the Affected Owner's sewage collection system.

Management Information Systems refers to the process to maintain access to the most current information concerning the facilities. A Management Information System maintains preventive maintenance and inspection schedules; tracks repairs and work orders; organizes capital replacement plans; manages tools and equipment inventories; creates purchase orders; records customer service inquiries, complaints, or requests; and provides measurement of effectiveness of program and O&M activities.

Modeling shall mean calculations which are available and capable of simulating the different flows within a sewage collection system. The purpose of modeling is to determine system capacity requirements with respect to sewer design and structural conditions.

Municipal user shall mean a municipality or government entity which owns, or has jurisdiction over, any public sewer which conveys wastewater to the Plant.

New or modified sewer connection shall mean the construction of a new sewer connection to a sewer pipe owned by an Owner or outside user tributary to the Plant, or the modification of an existing sewer connection to a sewer pipe owned by an Owner or outside user tributary to the Plant, which would require an offset if it is defined as a sewer extension, adding greater than 2,500 gpd of flow of sewage.

New or Modified Connection Application Program refers to the Board's Application Program established to promote a unified, consistent, and coordinated process for evaluating the effects of new or modified sewer connections and assuring that such connections do not exceed the capacity of the sewage collection system.

Offset ratio shall mean the ratio of required gallons of I/I removed from the sewage collection system to the additional gallons allowed for new sewer connections.

Peaking factor shall mean ratio of wet weather flow during a rain event to typical dry weather flows at the same time of day. Can be expressed as instantaneous or volumetric.

Planned maintenance shall mean a systematic approach to performing maintenance activities so that equipment failure is avoided. Planned maintenance is comprised of predictive and preventative maintenance.

Planned, but not routine, shall mean predictive maintenance work, which is a method that looks for early warning signs of equipment failure such that emergency maintenance is avoided.

Principal municipal user shall mean the municipal user to whose sewage collection system the new or modified sewer connection is being made.

Private sewer shall mean a sewer not owned or controlled by a governmental agency, not including lateral sewers.

Public information refers to the sharing of facts with community residents to keep them informed and to receive their comments.

Publicly Owned Treatment Works (POTW) shall mean a treatment works as defined by Section 212 of the Federal Clean Water Act (33 USC 1292). This definition includes any directly or indirectly connected



sewers and appurtenances that convey wastewater to the Plant, but does not include pipes, sewer laterals, or other conveyances serving not more than a single home development not directly connected to the POTW.

Public sewer shall mean a sewer controlled by governmental agency.

Routine work shall mean preventative maintenance work which consists of scheduled maintenance activities performed on a regular basis.

Sanitary sewer overflow (SSO) shall mean a discharge of untreated wastewater from a sewage collection system designed for sewage only, including I/I in excess of the capacity of the sewage collection system, resulting in untreated wastewater discharges from the sewage collection system.

Satellite community shall mean a municipality or government entity that owns a sewage collection system but does not own the treatment facility to which it discharges.

Sewage shall mean the water-carried domestic human or animal waste, together with industrial and commercial waste, from residences, industrial, and commercial establishments. Neither infiltration nor inflow are components of "sewage".

Sewage collection system shall mean all facilities for collecting, regulating, pumping, and transporting, sewage. May be a sanitary sewer system or, where permitted by the NYSDEC, a combined sewer system.

Sewage treatment plant or **Plant** shall mean the Binghamton-Johnson City Joint Sewage Treatment Plant.

Sewer Connection Application shall refer to the form in which the Applicant provides information about the new or modified sewer connection and requests permission to make such connection.

Sewer extension shall mean any and all sanitary sewer facilities, including sewer pipe and manholes, and any fittings and connections related thereto which are to become part of the POTW and are anticipated to increase flows in the sewer system by more than 2,500 gpd. It shall also include, where applicable, all pumping stations, force mains, and associated facilities.

Sewer Extension Engineering Report shall refer to the document that accompanies a Sewer Connection Application in which the Applicant provides information about the new or modified sewer connection and the affected sewage collection system.

Sewer Flow Credit Bank shall mean a mechanism to track flow credit deposits, withdrawals, and transfers.

Sewer System Capacity Analysis refers to comparing the difference between a sewer pipe's theoretical full pipe capacity calculated using Manning's equation and the average wastewater flow in the pipe based on the 2008 flow metering data as presented in Appendix C of the September 2009 "*Flow Management Evaluation Report*" (approved by NYSDEC in October 2009) plus the estimated peak sewage flow rate increase from the new or modified sewer connection.

Sewer system inspection shall mean the visual inspection of manholes and pipelines utilizing various inspection techniques, including lamping, camera inspection, sonar, and closed circuit television, referencing National Association of Sanitary Sewer Companies standards.



Sewer system testing shall mean using testing techniques to identify leaks which allow unwanted infiltration into the sewer system and determine the location of illicit connections and other sources of stormwater inflow. Two commonly implemented techniques include introduction of harmless smoke (smoke testing) and dye (dye testing) into sewers to identify illegal connections of stormwater sources to the sanitary sewer.

Unplanned maintenance shall mean work that takes place in response to equipment breakdowns or emergencies. Unplanned maintenance may be corrective or emergency maintenance (emergency work). Corrective maintenance could occur as a result of preventative or predictive maintenance activities which identified a problem situation.

Wastewater is the composite of all flow constituents conveyed in a sewer including sewage and infiltration and inflow.

Water quality monitoring shall mean the collection and analysis of wastewater, stormwater, or ambient water such as creeks, rivers or ponds.

Work Order System shall mean a comprehensive system which tracks repairs and work orders. The system should clearly define how the maintenance data management system works; how work orders are generated and distributed; how field crews use the work orders; how data from the field is collected and returned; and how and on whose authority work orders are closed out.



Appendix A



**THE COUNCIL OF THE CITY OF BINGHAMTON
STATE OF NEW YORK**

Date: December 7, 2011

Sponsored by Council Members: Collins, Weslar, Gerchman, Webb, Massey, Rennia, Kramer

Introduced by Committee: Public Works/Parks & Recreation

RESOLUTION

entitled

A RESOLUTION ENDORSING A FLOW
MANAGEMENT PLAN FOR THE CITY OF
BINGHAMTON, VILLAGE OF JOHNSON CITY
AND THE BINGHAMTON-JOHNSON CITY
JOINT SEWAGE TREATMENT FACILITIES

WHEREAS, the City of Binghamton is a joint owner of the Binghamton-Johnson City Joint Sewage Treatment Facilities (the "JSTF") with the Village of Johnson City; and

WHEREAS, the JSTF are possessed, operated and maintained by the Binghamton-Johnson City Joint Sewage Board (the "JSB") on behalf of the City and the Village; and

WHEREAS, the New York State Department of Environmental Conservation (the "Department") regulates the JSTF; and

WHEREAS, on April 6, 1992, the Department, the City of Binghamton, the Village of Johnson City, and the JSB (collectively the "Respondents") entered into an administrative Consent Order in Case No. R7-0580-90-12; and

WHEREAS, on December 4, 2007, the Department and the Respondents entered into a Third Modification Consent Order which requires completion of a flow management process including the development of an engineer-certified flow management plan that, prior to submission to the Department for approval, must be endorsed by the legislative bodies of the Owners; and

WHEREAS, on May 4, 2009, the Department and the Respondents entered into a Fifth Modification Consent Order extending the schedule for development and submission of the flow management plan; and

WHEREAS, on August 30, 2010, the Department and the Respondents entered into a Sixth Modification Consent Order further extending the schedule for development and submission of the flow management plan; and

WHEREAS, the Department has administratively agreed to further extensions of the schedule for development and submission of the flow management plan, the most recent of

**THE COUNCIL OF THE CITY OF BINGHAMTON
STATE OF NEW YORK**

Date: December 7, 2011

which requires submission of the certified and endorsed flow management plan to the Department not later than January 31, 2012; and

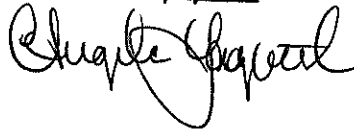
WHEREAS, following the process and steps described therein, a Flow Management Plan for the City, Village, and JSTF has been developed and recommended by GHD Consulting Engineers, LLC,

NOW, THEREFORE, the Council of the City of Binghamton, duly convened in regular session, does hereby:

RESOLVE that the Council hereby endorses the Flow Management Plan in the form annexed hereto, and directs that it be submitted to the New York State Department of Environmental Conservation for approval; and be it further

RESOLVED that this Resolution shall take effect immediately.

I hereby certify the above to be a true copy
of the legislation adopted by the Council
of the City of Binghamton at a meeting
held on 12/9/11. Approved by the
Mayor on 12/11/11.



Introductory No. R11-119

Permanent No. R11-115

Sponsored by City Council Members:
Collins, Weslar, Gerchman, Webb, Massey, Rennia,
Kramer

A RESOLUTION ENDORSING A FLOW
MANAGEMENT PLAN FOR THE CITY OF
BINGHAMTON, VILLAGE OF JOHNSON CITY
AND THE BINGHAMTON-JOHNSON CITY
JOINT SEWAGE TREATMENT FACILITIES

The within Resolution was adopted by the Council of
the City of Binghamton.

Date December 7, 2011

City Clerk Quaker Shapiro

Date Presented to Mayor December 8, 2011

Date Approved 12/11/11

Mayor Michael T. Ray

	Ayes	Nays	Abstain	Absent
Weslar	✓			
Gerchman	✓			
Rennia	✓			
Webb	✓			
Massey	✓			
Kramer	✓			
Collins	✓			
Total	7	0	0	0

☐ Code of the City of Binghamton

☒ Adopted ☐ Defeated

7 Ayes 0 Nays 0 Abstain 0 Absent



OFFICE OF THE VILLAGE CLERK
VILLAGE OF JOHNSON CITY

MUNICIPAL BUILDING
243 MAIN STREET • JOHNSON CITY, NY 13790

PHONE: (607) 798-7861
FAX: (607) 798-7865

Dennis F. Hannon, Mayor

Resolution #215

A motion to endorse a Flow Management Plan for the City of Binghamton, Village of Johnson City and the Binghamton-Johnson City Joint Sewage Treatment Facilities was made by Trustee Novobilski and seconded by Trustee Deemie.

Motion Carried - Vote:

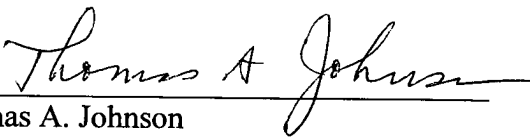
Ayes – 5 (*Deemie, Novobilski, Davis, Balles, Hannon*) **Nayes – 0** **Absent – 0**

CERTIFICATION FORM

STATE OF NEW YORK)
COUNTY OF BROOME)

I, THOMAS A. JOHNSON, Clerk of the Village of Johnson City, Broome County, of the State of New York, Do HEREBY CERTIFY, that I have compared the above motion duly adopted at a Regular Meeting of the Board of Trustees of the Village of Johnson City held on December 20, 2011, with the original said Resolution on file in my office as Clerk/Treasurer of said Village and that the same is true and exact copy thereof and of the whole thereof.

In WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of the Village of Johnson City, New York, as Clerk/Treasurer this 23th day of December 2011.



Thomas A. Johnson
Village Clerk



Binghamton-Johnson City
JOINT SEWAGE BOARD



Eugene Hulbert, Sr.
Luke Day
Edward Crumb

Stephen Andrew
George Kolba, Jr.
Ronald C. Davis

**CERTIFICATE OF RESOLUTION OF THE
BINGHAMTON-JOHNSON CITY JOINT SEWAGE BOARD REGARDING:
ADOPTION OF FLOW MANAGEMENT PLAN
AND AUTHORIZATION FOR SUBMISSION TO NYS-DEC**

I, Michele Cuevas, Confidential Secretary of the Binghamton-Johnson City Joint Sewage Board, DO HEREBY CERTIFY that, at the special meeting of the Binghamton-Johnson City Joint Sewage Board held on January 27, 2012, duly convened and a quorum being present and participating throughout the subject action set forth below, the following RESOLUTION[S] was/were duly adopted on motion duly made, seconded, and carried, which RESOLUTION[S] remain in full force and effect:

Board Members present:

George Kolba, Jr. (Chairman), Eugene Hulbert, Sr. (Vice-Chairman), Edward Crumb, and Ronald Davis

Board Member[s] absent:

Luke Day and Stephen Andrew

Motion made by Edward Crumb to adopt the Flow Management Plan in the form prepared and recommended by GHD Consulting Engineers, LLC including the most recently distributed version and three sets of errata/technical corrections to be incorporated therein, and to direct submission thereof to the New York State Department of Environmental Conservation not later than January 31, 2012 by GHD and/or Co-Counsel Perticone, seconded by Ronald Davis.

Motion carried: 4 ayes, 0 nay, 2 absent (LD, SA)

I HEREBY CERTIFY that the foregoing is a true and complete copy of the resolution[s] duly adopted at the aforesaid meeting of the Joint Sewage Board in accordance with the provisions of said Board's By-Laws, that the resolution[s] has/have not in any way been rescinded or annulled, and that the resolution[s] is/are still in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand as Confidential Secretary of the Joint Sewage Board, this 27th day of January, 2012.

Michele Cuevas
Michele Cuevas,
Confidential Secretary

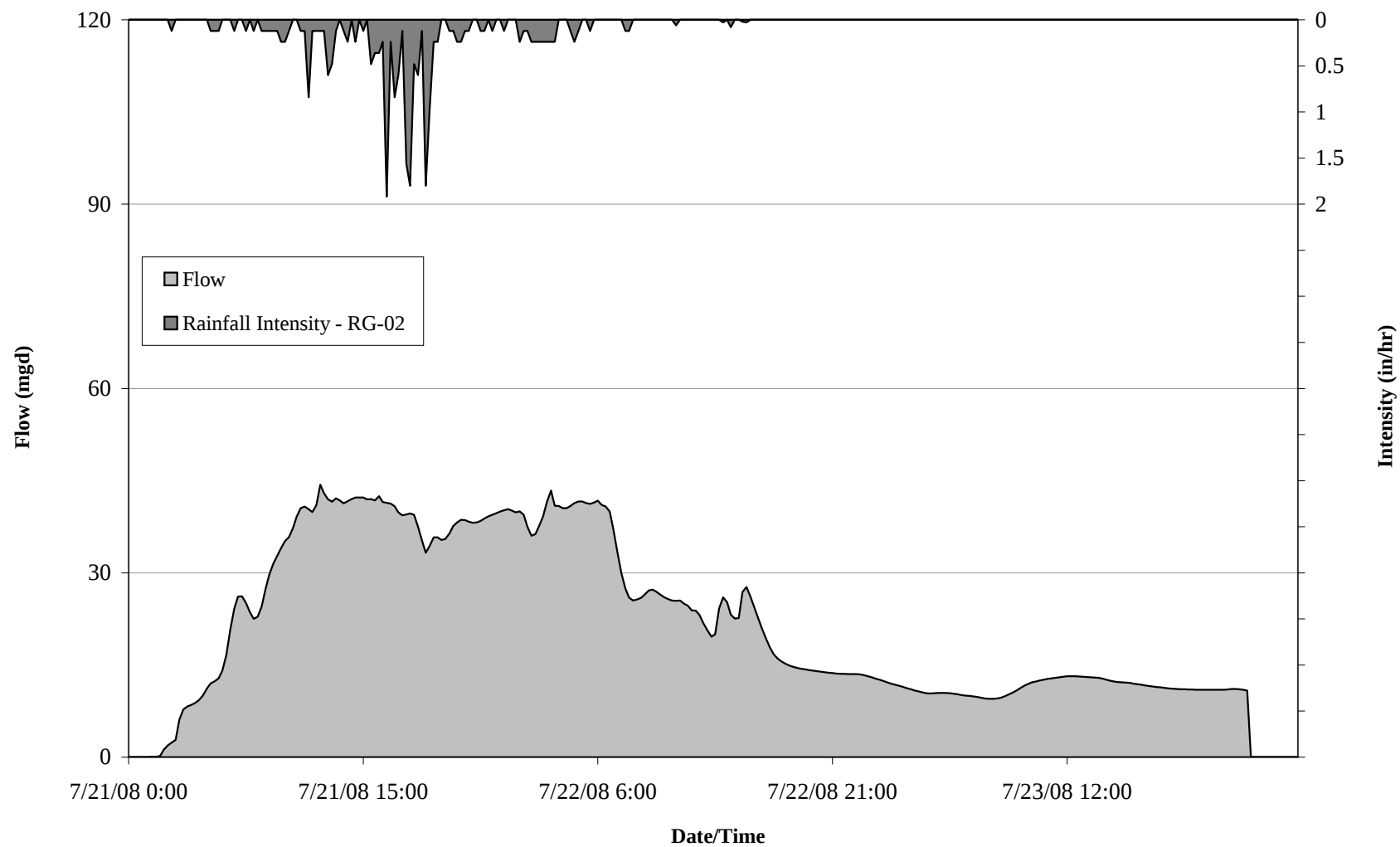
ATTEST: *George Kolba Jr.*
Board Officer

Catherine P. Aingworth, Superintendent
Binghamton-Johnson City Joint Sewage Treatment Facilities
4480 Vestal Road, Vestal, New York 13850
Phone: 607-729-2975 Fax: 607-729-0110
Email: bjcwwtp@stny.rr.com

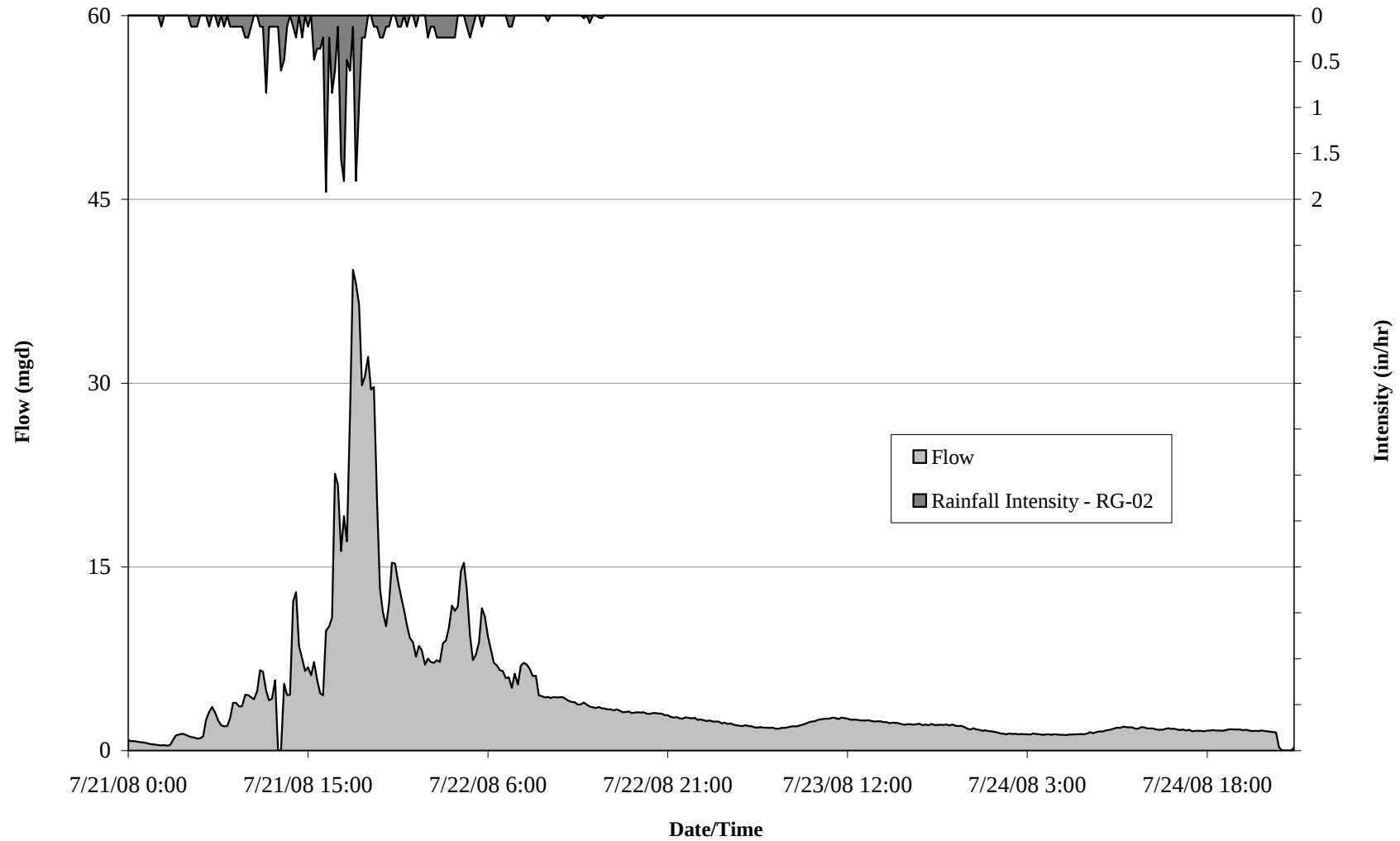


Appendix B

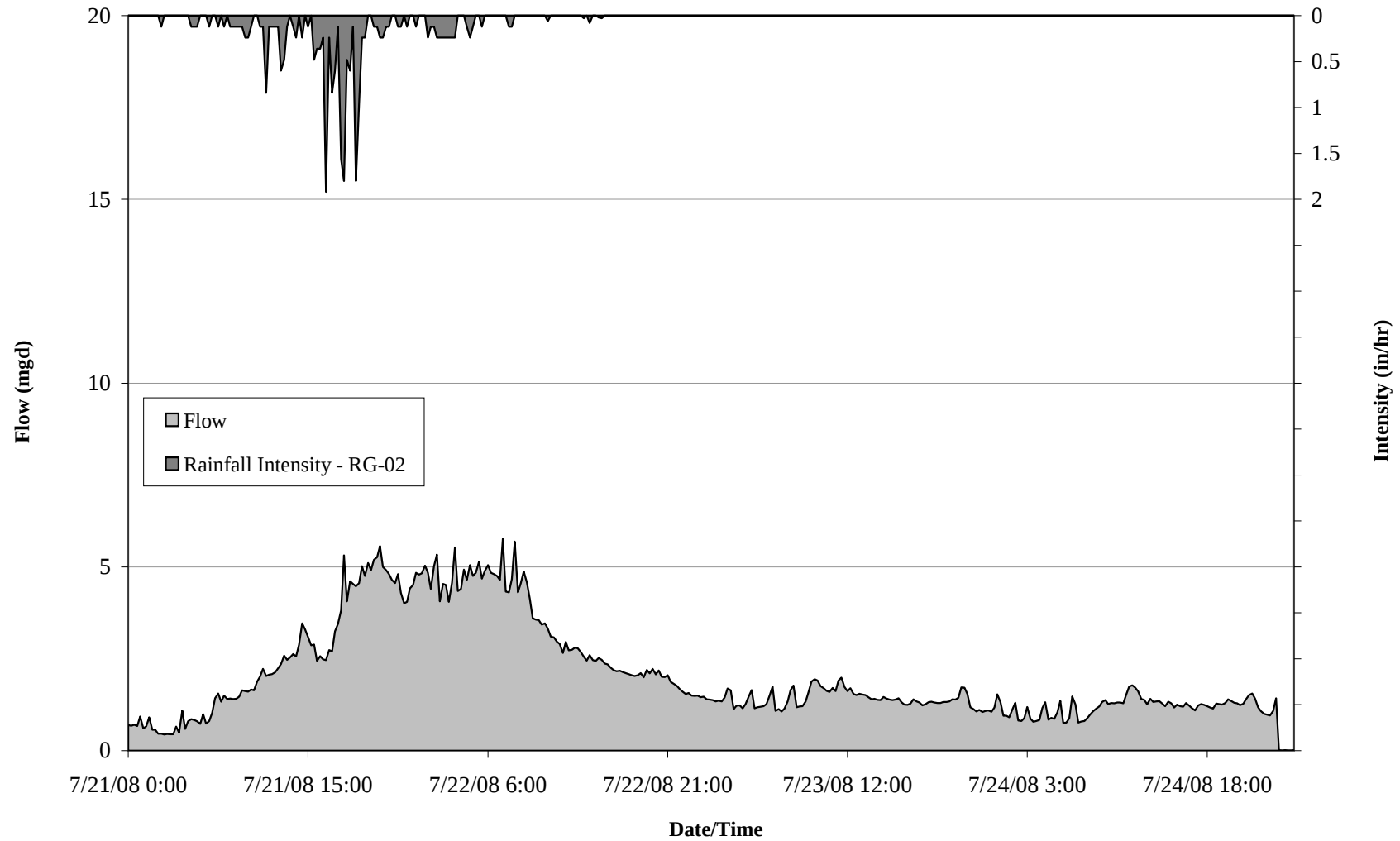
City of Binghamton Influnet to Joint Sewage Treatment Plant
Sewage Flow and Rainfall Data
City of Binghamton, NY



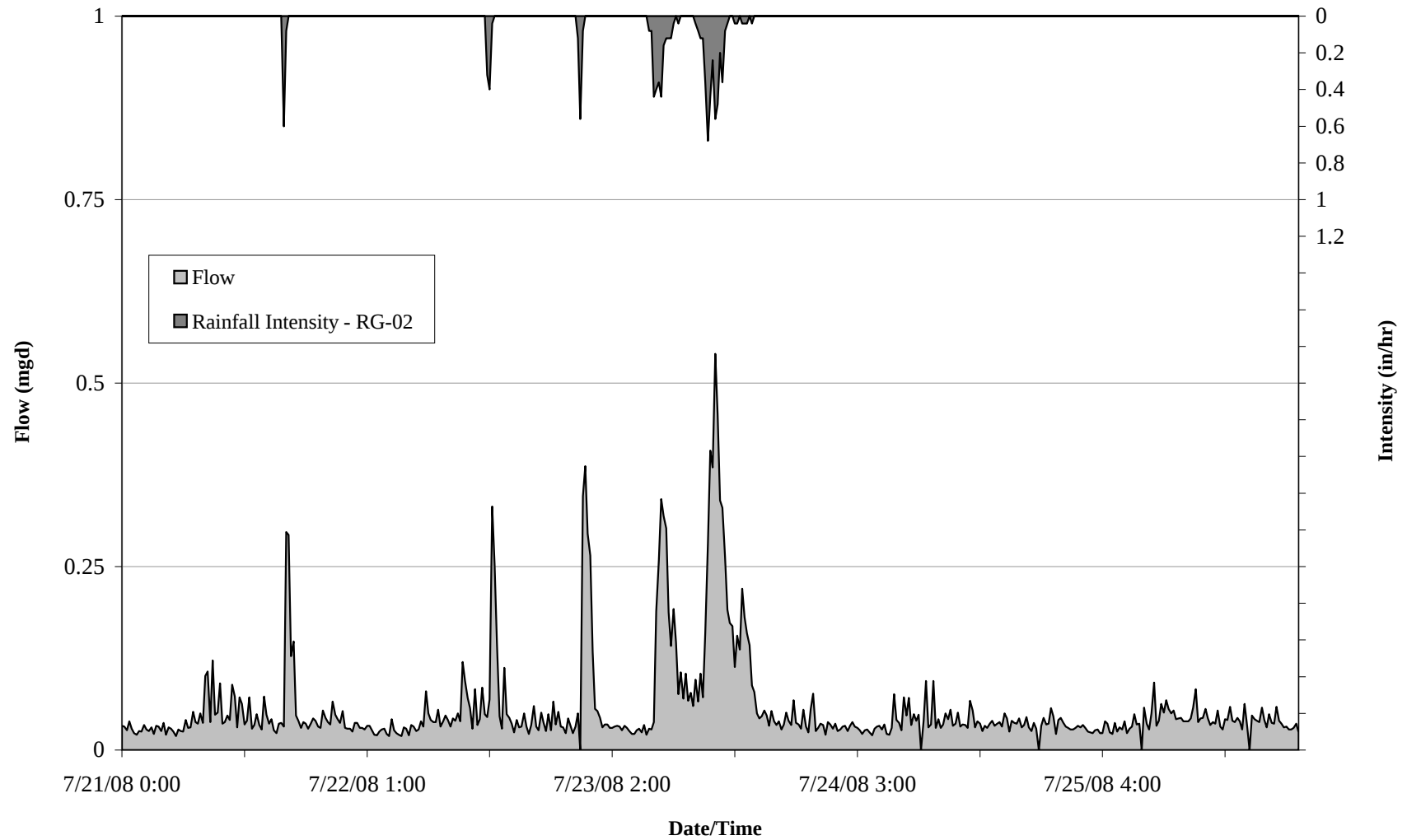
Village of Johnson City CSO 002
Sewage Flow and Rainfall Data
Village of Johnson City, NY



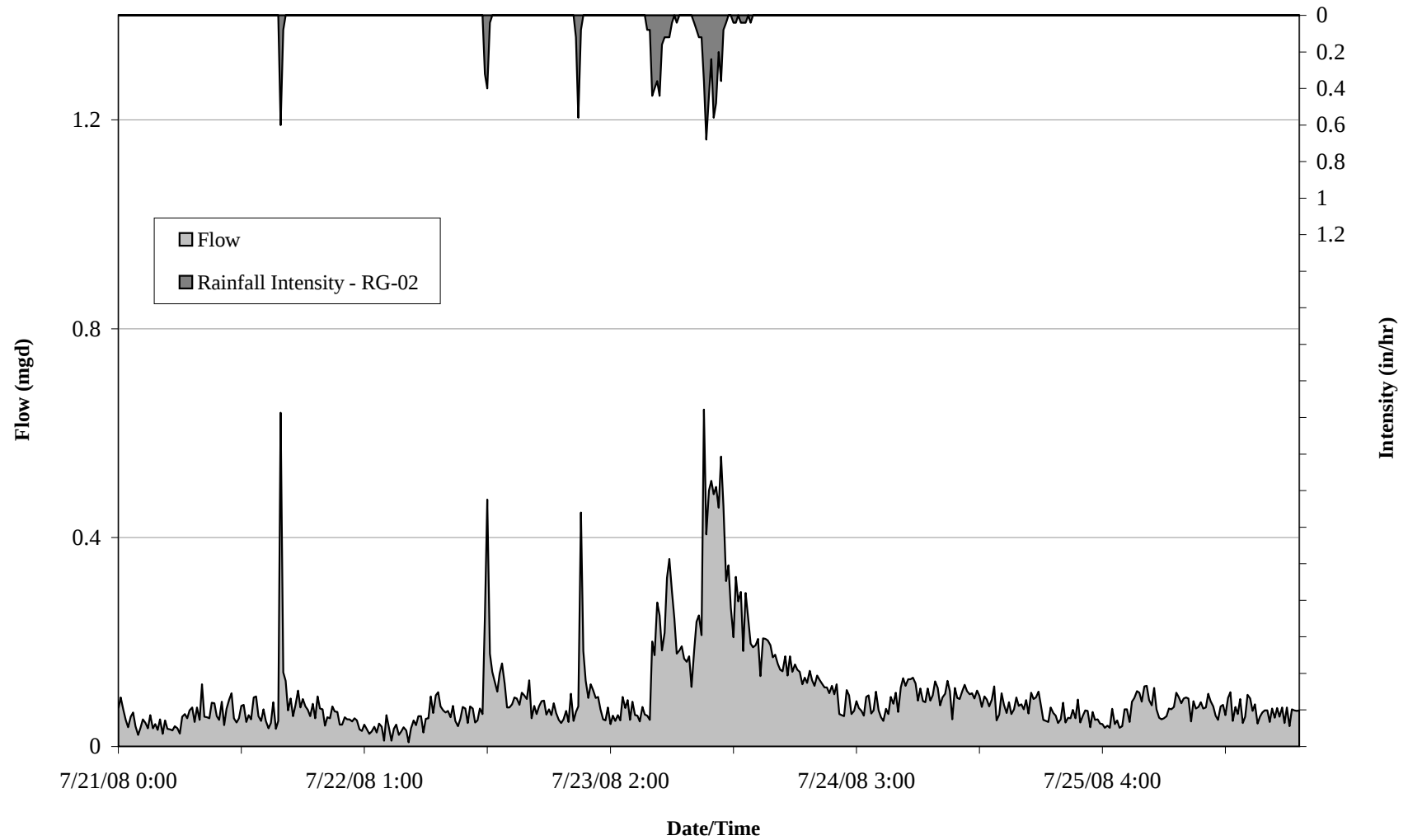
Village of Johnson City CSO 001
Sewage Flow and Rainfall Data
Village of Johnson City, NY



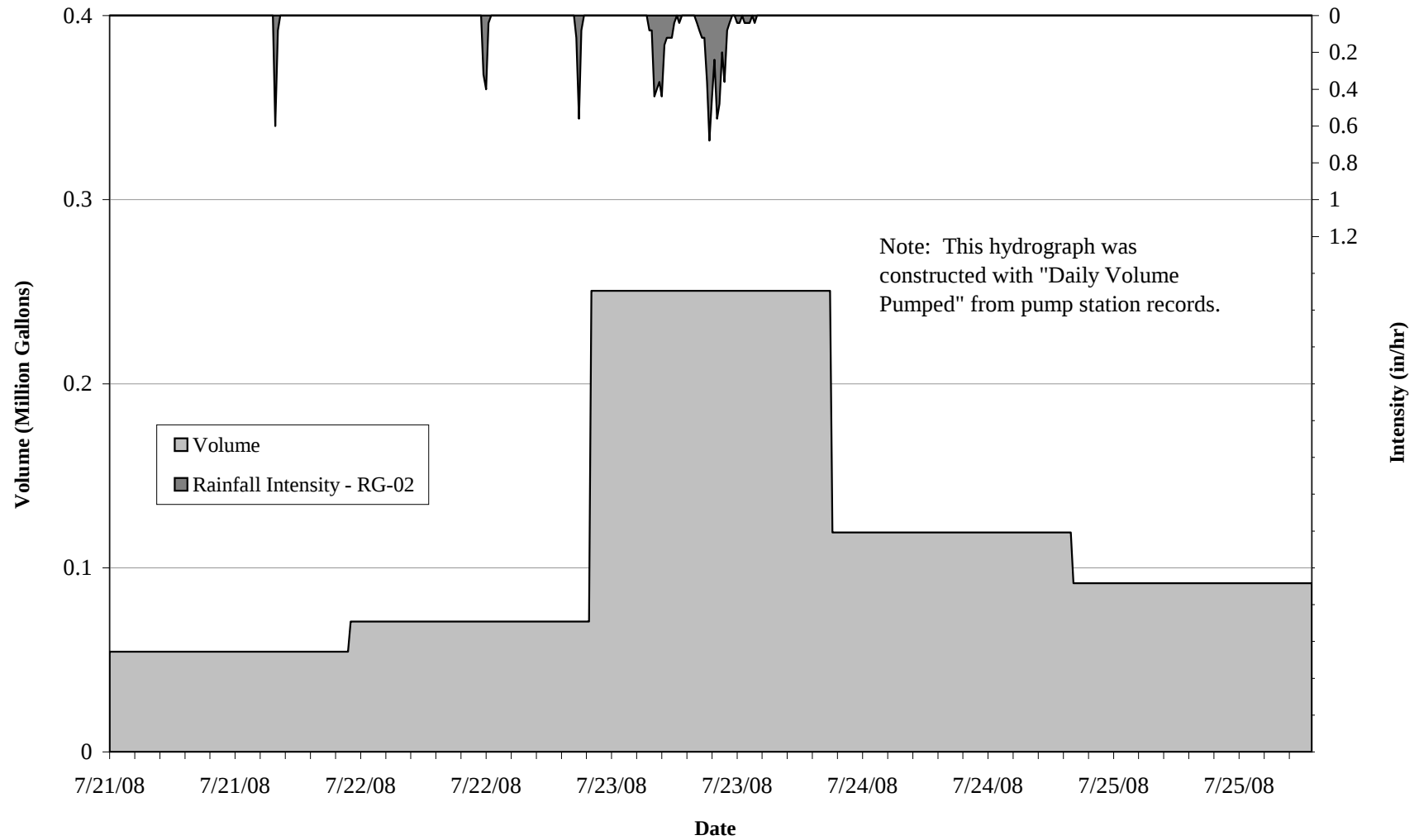
TU-3
Sewage Flow and Rainfall Data
Town of Union, NY



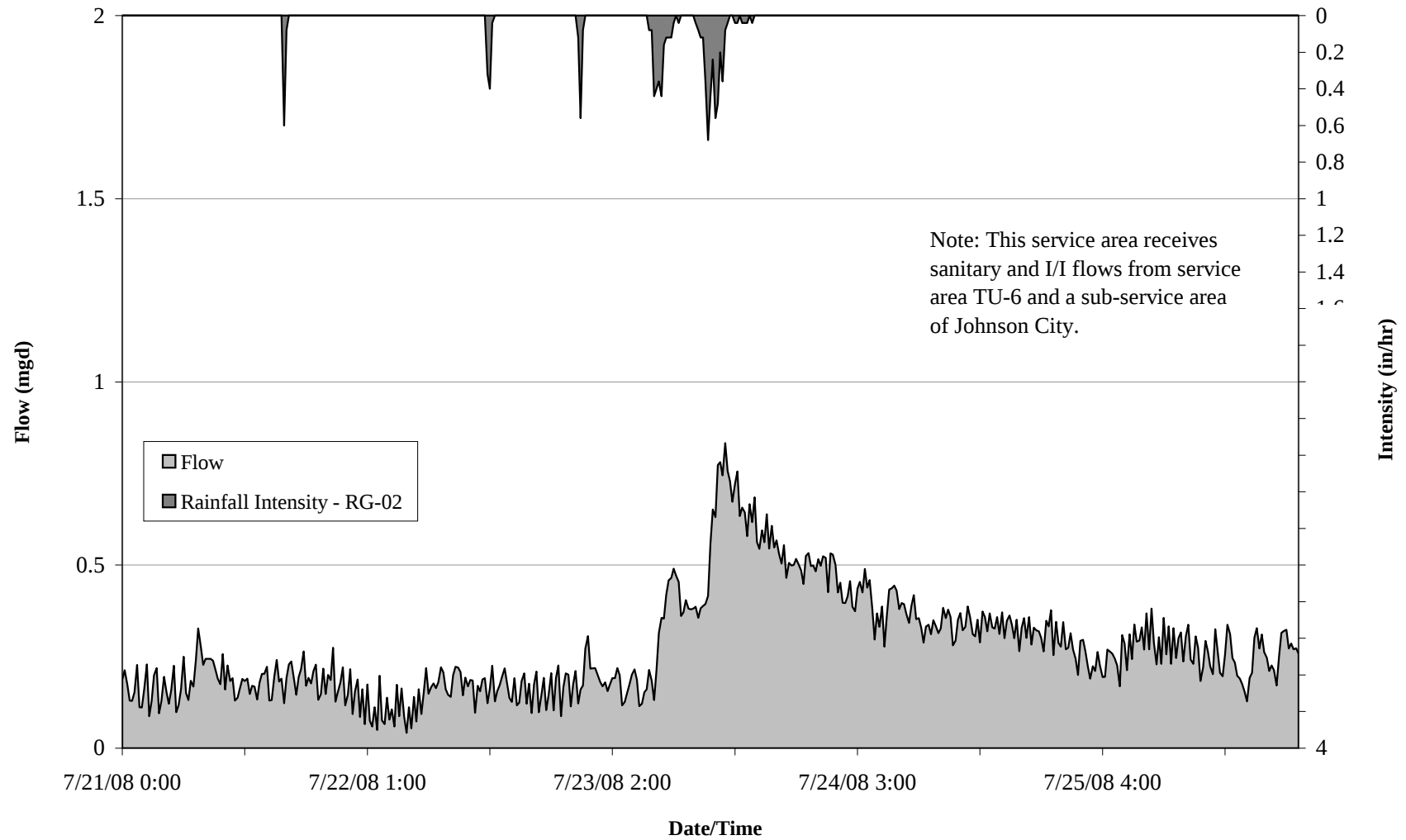
TU-4
Sewage Flow and Rainfall Data
Town of Union, NY



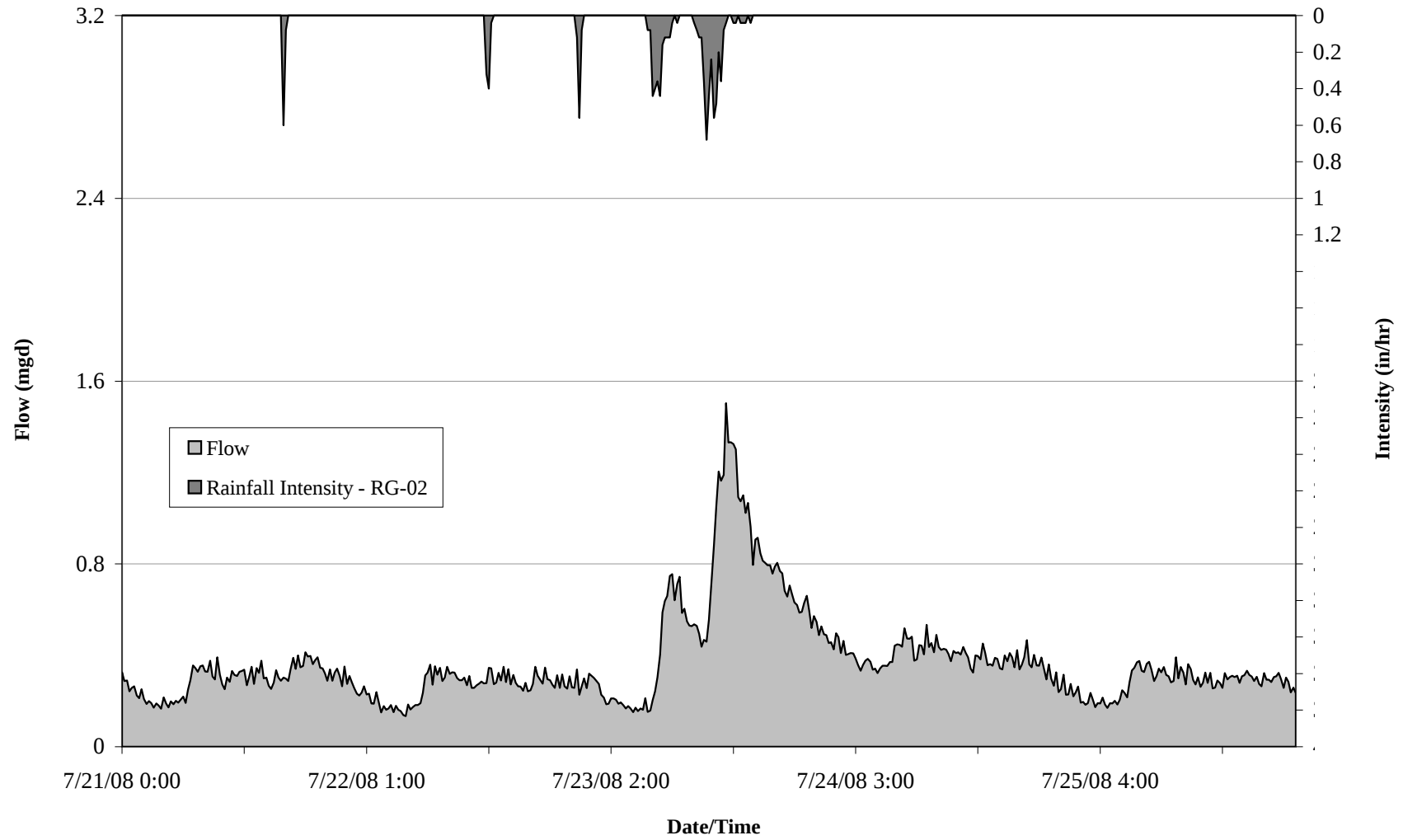
TU-6
Sewage Flow and Rainfall Data
Town of Union, NY



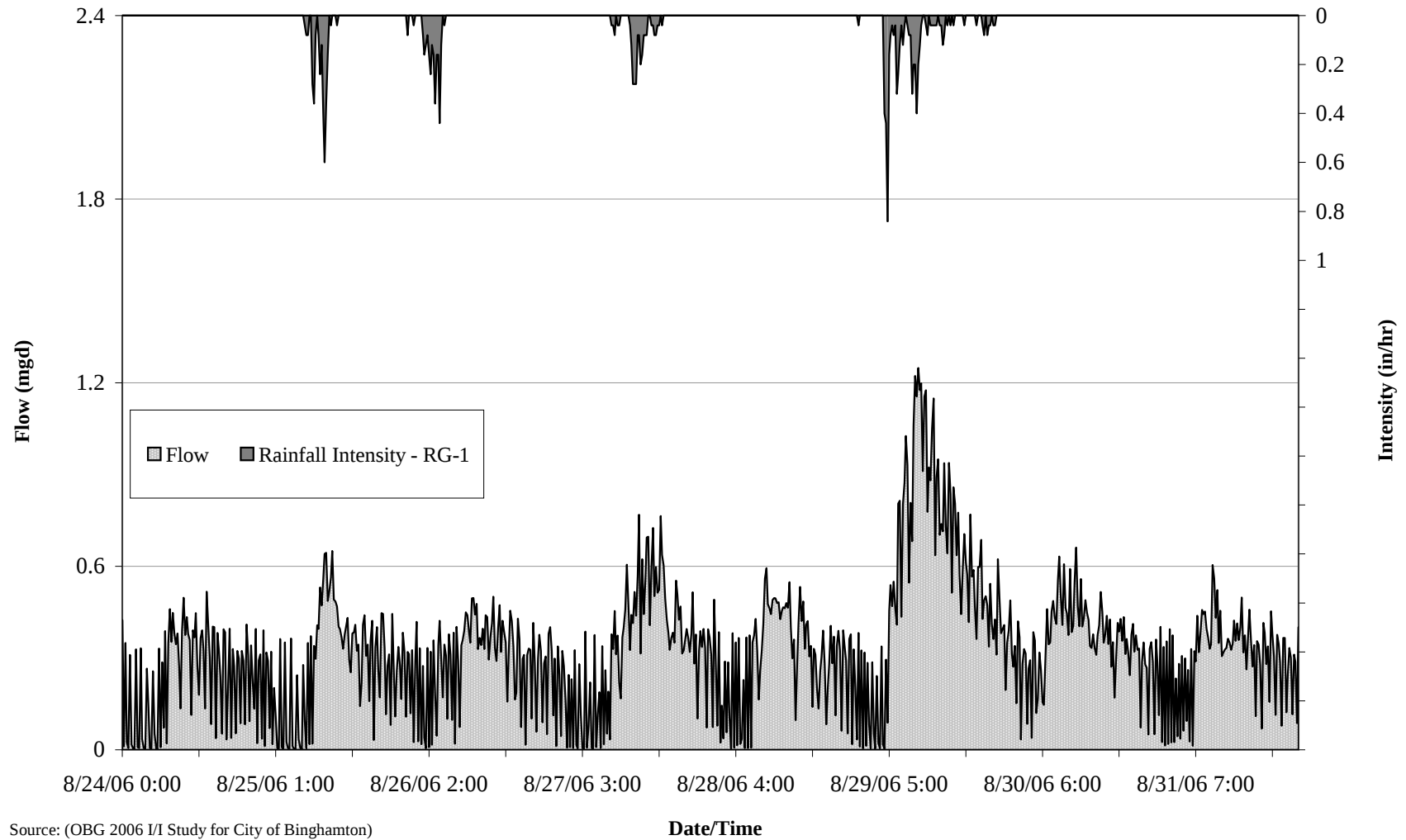
TD-3
Sewage Flow and Rainfall Data
Town of Dickinson, NY



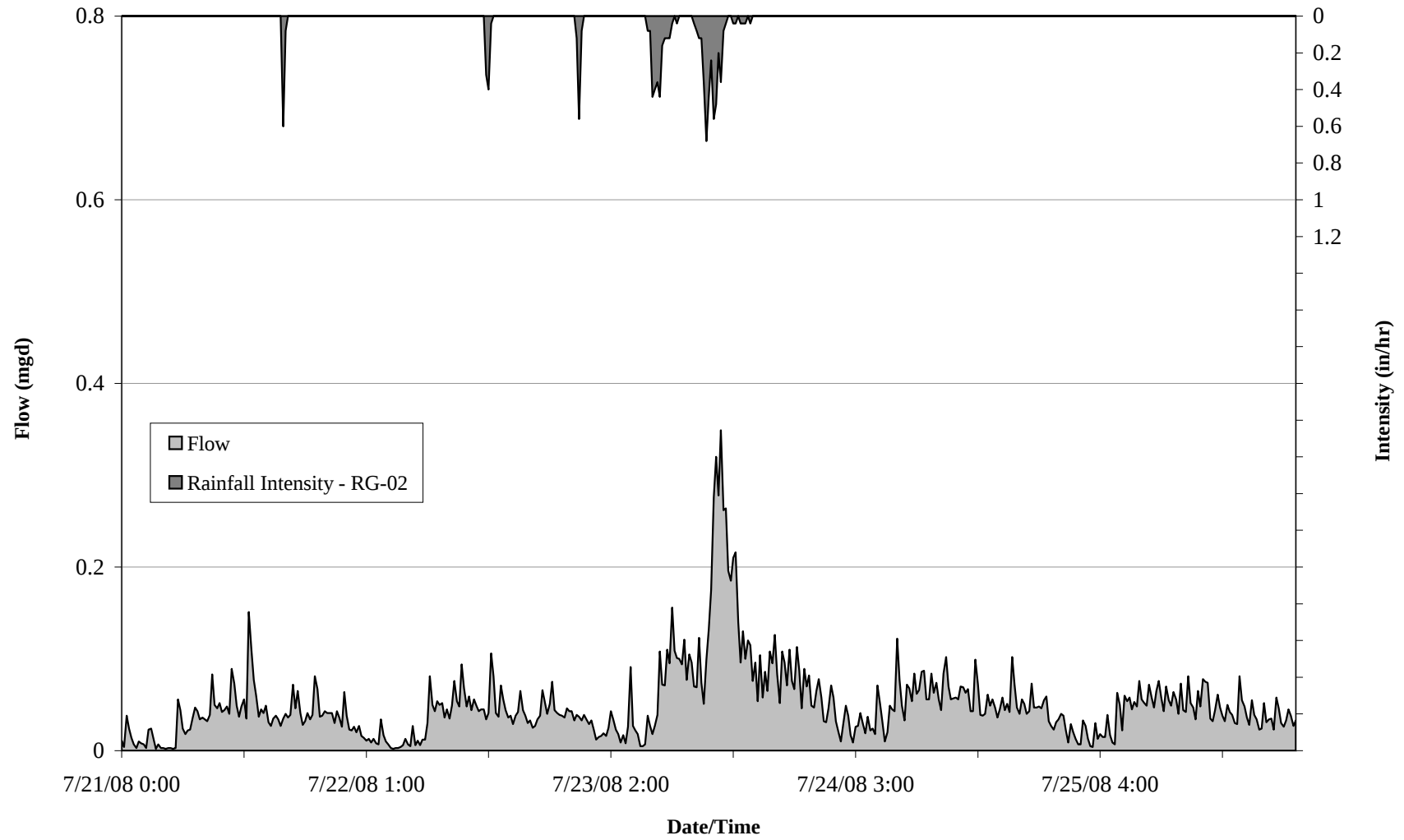
TD-2
Sewage Flow and Rainfall Data
Town of Dickinson, NY



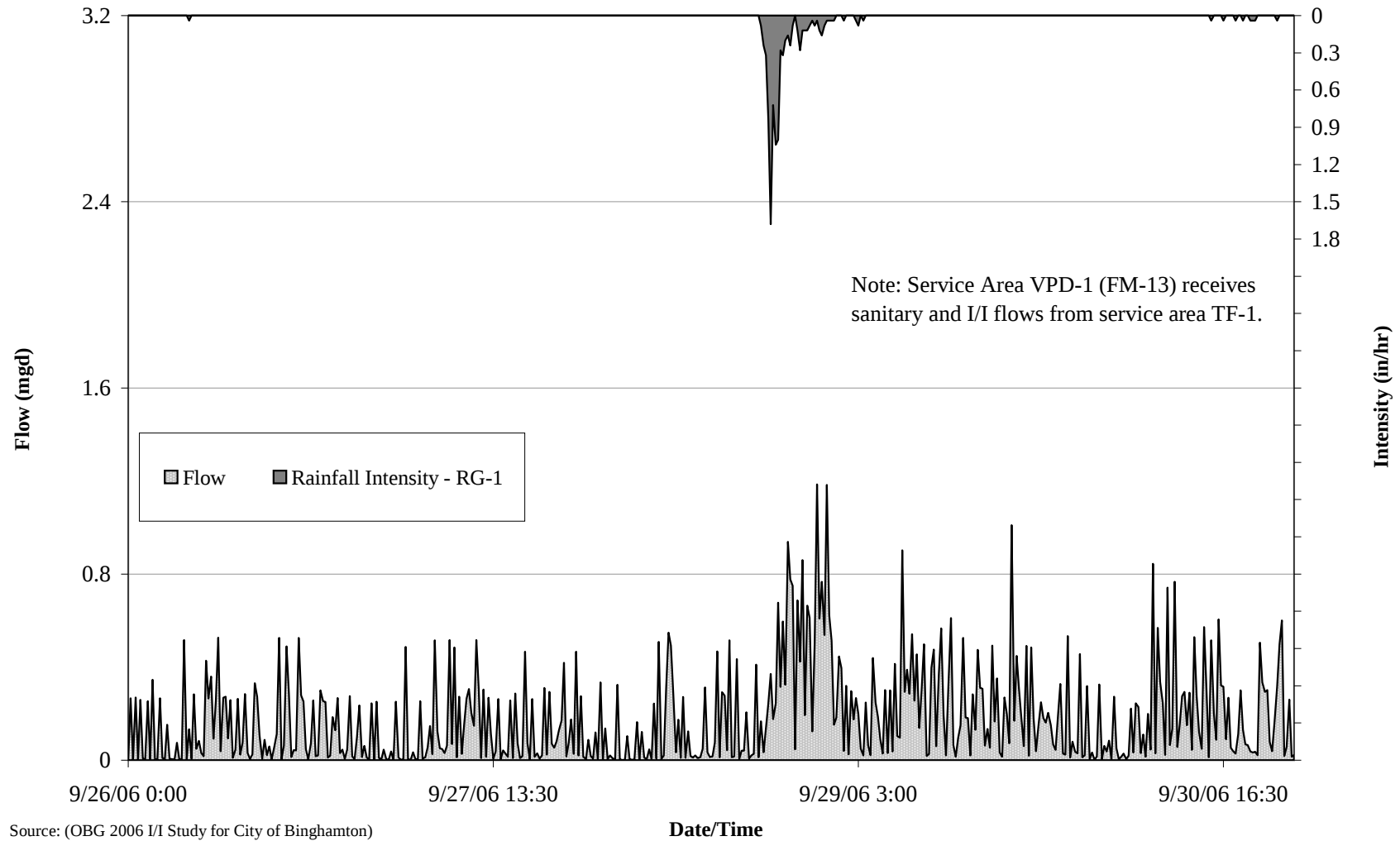
TD-7 (FM-1)
Sewage Flow and Rainfall Data
Town of Dickinson, NY



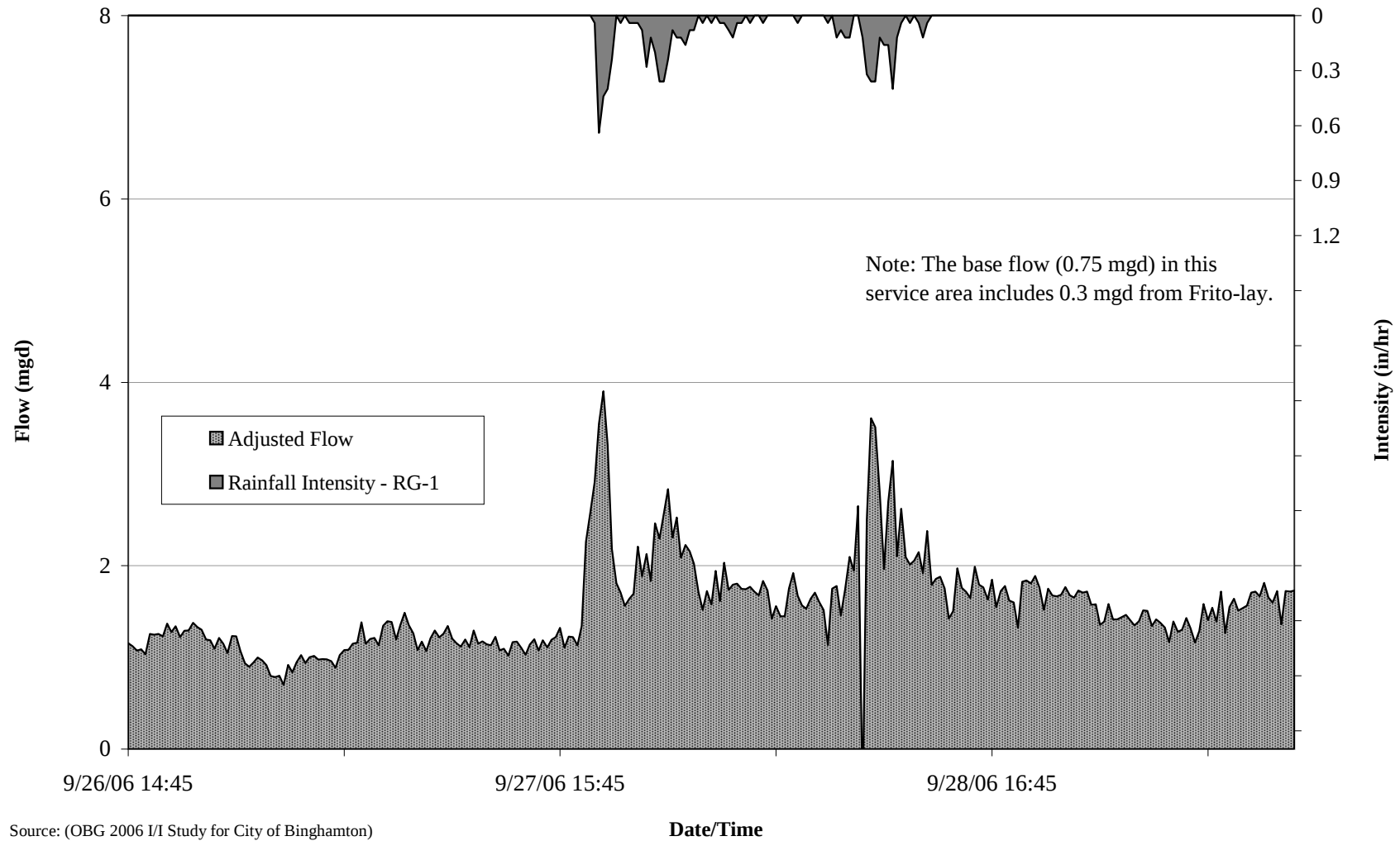
TF-1
Sewage Flow and Rainfall Data
Town of Fenton, NY



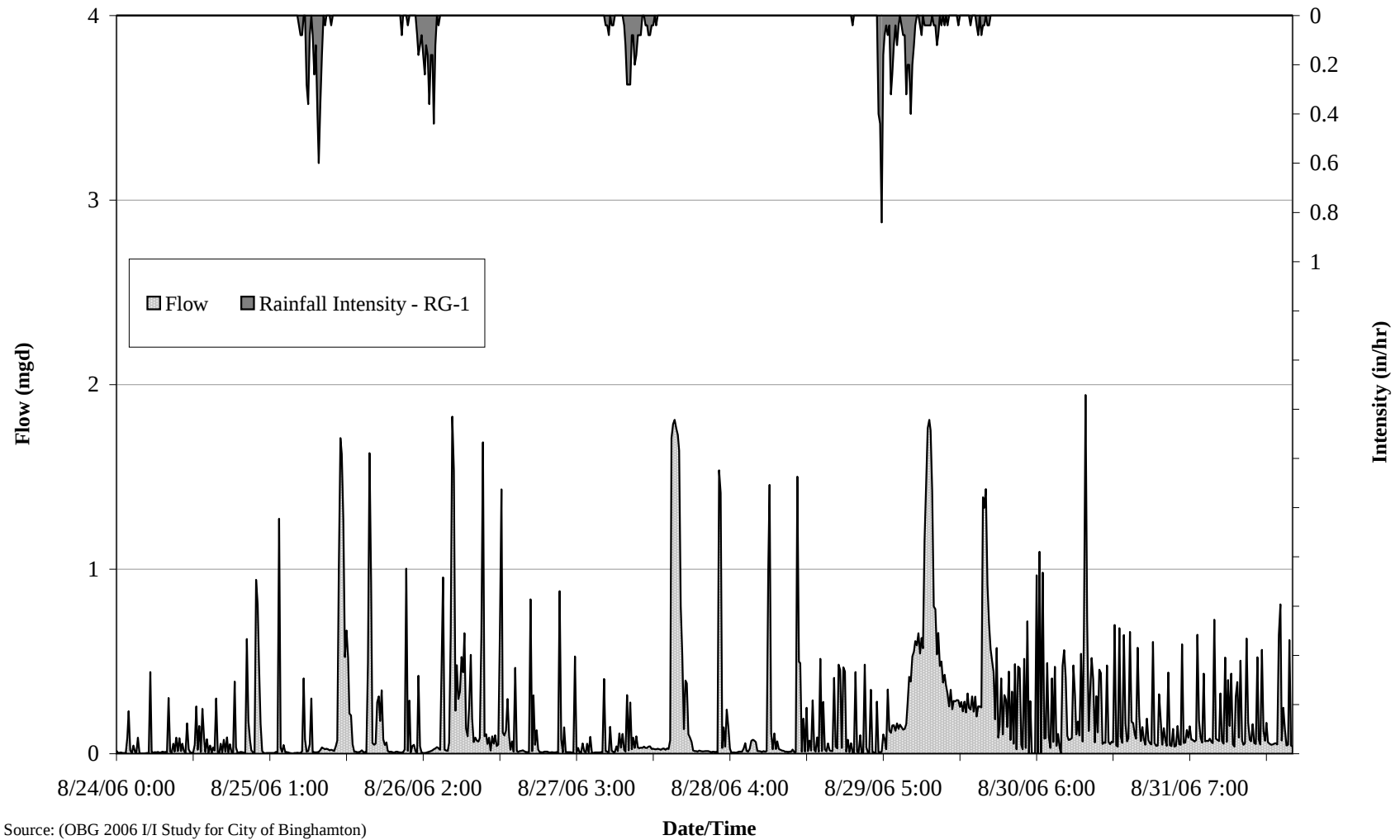
VPD-1 (FM-13)
Sewage Flow and Rainfall Data
Village of Port Dickinson, NY



TK-1 (FM-9)
Sewage Flow and Rainfall Data
Town of Kirkwood, NY

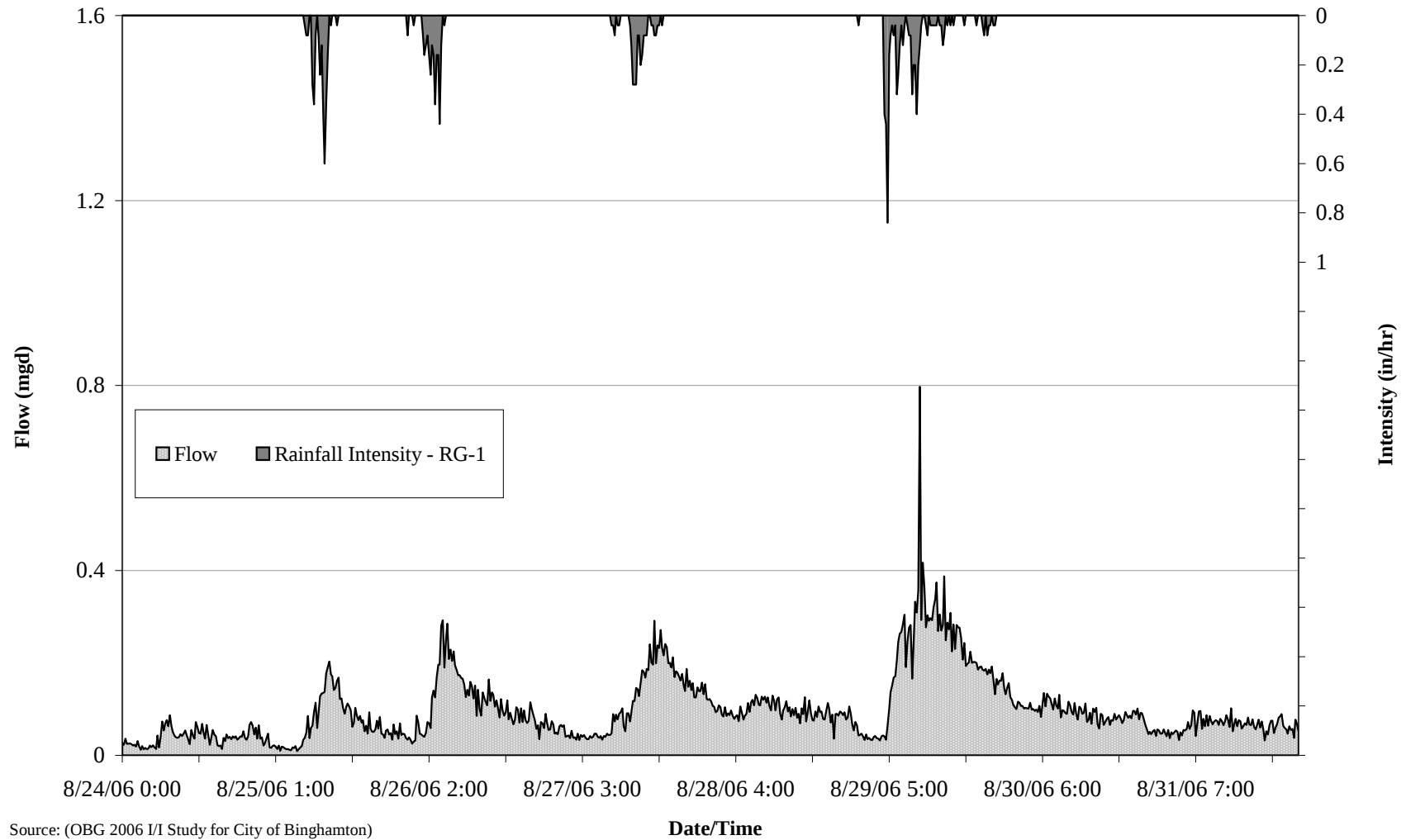


TC-1 (FM-2)
Sewage Flow and Rainfall Data
Town of Conklin, NY

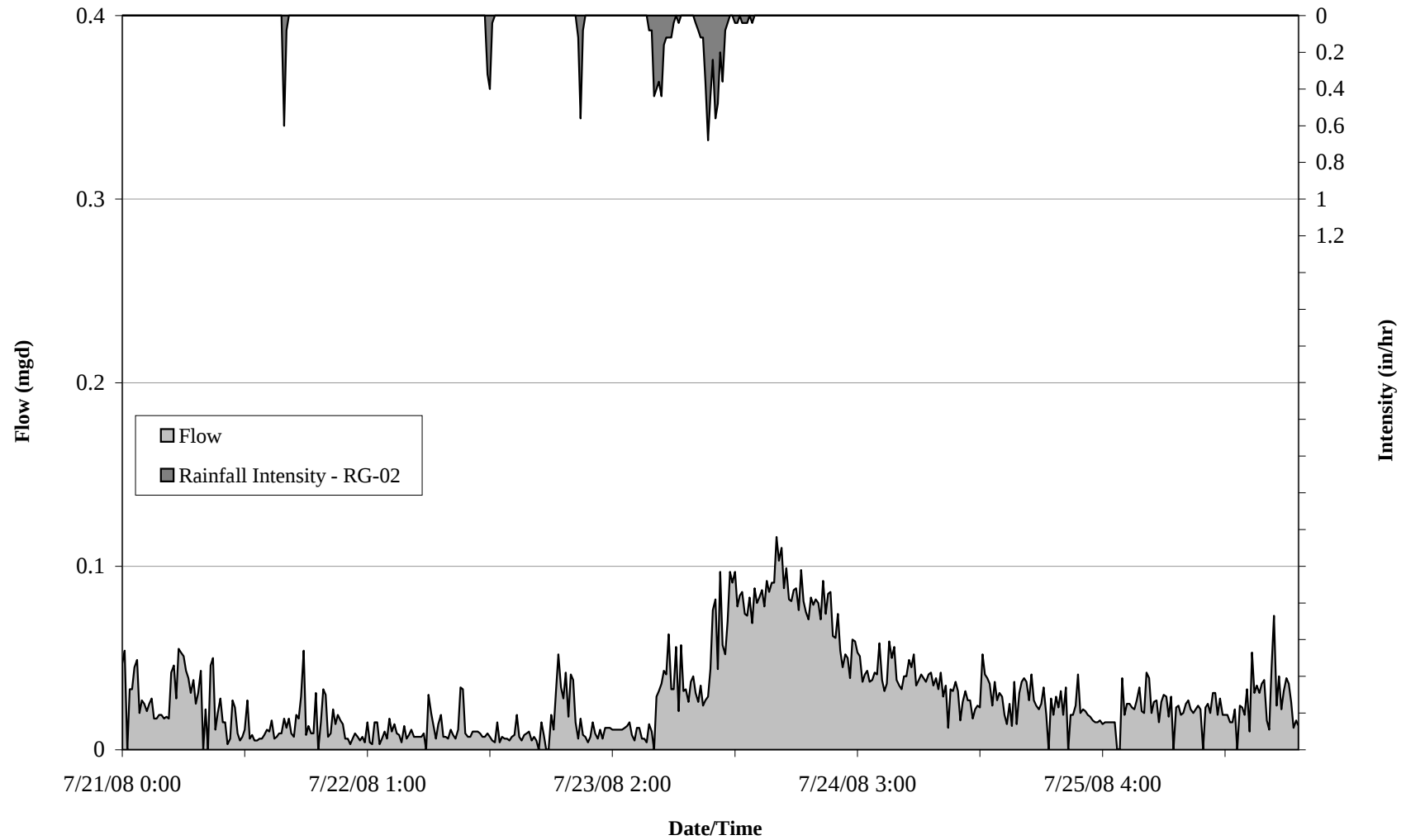


Source: (OBG 2006 I/I Study for City of Binghamton)

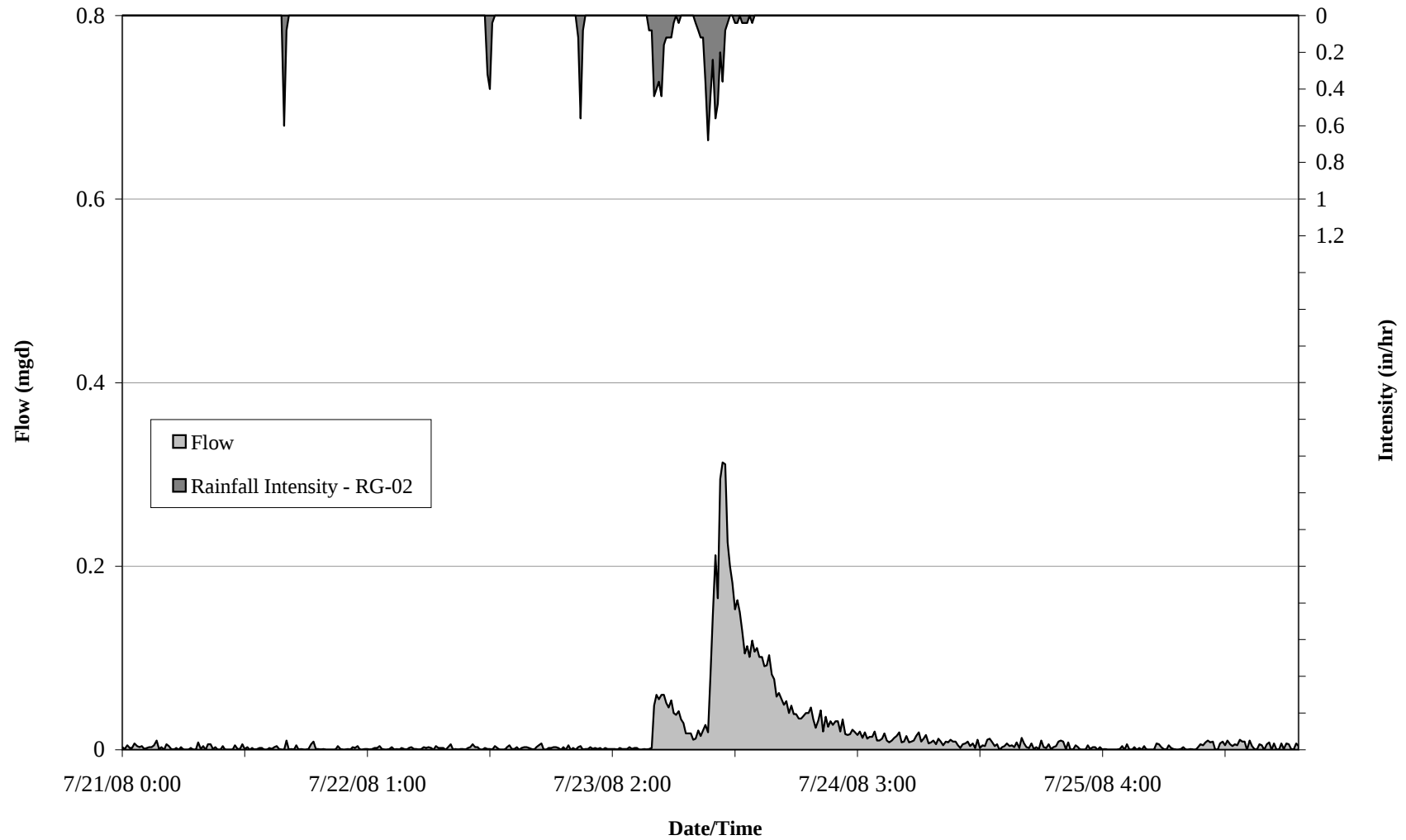
TB-12 (FM-3)
Sewage Flow and Rainfall Data
Town of Binghamton, NY



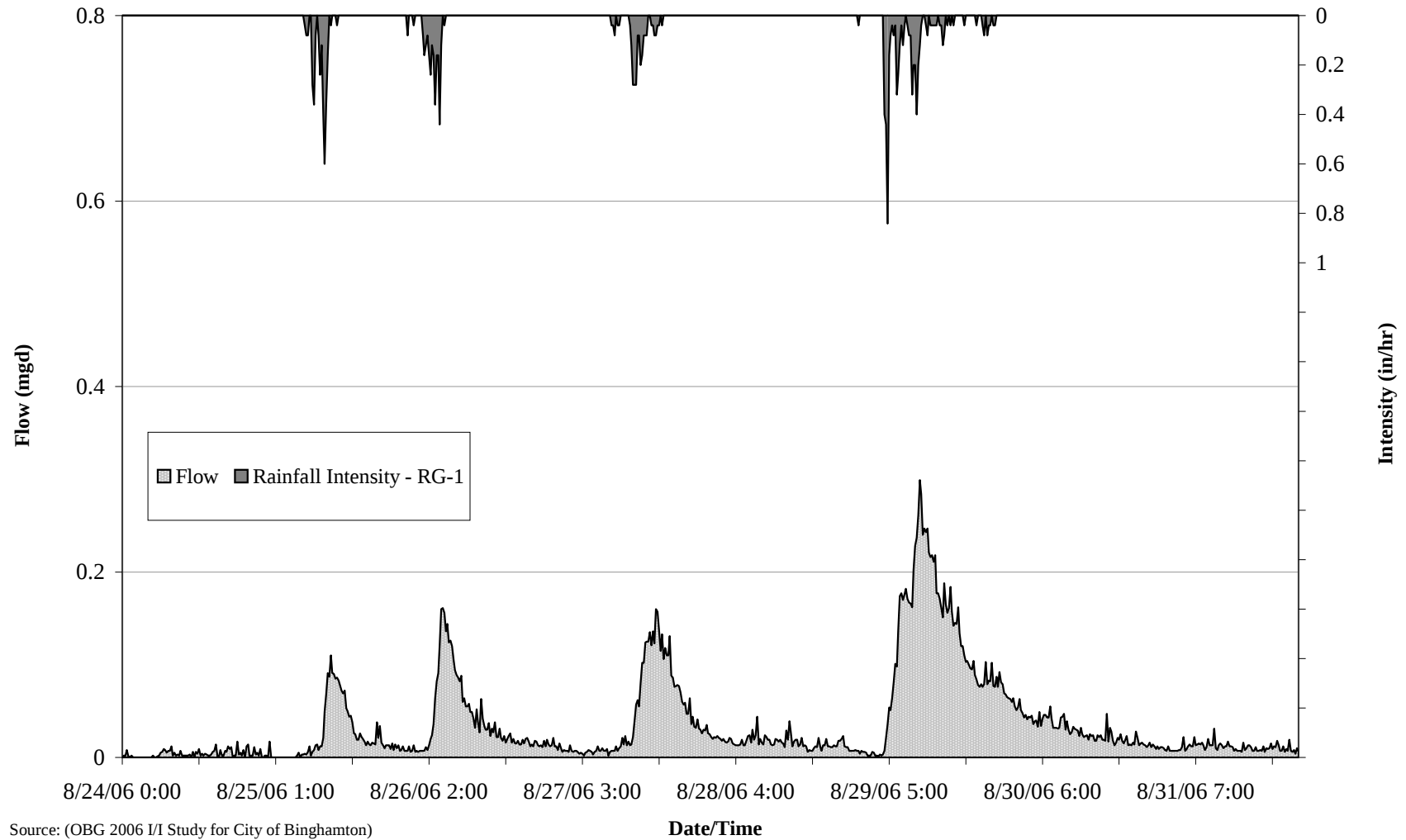
TB-6
Sewage Flow and Rainfall Data
Town of Binghamton, NY



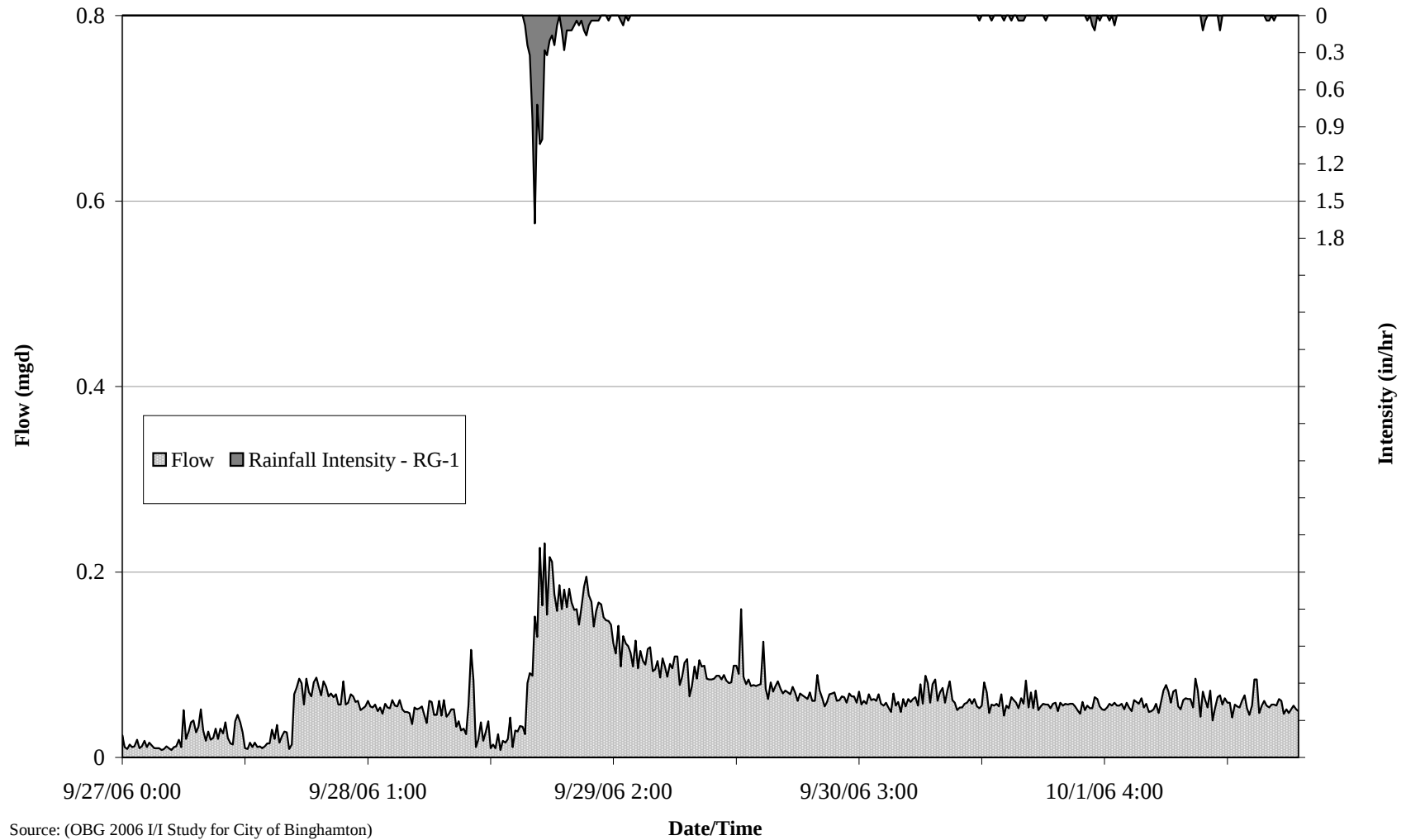
TB-5
Sewage Flow and Rainfall Data
Town of Binghamton, NY



TB-11 (FM-4)
Sewage Flow and Rainfall Data
Town of Binghamton, NY

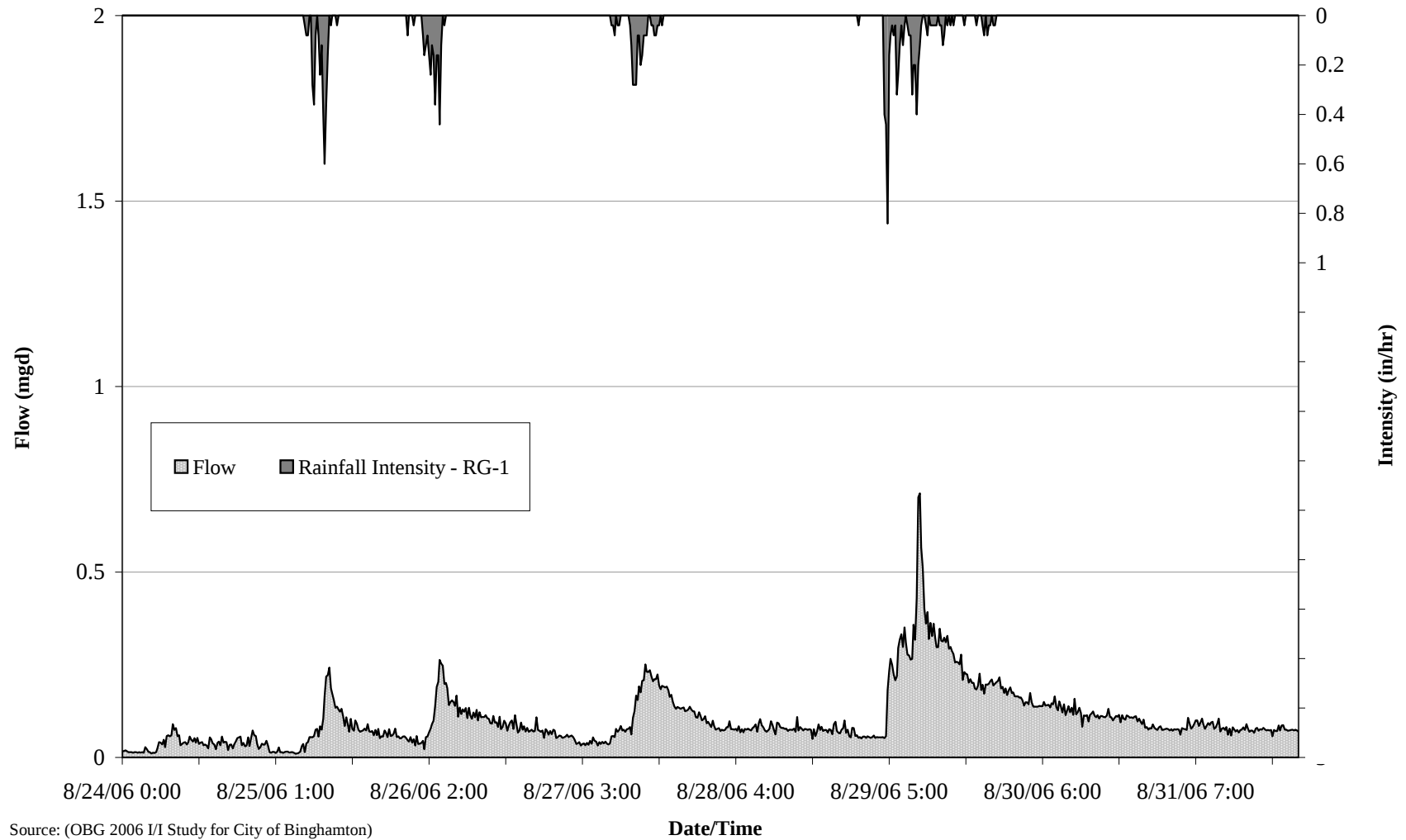


TB-10 (FM-12)
Sewage Flow and Rainfall Data
Town of Binghamton, NY

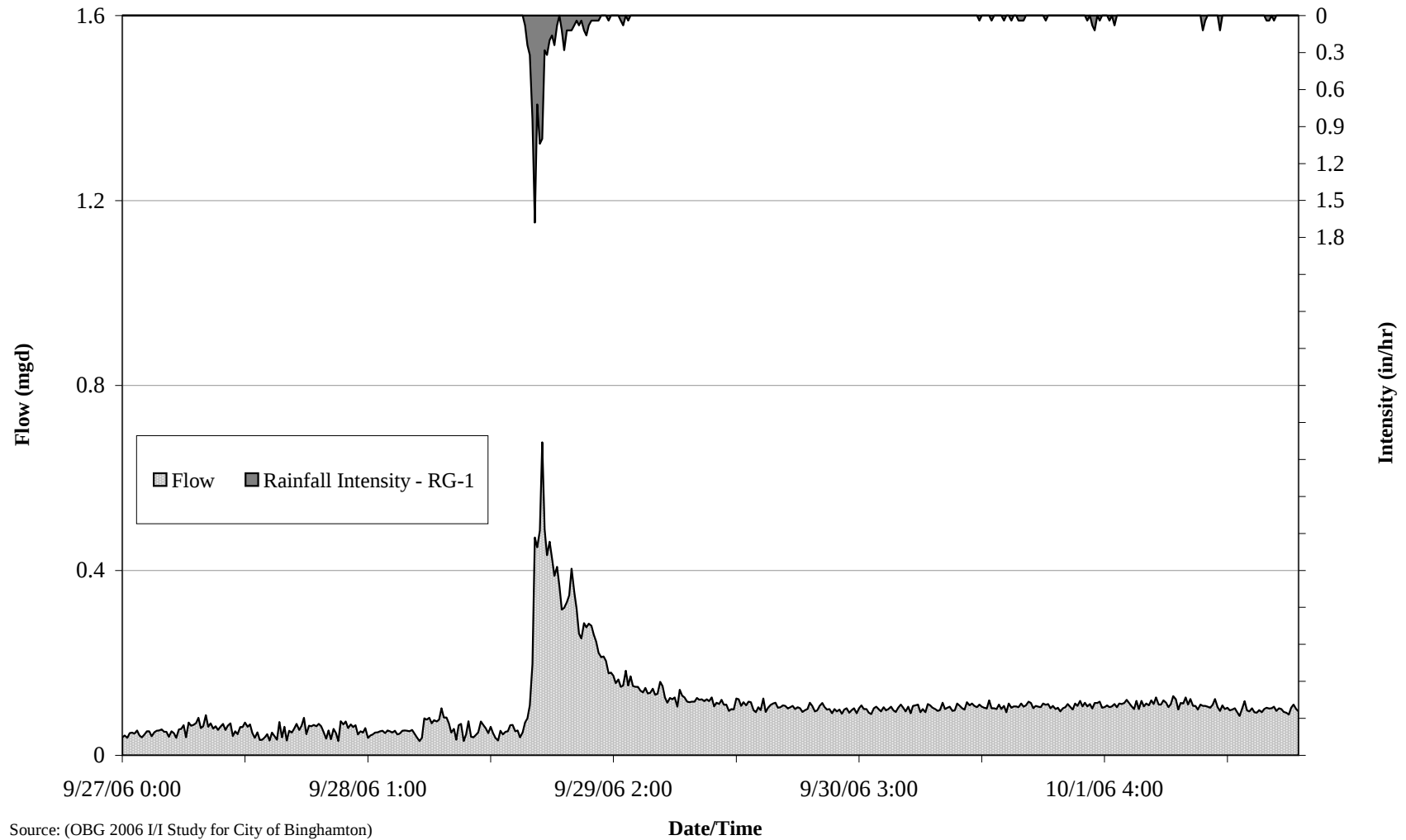


Source: (OBG 2006 I/I Study for City of Binghamton)

TB-9 (FM-5)
Sewage Flow and Rainfall Data
Town of Binghamton, NY

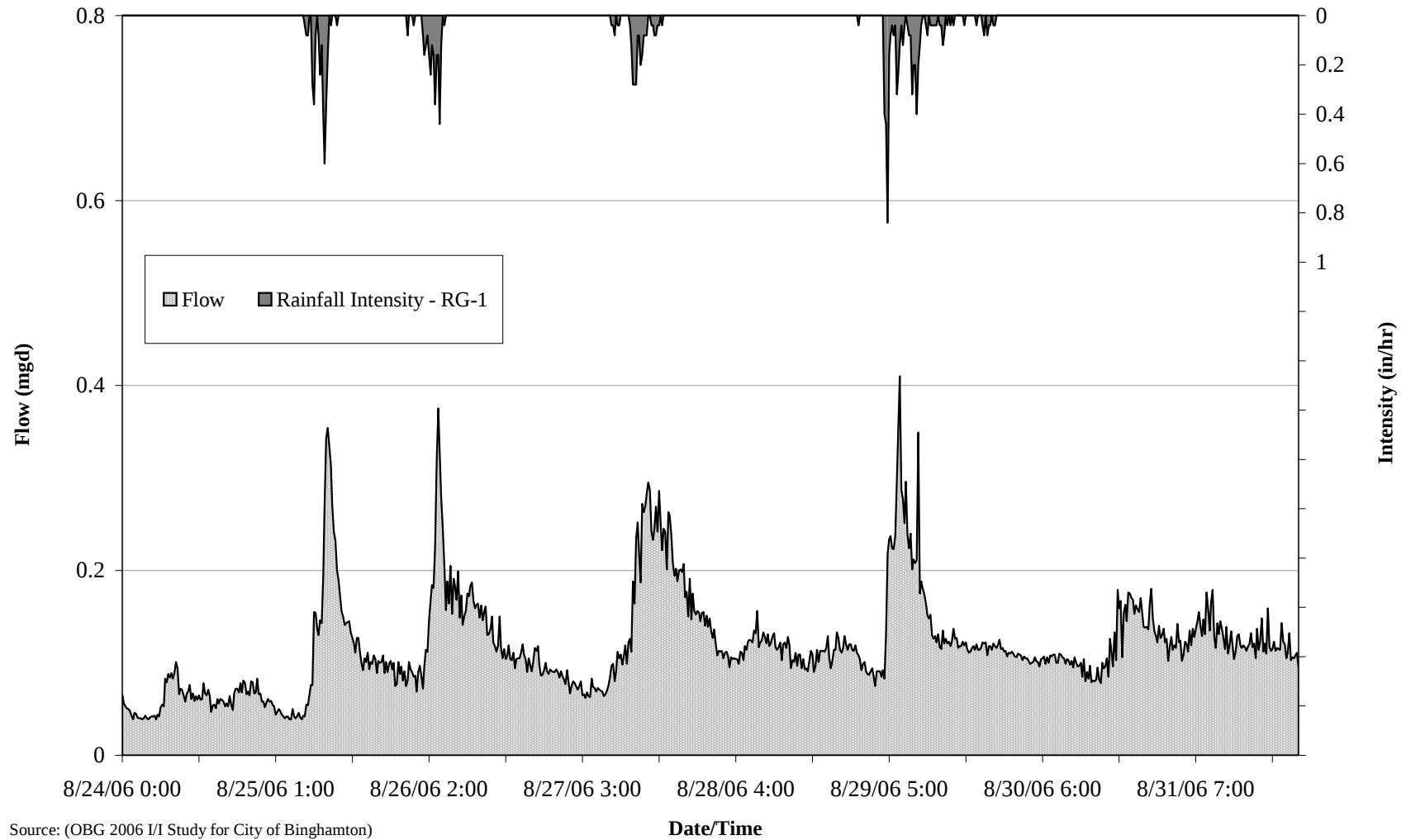


TB-8 (FM-11)
Sewage Flow and Rainfall Data
Town of Binghamton, NY



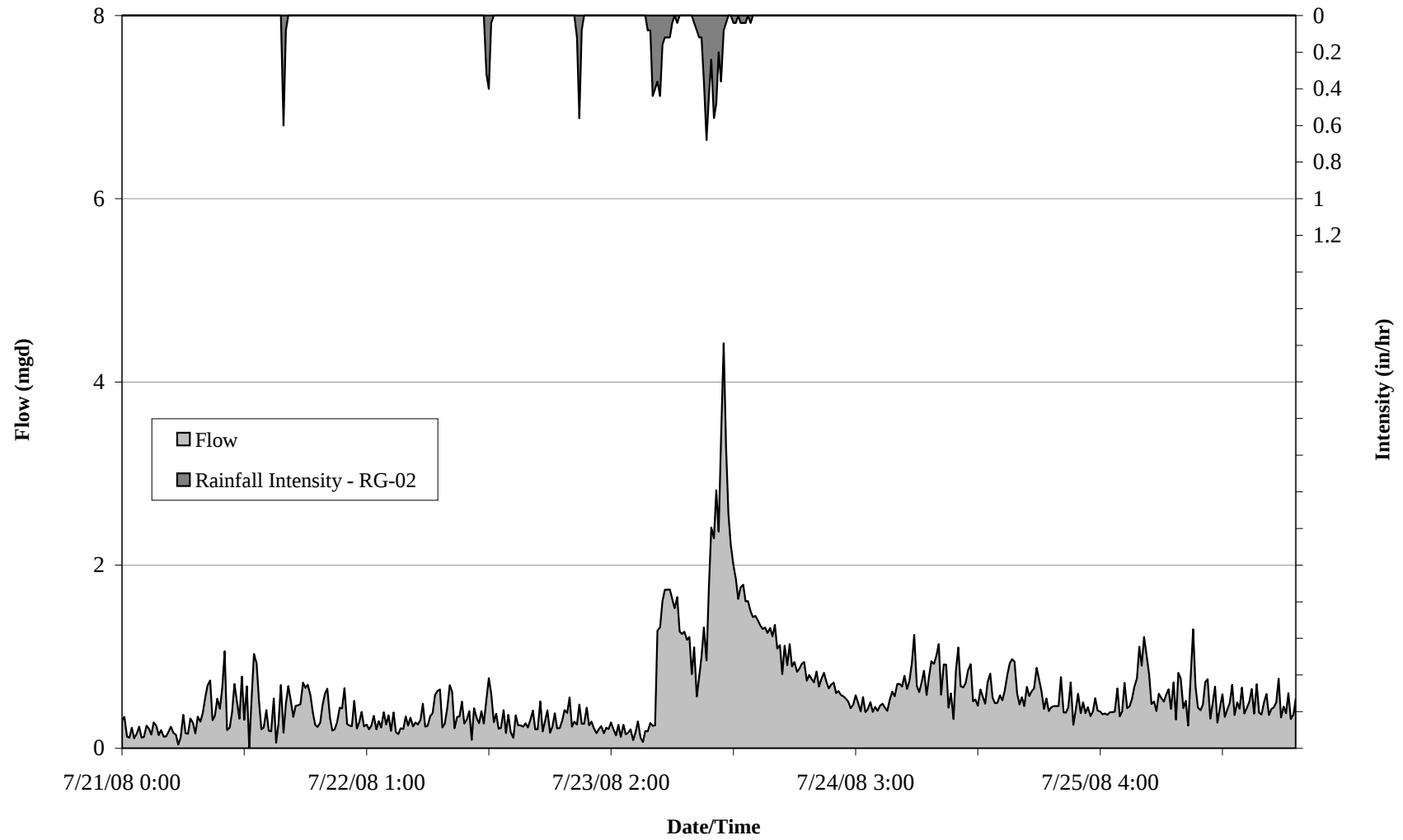
Source: (OBG 2006 I/I Study for City of Binghamton)

TB-7 (FM-6)
Sewage Flow and Rainfall Data
Town of Binghamton, NY

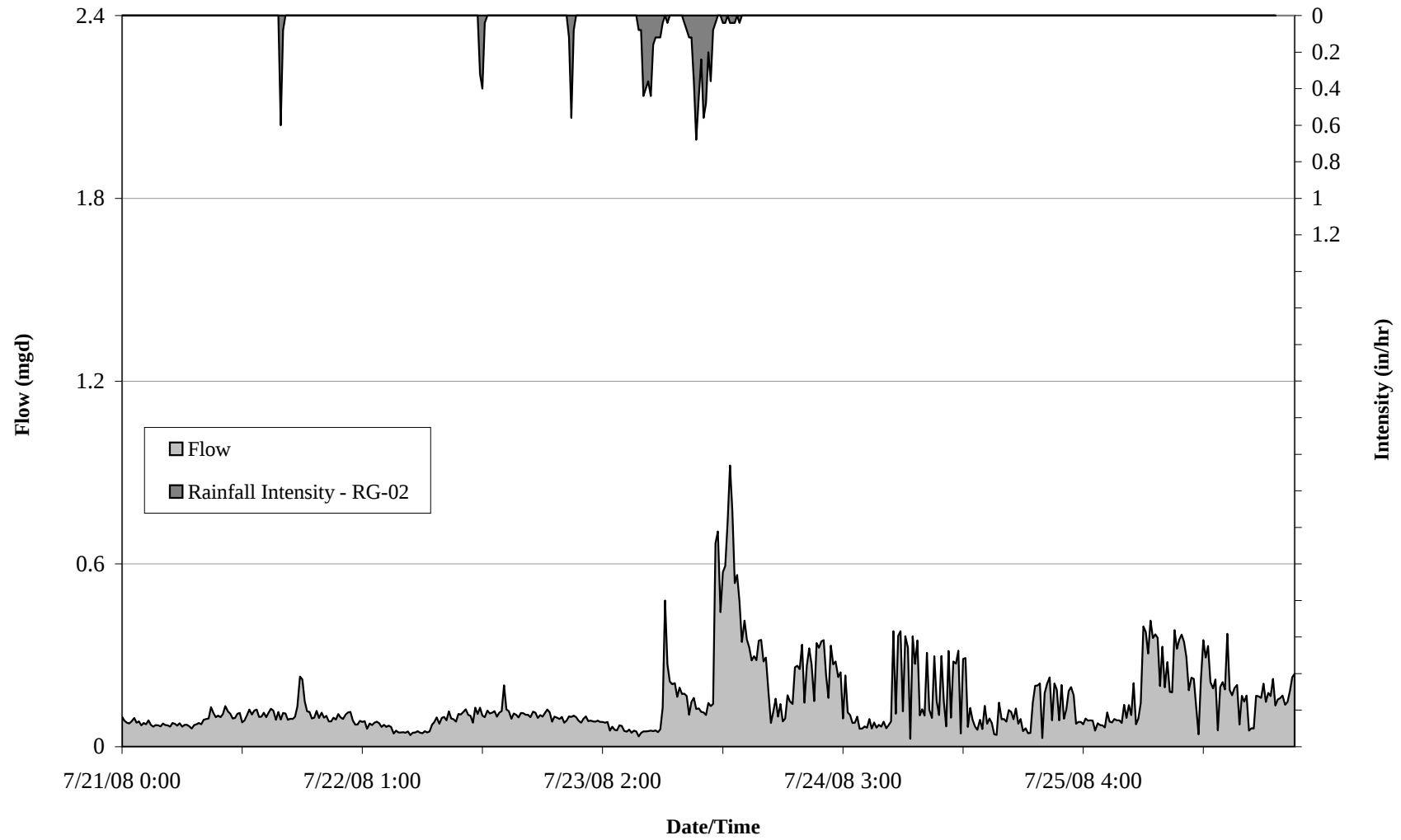


Source: (OBG 2006 I/I Study for City of Binghamton)

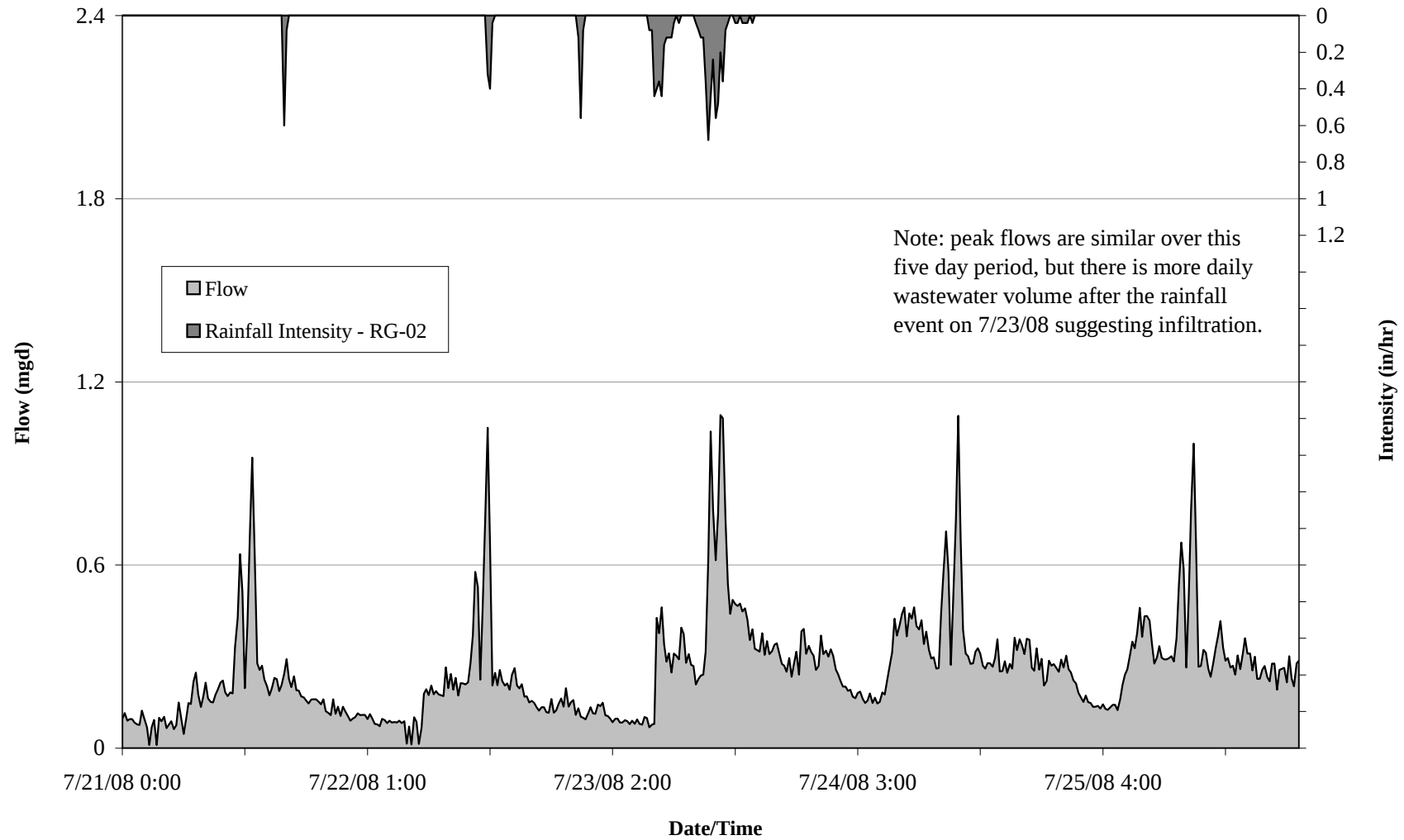
TV-3
Sewage Flow and Rainfall Data
Town of Vestal, NY



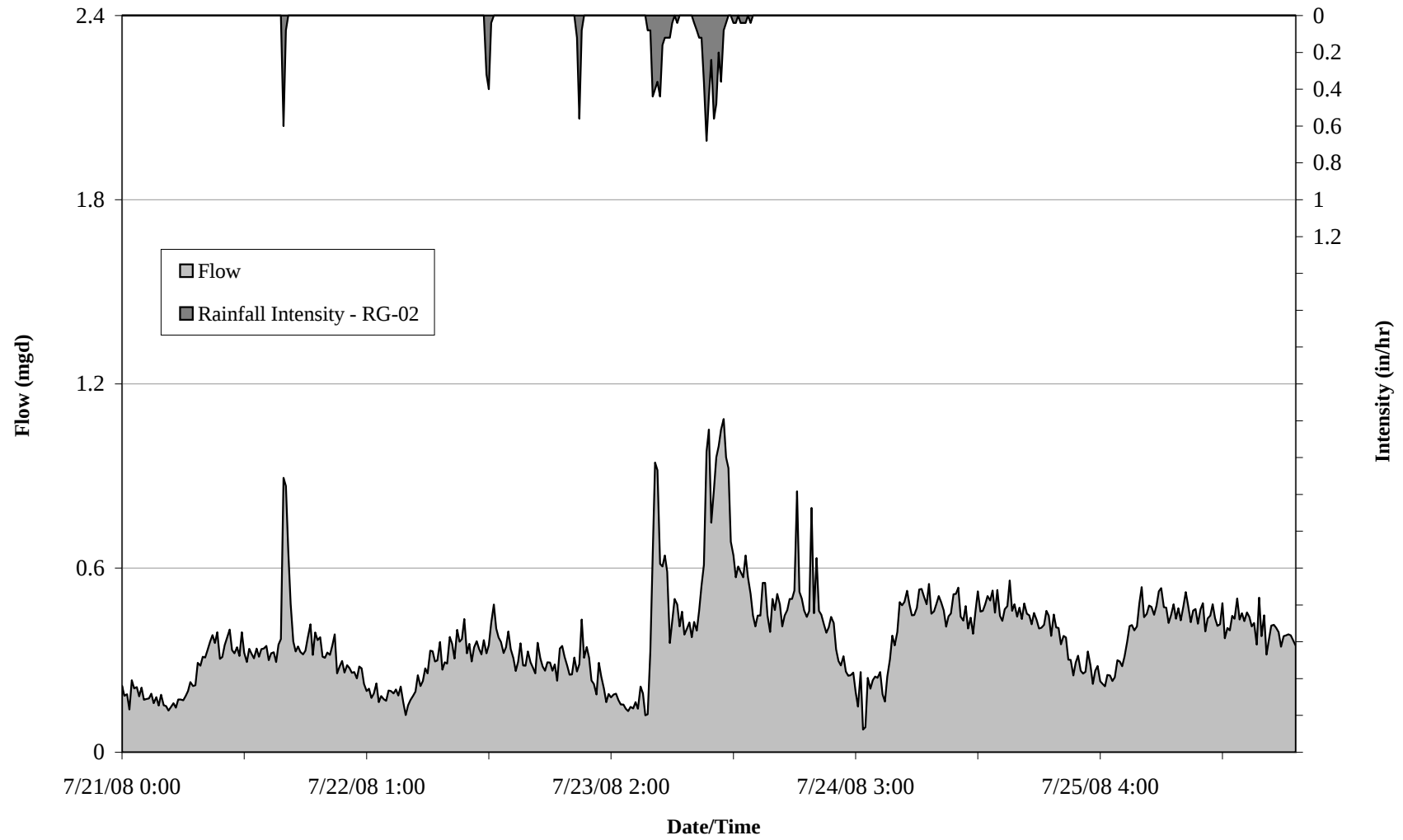
TV-5
Sewage Flow and Rainfall Data
Town of Vestal, NY



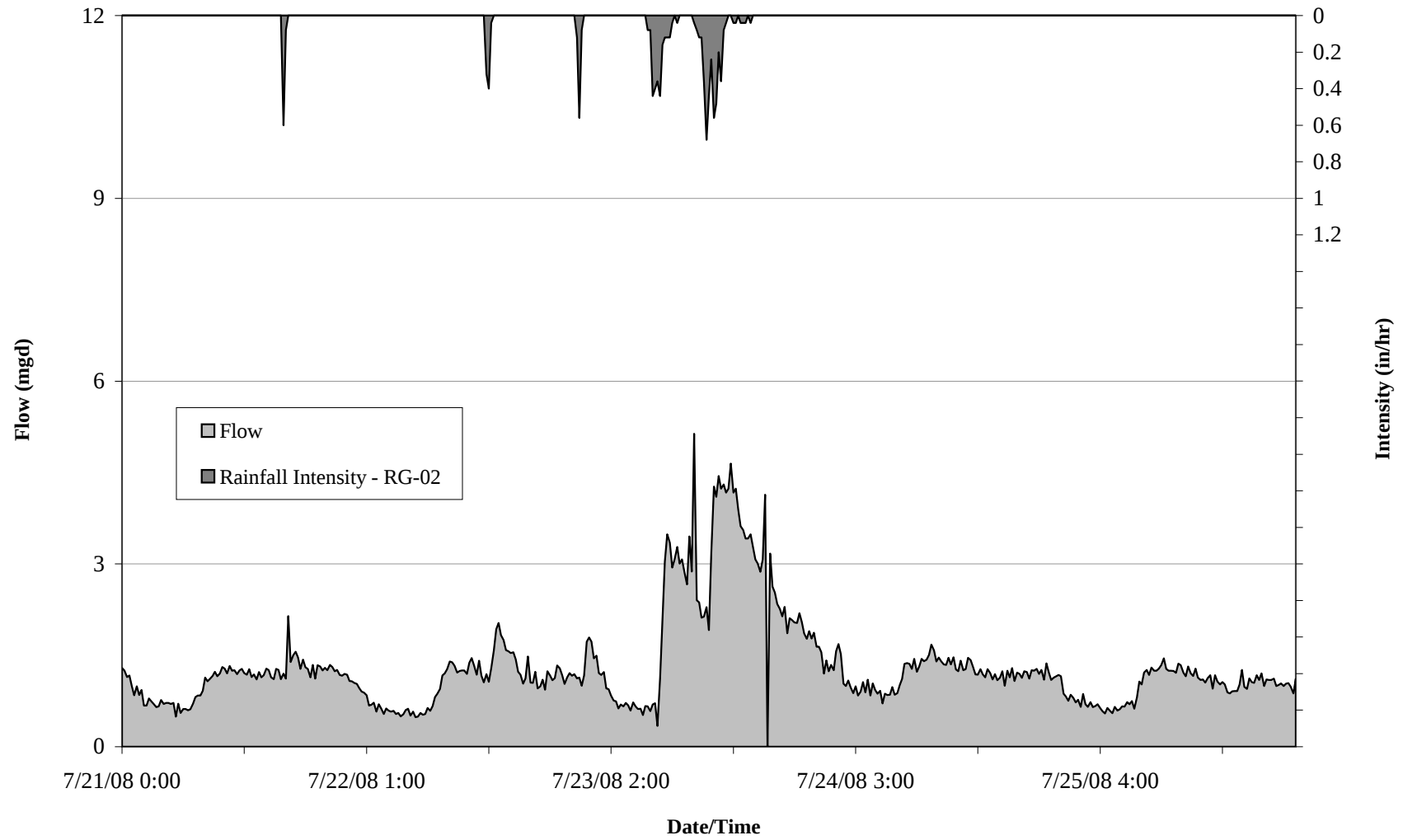
BU-2
Sewage Flow and Rainfall Data
Binghamton University, Vestal, NY



TV-6
Sewage Flow and Rainfall Data
Town of Vestal, NY



TV-1
Sewage Flow and Rainfall Data
Town of Vestal, NY





Appendix C

**New York State Department of Environmental Conservation
Division of Water, Region 7**

615 Erie Boulevard West, Syracuse, New York 13204-2400

Phone: (315) 426-7500 • Fax: (315) 426-7459

Website: www.dec.ny.gov



Alexander B. Grannis
Commissioner

October 14, 2009

Mr. Ed Crumb, Chair
Binghamton-Johnson City Joint Sewer Board
4480 Old Vestal Road
Vestal, New York 13850

Mayor Ryan and Common Council
City of Binghamton
38 Hawley Street
Binghamton, NY 13901

Mayor Hannon and Village Board
Village of Johnson City
243 Main Street
Johnson City, NY 13790

**RE: Binghamton Johnson City Joint STP
Flow Management Report**

Dear Mr. Crumb, Mayor Ryan, and Mayor Hannon:

The Department has reviewed the above referenced report as submitted on September 4, 2009. The report was required by the existing Fifth Modification Consent Order, No. R7-0580-90-12, executed May 9, 2009. The report is approved by Department.

Please be aware that per the referenced order, the Flow Management Plan is within 6 months of the date of Department approval of the Flow Management Report.

Please contact this office should there be any questions.

Sincerely,

Sandra Lizlovs, PE
Environmental Engineer II

cc: J. LaGorga, Stearns and Wheler GHD

New York State Department of Environmental Conservation

Division of Water, Region 7

615 Erie Boulevard West, Syracuse, New York 13204-2400

Phone: (315) 426-7500 • Fax: (315) 426-7459

Website: www.dec.ny.gov



Joe Martens
Commissioner

March 15, 2011

Mr. Ed Crumb, Chair
Binghamton-Johnson City Joint Sewer Board
4480 Old Vestal Road
Vestal, New York 13850

Mayor Ryan and Common Council
City of Binghamton
38 Hawley Street
Binghamton, NY 13901

Mayor Hannon and Village Board
Village of Johnson City
243 Main Street
Johnson City, NY 13790

**RE: Binghamton Johnson City Joint STP
Flow Management Process, Collection System Mapping Enhancement and Modeling Study**

Dear Chairman Crumb, Mayor Ryan and Mayor Hannon:

The Department has reviewed the above referenced study which was submitted as part of the existing Order on Consent, No. R7-0580-90-12

Based on our review of the study, it appears that the City and Village are currently in compliance with their Combined Sewer Overflow (CSO) Long Term Control Plans (LTCPs). The study indicates that there is sufficient dry weather capacity in the collection system to convey all tributary flows to the Binghamton Johnson City Joint STP. The study further shows that the plant is able to accept up to 60 MGD during wet weather events. This equates to at least 85% capture of wet weather flows.

The Department stresses that both the City and the Village must plan for the future and that both permittees must stay in compliance with their respective LTCPs. As such, the goal of this study and the final plan is to have these documents serve as planning tools for maintaining and operating the collection systems.

The Department believes that for Binghamton and Johnson City to remain in compliance with their respective LTCPs, both permittees will need to manage flows throughout the collection system, balancing future growth and expansion with wet weather flows and existing dry weather capacity. To accomplish this, the Department believes that at a minimum, the feasibility of implementing the following items must to be addressed in the final plan:

- Capacity, Management, Operations and Maintenance (CMOM) programs for Binghamton, Johnson City, and the satellite systems in accordance with the EPA's Guide for Evaluating Capacity, Management, Operation, and Maintenance" EPA 305-B-05-002 (January 2005);

- Prioritization and implementation of collection system repair and rehabilitation projects;
- Updated approval processes for new connections to ensure compliance with the LTCPs;
- Inflow/Infiltration (I/I) offsets as a condition for new sewer extensions and/or new users;
- Working with the satellite systems to prioritize and reduce I/I sources in the collection system.
- Revised Intermunicipal Agreements between the City, Village and the satellite systems to base sewer use rates on actual sewage flow in lieu of water meter readings;

The Department approves the January 2011 Flow Management Process, Collection System Mapping Enhancement and Modeling Study. As we noted above, the approved study and the final plan should be used by the permittees as a planning tool to balance future wet weather and dry weather flows in order to remain in compliance with the LTCP. The final plan must include implementation schedule which will become an enforceable part of all three SPDES permits (Village of Johnson City NY0023981; City of Binghamton, NY0024406; and Binghamton Johnson City Joint STP, NY0024414) once the plan is approved.

The Department is available should you wish to discuss this project and the scope of the final plan in greater detail. Please contact us if there are any questions.

Sincerely,



Sandra Lizlovs, PE
Environmental Engineer II

cc: D. Adelugba, NYSDEC
C. Aingworth, BJCJSTP
R. Bennett, (V) Johnson City
L. Day, (C) Binghamton
P. Krey, (C) Binghamton
J. LaGorga, GHD



Appendix D

PANNONE LOPES DEVEREAUX & WEST LLC

Tel 914 898-2400
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81 Main Street
Suite 510
White Plains, NY 10601

Memorandum

Date: August 9, 2011
To: Flow Management Work Group,
Binghamton-Johnson City Joint
Sewage Board;
John Lagorga, GHD Engineering
From: Teno A. West, Esq.
Bruce H. Tobey, Esq.
Lee D. Apotheker, Esq.

**Privileged and Confidential
Attorney Work Product**

Re: Binghamton-Johnson City Joint
Sewage Board

I. Introduction

We have been asked to provide an opinion on whether the Binghamton-Johnson City Joint Sewage Board (“the Board” or “BJCJSB”) possesses authority to require its Outside Users as well as the City of Binghamton and the Village of Johnson City (collectively, “The Owners”) to comply with flow control requirements which the Board may hereafter promulgate.

In formulating this opinion, we have reviewed all of the Outside User agreements that the Owners have entered since inception¹ and the Industrial Wastewater Discharge Permit issued by the Board to the State University of New York at Binghamton.² We have additionally reviewed the Intermunicipal Agreements (“IMA”) between the City of Binghamton and the Village of Johnson City, the Binghamton-Johnson City Joint Sewage Treatment Plant Law (“JSTP Law”), the Binghamton-Johnson City Joint Sewage Treatment Plant Rules and Regulations (“JSTP Rules and Regulations”) and the

¹ The Outside User agreements are comprised of the agreements between the Owners and the Town of Vestal and the Vestal Central School District, the Town of Kirkwood, the Village of Port Dickinson, the Town of Binghamton, the Town of Union (including Westover Sewer District, the GE Plant, and NYSEG’s Goudey Station), the Town of Dickinson, the Town of Conklin, and the Town of Fenton,

² A summary of the provisions of all of these Outside User agreements and the Industrial Wastewater Discharge Permit issued by the Board to the State University of New York at Binghamton is attached as Appendix A.

amendment thereto, and the Sewer Use Ordinances of the Owners and the Outside Users. Finally, we reviewed an excerpt of the Project Finance Agreement between the Board and the Owners and the New York State Environmental Facilities Corporation.

II. Discussion

a. The Outside User Agreements

Each of the Outside User agreements includes provisions which require the User to adopt a Sewer Use Ordinance. Furthermore, each agreement expressly requires that such Sewer Use Ordinance must be modified as required by the Board. Moreover, with the exception of the agreement with the Town of Vestal and the Vestal Central School District, every Outside User agreement includes a provision that specifically and additionally subjects the User to the rules and regulations of the Sewage Board and any amendments or modifications thereto and which contractually obligates the User to follow the rules and regulations of the Sewage Board. Several of the Outside User agreements do not cap the amount of wastewater that the User can discharge into the system³. However, the Owners' authority to amend the JSTP Law and the Board's authority to amend the JSTP Rules and Regulations and to require adherence and compliance with those amendments is paramount and allows the imposition of discharge limits that restrict the inclusion of Inflow and Infiltration ("I&I").

b. The Intermunicipal Agreements between the City of Binghamton and the Village of Johnson City

The conclusion stated above is not undercut by Section 13 of Appendix A of Intermunicipal Agreement No. 2 ("IMA No. 2") which indicates that the Users are bound to send all of their sewage to the JSTF while the Owners are bound to furnish sufficient facilities to treat and transport the sewage. Section 12 of Appendix A of IMA No. 2 states that "this agreement and the User shall be subject to... any and all applicable rules or regulations adopted by the BJCJSB and any amendments or modifications to such agreements, rules and regulations." As a result, the Board retains the authority to modify the rules and regulations. With the exception of the one agreement identified above, the Outside User agreements require the User to adhere to the rules and regulations and any modifications thereto. Modifying the rules and regulations is a power that is specifically enumerated in Section 12 of Appendix A of IMA No. 2, in Section 17(E) of IMA No. 1, and in each of the Outside User agreements.⁴

³ . The Outside User agreements which do not have caps on wastewater discharge are the Towns of Kirkwood, Union, Dickinson, Binghamton, and the Village of Port Dickinson.

⁴ Both the JSTP Law and JSTP Rules and Regulations include infiltration under the definition of wastewater. "Wastewater" is a term that is defined by the JSTP Law and the rules and regulations. Since flow control would restrict the amount of infiltration (as well as inflow) that can be discharged into the system, the Owners and the Board should consider modifying the definition of wastewater to exclude such types of water.

c. The State University of New York at Binghamton

Article 6 of the Binghamton-Johnson City Joint Sewage Treatment Plant Law vests the Board with the authority to regulate the discharge of anyone who admits industrial waste into the Joint Sewage Treatment Plant. BU discharges industrial wastes, and it is therefore required to comply with and be a participant in the Industrial Wastewater Discharge Permit to Pretreatment Program⁵. As a result, BJCJSB has issued an Industrial Wastewater Discharge Permit to BU “in compliance with Section 6.02 of the Rules and Regulations Relating to Use of the Binghamton-Johnson City Joint Sewage Treatment Plant.”

The Board currently has the authority to require BU to pay all sewer use charges that the Board levies upon it. Section O of BU’s permit states that “the Permittee shall pay its proportionate share of the costs and operation and maintenance and local debt retirement.” Furthermore, Section O states that “payments shall be made to the Joint Sewage Board by the industrial users no less often than annually. If there is a substantial change in the wastewater characteristics and flow rate introduced into the sewer system by an industrial user, such user’s industrial surcharge shall be adjusted accordingly.” Finally, Section 6.02 of the JSTP Law vests the Board with the Authority to both regulate the discharge and set fees for Industrial Users:

“(b) For any user discharging or proposing to discharge industrial wastewater directly or indirectly into the Joint Sewage Treatment Plant, the Board may: (2) Require the user to apply for and obtain an industrial wastewater discharge permits as a means of controlling the quantities and rates of discharge; (3) Require payment by the user to cover added cost of handling and treating the wastewater not covered by existing fees or charges; (9) Take such other measures as are necessary and proper to ensure compliance with this law, with applicable state and federal law, and with the Rules and Regulations of the Board.”

Section 6 of IMA No. 2, which contemplates the addition of Outside Users to the system, expressly contemplates that an Outside User is to be a municipal corporation, which BU is not. Therefore, it is doubtful that the Owners could negotiate an Outside User agreement with BU. Nevertheless, the existing arrangement allows the Board to enforce any flow control regulations that might be promulgated against BU.

⁵ Section 6.02(b)(9) of the JSTP Law allows the Board to require participants in the Industrial Wastewater Pretreatment Program to “take such other measures as are necessary and proper to ensure compliance with this law, with applicable state and federal law, and with the Rules and Regulations of the Board.” While the Federal Clean Water Act and 40 CFR 403.12 set out the minimum pretreatment standards required by Industrial Users, states and local municipalities can increase the rigor of those standards on Significant Industrial Users. See 40 CFR 403.4. Thus, the University is required to comply with the standards enacted by the Board in its R&Rs, including amendments which may be promulgated relating to flow control.

d. Renewal of Existing Outside User Agreements

With the exception of the Town of Vestal and the Vestal Central School District and the Town of Conklin⁶, each of the Outside User agreements specifies that upon expiration, the agreements are renewable at the option of the Owners for such additional time period as needed to pay debt service on the Joint Sewage Treatment Facility (“JSTF”).

The payment of debt service is currently ongoing. In May of 2010, the Owners and the Board entered Project Finance Agreements with the New York State Environmental Facilities Corporation (EFC) whereby bonds issued to fund necessary repairs, upgrades, and new construction to the treatment facilities. Section 5.4(D) of the finance agreement states that:

“the recipient and the Board shall revise from time to time and collect User fees with respect to this Project in accordance with the State Act in amounts such that revenues of the Recipient and the Board with respect to the operation of the Project shall be sufficient, together with other funds available to the Recipient and the Board for such purposes, to pay all costs of operating and maintaining this Project and to pay amounts due in respect of the Recipient Bonds.”

Since the Project Finance Agreement compels the Board to collect User fees to service the debt and the Outside Users are compelled to renew their agreements until debt service is complete, the Board can safely promulgate regulations without fear that the Outside Users will opt out of their agreements.

e. Other Considerations Arising from the EFC Project Finance Agreement

In §§2.1(X) and 2.2(S) of the Project Finance Agreements, the Owners and the Board respectively covenant that “except as disclosed to the Corporation in connection with the Recipient’s application for the Financing, the Recipient has not entered into any intermunicipal agreements or any other contract for the use, management or operation of the Project in connection with the Financing and does not intend to enter into any other intermunicipal agreements or any other contract for the use, management or operation of the Project.” Finally, Section 5.12 prohibits the Owners and the Board from renewing or amending intermunicipal agreements or Outside User agreements without giving written notification and receiving written consent.⁷

⁶ Conklin possesses the option to renew for such additional time as needed to pay the debt service on the Joint Sewage Treatment Facility. If Conklin wishes to let its agreement expire, it will have to find another system to discharge into. Vestal’s option must be exercised at least one year prior to the upcoming date of termination. The current agreement is set to terminate in April of 2013 which means that Vestal has until April of 2012 to opt out. Otherwise, the contract will automatically renew for another five year period.

⁷ If the EFC does not give consent within 60 days of notification, it is deemed granted.

Although the Owners need consent from the EFC to amend or renew the existing Outside User agreements or to enter into new ones, a practical consideration should insure that the Owners will receive such consent: the EFC wants to get its money back, and there is no benefit to the EFC in denying the Owners permission to take such actions, which would result in the successful servicing of its debt. Similarly, the EFC's stated purpose is:

“to help public and private entities comply with federal and State environmental protection and quality requirements in a cost effective manner that advances sustainable growth. We promote innovative environmental technologies and practices in all of our programs... EFC promotes water efficiency to our client communities to help reduce the costs of water and wastewater infrastructure and is a partner with US EPA's WaterSense Program.”⁸

Since amending or renewing the agreements, entering new agreements, and amending the Rules and Regulations are consistent with this purpose, the EFC should have no objections.

III. Conclusion

For all of the reasons stated above, in the opinion of the authors of this memorandum, flow control regulations which are enforceable against all of the Outside Users, the Owners, and BU can be promulgated. The simple and effective way to promulgate flow control requirements is for the Owners to amend the JSTP Law and the JSTP Rules and Regulations. In the case of BU, The Board must amend the Industrial User permit.

The foregoing is delivered to you solely for the benefit of the Binghamton-Johnson City Joint Sewage Board and that of the Board's permitted assignees as a party to such transactions in connection with the enactment of flow control regulations. This opinion may not be used or relied upon by any other person. Our opinions herein are limited to matters expressly set forth in this opinion letter, and no opinion is to be implied or may be inferred beyond the matters expressly so stated. We disclaim any obligations to update this opinion for events occurring after the date hereof.

⁸ <http://www.nysefc.org/AboutUs.aspx>

APPENDIX A TO THE OPINION LETTER

Important Terms of Outside User Agreements

Town of Vestal and the Vestal Central School District

- Time Frame
 - o The agreement was entered in April 1968.
 - o The agreement self extends for 5 five year terms unless the CEO of any party delivers written notice of its intention to terminate at least one year before expiration.
 - o The current extension expires in April of 2013, so unless written notice is given by April 23, 2012, the agreement will not expire again until April 2018.
- Flow Guarantees
 - o Minimum 2 million GPD (does not include sanitary sewage from SUNY Binghamton)
 - o Owners (BJCSB) agree to receive/dispose of all sewage from existing and future sewer districts within the Town
- Agreed Acceptance Points
 - o Both the Town and the CSD agree to deliver its sewage to the JSTF
- Charges
 - o Based on total flow including I&I
 - o Sewer rents are based on dry weather flows
- User covenants to:
 - o Deliver **all** sewage discharged to Town sewers to the JSTF
 - o Pay rent to Sewage Board in accordance with Board's rules and regulations
 - o Estimate sewage discharge of properties obtaining water from other than public water supply.
 - o **Adopt sewer use ordinance and modify as required by Sewage Board**
- Miscellaneous
 - o Host agreement grants BJCSB a property tax exemption
 - o Agreement is non-assignable absent prior written approval of other parties

Town of Kirkwood

- Time Frame
 - o Entered in December 1968, amended in April 1972 and again in March 1973
 - o MOU between the Town and BJCSB in August of 1985
 - o Option to renew is held by Owner for such additional time period as needed to pay debt service on the JSTF
 - o Agreement continues until December 12, 2012, and may be renewed at the option of the Owners for such additional time period as may be required for payment of any debt service payments for capital improvements required to convey, pump, or treat sewage and industrial wastes constructed in accordance with the requirements of Paragraph 8 of the 12/20/1968 agreement.
- Flow Guarantees
 - o No numerical limit
 - o Up to 700 GPM into Conklin Ave. (N.Y. Route 7) Sewer
 - o If flow is greater, up to 1,280 GPM into Bond Street sewer **BUT** if this occurs, Owners agree to receive/dispose of sewage from the sewer system of User **AND** from any such addition to the sewer system within the Town
- Charges
 - o Based on total flow including I&I
 - o Sewage treatment charges based on dry weather flows
 - o 1972 amendment provides that User will install sewer meter at its cost and all billings thereafter will be based on actual measured flow

* - Although the 1972 amendment to the Town of Kirkwood's Outside User Agreement with the Owners (City of Binghamton and Village of Johnson City) provides that User will install a sewer meter at its cost and all billings thereafter will be based on actual measured flow, by motion adopted at its January 14, 2003 regular meeting, the Sewage Board approved that -- starting in 2003 -- the Town of Kirkwood would be permitted to measure and report its wastewater flow for billing purposes based on "dry weather flow", which has been the practice followed since that time. There is no documentation available indicating that the Owners either amended their agreements with the Town of Kirkwood or ratified the action taken by the Sewage Board; however, minutes of the January 14, 2003 Sewage Board meeting reflect that Sewage Board Co Counsel Robert C. Murphy, Esq. advised the Sewage Board that it had authority to adopt the motion passed.

- Agreed Acceptance Points
 - o Conklin Ave. or Bond St. and such other points as may be mutually agreed upon
 - o 1972 amendment adds new connection point into City's Court St. Interceptor Sewer (just west of Alice St. railroad overpass)
- User covenants
 - o Furnish for treatment all sewage originating with User's boundaries
 - o Pay quarterly sewage treatment charges to the Sewage Board as determined by the formulae and in accordance with Sewage Board
 - o **Adopt sewer use ordinance and modify as required by Sewage Board**
- Miscellaneous
 - o Owner's agree that for life of agreement, they must furnish sufficient facilities for treatment of User's furnished sewage
 - o **User is subject to rules and regulations of the Sewage Board and any amendments and modifications thereto**

Village of Port Dickinson

- Time Frame
 - o Entered in April 1968
 - o Expires December 2012
 - o Renewable at option of Owner for such additional time period as needed to pay debt service on the JSTF
- Flow Guarantees
 - o No numerical limit
 - o Owners agree to dispose of all sewage from the sewer system of user
- Charges
 - o Based on dry weather flows
- Agreed Acceptance Point
 - o 18" sewer main of City at intersection of Chenango and Bevier (County Road 145) Streets
- User covenants
 - o Furnish for treatment all sewage originating within User's boundaries
 - o Pay quarterly sewage treatment charges to Sewage Board as determined by Board in accordance with Rules and Regulations of Board
 - o **Adopt sewer use ordinance and modify as required by Sewage Board**
- Miscellaneous
 - o Owners agree that for the life of the agreement, they must furnish sufficient facilities for treatment of User's furnished sewage
 - o **User is subject to rules and regulations of the Sewage Board and any amendments and modifications thereto**

Town of Binghamton

- Time frame
 - Entered in September 1968
 - Expires December 2012
 - Renewable at option of Owner for such additional time period as needed to pay debt service on the JSTF
- Flow Guarantees
 - No numerical limit
 - Owners agree to dispose of all sewage from the sewer system of user
- Charges
 - Based on dry weather flows
- Agreed Acceptance Point
 - At points “presently used” and additional points as approved by the City Engineer
- User covenants
 - Furnish for treatment all sewage originating within User’s boundaries
 - Pay quarterly sewage treatment charges to Sewage Board as determined by Board in accordance with Rules and Regulations of Board
 - **Adopt sewer use ordinance and modify as required by Sewage Board**
- Miscellaneous
 - Owners agree that for the life of the agreement, they must furnish sufficient facilities for treatment of User’s furnished sewage
 - **User is subject to rules and regulations of the Sewage Board and any amendments and modifications thereto**

Town of Union

- Time frame
 - o Entered into in December 1969
 - o Expires December 2012
 - o Renewable at option of Owner for such additional time period as needed to pay debt service on the JSTF
- Flow Guarantees
 - o No numerical limit
 - o Owners agree to dispose of all sewage from the sewer system of user
- Charges
 - o Based on dry weather flows
- Agreed Acceptance Point
 - o Endwell and Evelyn Streets in Village (Adjacent to N.Y. Route 17C in Johnson City)
 - o Binghamton-Johnson City-Lestershire Trunk Sewers into Riverside Drive (NY Route 201) on the west boundary of the Village
- User covenants
 - o Furnish for treatment all sewage originating with User's boundaries
 - o Pay quarterly sewage treatment charges to Sewage Board as determined by Board in accordance with Rules and Regulations of Board
 - o **Adopt sewer use ordinance and modify as required by Sewage Board**
- Miscellaneous
 - o Owners agree that for the life of the agreement, they must furnish sufficient facilities for treatment of User's furnished sewage
 - o **User is subject to rules and regulations of the Sewage Board and any amendments and modifications thereto**
 - o This agreement includes the Westover Sewer District, the General Electric Plant, and NYSEG's Gouday Station, which are all within the Town's borders

Town of Dickinson

- Time frame
 - o Entered into in May 1982
 - o Expires December 2012
 - o Renewable at option of Owner for such additional time period as needed to pay debt service on the JSTF
- Flow Guarantees
 - o No numerical limit
 - o Owners agree to dispose of all sewage from the sewer system of user
- Charges
 - o Based on dry weather flows
- Agreed Acceptance Point
 - o At points “presently used” and additional points as approved by the City Engineer
- User covenants
 - o Furnish for treatment all sewage originating within User’s boundaries
 - o Pay quarterly sewage treatment charges to Sewage Board as determined by Board in accordance with Rules and Regulations of Board
 - o **Adopt sewer use ordinance and modify as required by Sewage Board**
- Miscellaneous
 - o Owners agree that for the life of the agreement, they must furnish sufficient facilities for treatment of User’s furnished sewage
 - o **User is subject to rules and regulations of the Sewage Board and any amendments and modifications thereto**

Town of Conklin

- Time Frame
 - Entered into in May 1983, amended in November 1990
 - Expires December 2012
 - Renewable at option of **USER**, for such additional time as needed to pay debt service to JSTF
- Flow guarantees
 - Not to exceed 320,000 GPD average daily flow (Note: no specified time period to compute average)
 - Not to exceed 120,000 GPD infiltration **BUT** with total peak hourly flow not to exceed 1,040 GPM
- Charges
 - Based on total flow (including I&I)
 - Sewage treatment charges based on dry weather flows AND surcharge added (1990 amendment)
- Agreed Acceptance Points
 - At points “presently used” (amendment deletes provision for additional points as approved by the City Engineer)
- User covenants
 - Furnish for treatment all sewage originating with User’s boundaries
 - Pay quarterly sewage treatment charges to Sewage Board as determined by Board in accordance with Rules and Regulations of Board
 - **Adopt sewer use ordinance and modify as required by Sewage Board**
- Miscellaneous
 - Owners agree that for the life of the agreement, they must furnish sufficient facilities for treatment of User’s furnished sewage
 - **User is subject to rules and regulations of the Sewage Board and any amendments and modifications thereto**
 - Section 16 contains restrictions on connecting undeveloped properties or expanding developed portions of presently connected properties located in Wetlands or within 100-year floodplain unless approved in writing by the USEPA Regional Administrator
 - Section 4C of 1990 Amendment expands the Town’s service area to include Broome Corporate Park (near intersection of I-81 and NY 17/I-86)

Town of Fenton

- Time frame
 - o Entered into in December 1985
 - o Expires December 2012
 - o Renewable at option of Owner for such additional time period as needed to pay debt service on the JSTF
- Flow Guarantees
 - o Not to exceed 125,000 GPD average daily flow (Note: no specified time period to compute average)
 - o Total peak hourly flow not to exceed 150 GPM
- Charges
 - o Based on dry weather flows
- Agreed Acceptance Point
 - o Not specified (Town does not border either owner)
- User covenants
 - o Furnish for treatment all sewage originating within User's boundaries
 - o Pay quarterly sewage treatment charges to Sewage Board as determined by Board in accordance with Rules and Regulations of Board
 - o **Adopt sewer use ordinance and modify as required by Sewage Board**
- Miscellaneous
 - o Owners agree that for the life of the agreement, they must furnish sufficient facilities for treatment of User's furnished sewage
 - o **User is subject to rules and regulations of the Sewage Board and any amendments and modifications thereto**

State University of New York at Binghamton

The University holds an Industrial Wastewater Discharge Permit issued by the BJCJSB. As a Significant Industrial User, the University is obligated to participate in the Industrial pre-treatment program. The Clean Water Act and 40 CFR 403.12 set out the minimum pretreatment standards required. States and local municipalities can increase the standards on SIU's. See 40 CFR 403.4

- Time Frame
 - o Effective February 2010
 - o Expires January 2013
- Flow requirements
 - o No minimum or maximum GPD
 - o Effluent Limitations as defined in Article 5.07 of the Rules and Regulations
- Charges
 - o Calculated by the formula stated in Article 7, Section 7.03 of the Rules and Regulations
 - o Also required to pay its proportionate share of the costs of operation and maintenance and local debt retirement of the treatment facility.
- Agreed acceptance Points
 - o Not specified

APPENDIX B TO THE OPINION LETTER

Selected Sections of the Sewer Use Laws of the Users

City of Binghamton

§342-2 Definitions

Wastewater - The water-carried domestic, human or animal waste from residences, buildings, industrial establishments or other places, together with such ground infiltration, industrial and commercial wastes as may be present

Unpolluted Water - Water to which no constituent has been added, either intentionally or accidentally, which would render such water unacceptable to the agency having jurisdiction thereof for disposal to storm or natural drainages or directly to surface waters.

§342-3 Purpose

The purposes of this chapter are as follows:

- A. To control discharges into the public sewers of the City of Binghamton public sewer system or tributaries thereto, including the Binghamton-Johnson City Joint Sewage Treatment Plant.
- B. To prohibit the discharge of: (1) Excessive volumes and/or inordinate rates of flow into the City of Binghamton public sewer system;
- D. To provide the authority for the Binghamton-Johnson City Joint Sewage Board to exercise regulatory control over users discharging industrial wastes into the City public sewer system.
- G. To enforce promulgated final standards and/or procedures set by the New York State Department of Environmental Conservation or the United States Environmental Protection Agency.

§342-8 Inspections

A. The City Engineer, the Joint Sewage Board, and other authorized representatives of the City and representatives of the EPA and DEC bearing proper credentials and identification shall be permitted to enter all properties at all reasonable times for the purpose of inspection, observation, sampling, flow measurement and testing to ascertain a user's compliance with applicable provisions of federal, state and local law governing use of the City public sewer system and with the provisions of the rules and regulations of the Board. Such representatives shall have the right to set up on the user's property such devices as are necessary to conduct sampling or flow measurement. Such representatives shall additionally have access to, and may copy, any records the user is required to maintain under applicable law or the rules and regulations of the Board.

§ 342-16. New connections

No new connections shall be made to the sewer system of the City without a written permit issued by the City Engineer. Applications shall be made on a form supplied by the City Clerk. No connection from a residential structure shall be granted without the approval of the City Engineer. No connection from any building or structure discharging other than sanitary waste shall be granted without the approval of the City Engineer and the Binghamton-Johnson City Joint Sewage Board. All connections to a sewer shall be made under the direction of, and be subject to the approval of, the City Engineer and shall conform in all respects with applicable requirements of the City Plumbing Code.

§342-23. Stormwater and other unpolluted water prohibited.

A. No person shall discharge or cause to be discharged any stormwater, swimming pool water, surface water, roof runoff, subsurface drainage, uncontaminated cooling water or unpolluted industrial process waters to any sanitary or combined sewer, unless specifically authorized by the City Engineer. All stormwater, surface water, roof runoff, subsurface drainage, uncontaminated cooling water or unpolluted industrial process water all be discharged to storm sewers, or to any natural watercourse approved by the City Engineer. All existing connections to a sanitary or combined sewer of any stormwater, swimming pool water, surface water, roof runoff, subsurface drainage, uncontaminated cooling water or unpolluted industrial process waters shall be removed from the sewer within 60 days from the service of a written notice by the City Engineer to disconnect from the sewer.

§ 342-24. Prohibited discharges

A. No person shall discharge, directly or indirectly, in the City public sewer system, or into any private sewer emptying into the City public sewer system, any substances, materials, waters or wastes in such quantities or concentrations which cause or are capable of causing, either alone or by interaction with other substances, interference with the operation or performance of the City public sewer system or the Joint Sewage Treatment Plant; or which pass through the Joint Sewage Treatment Plant inadequately treated. These general prohibitions and the specific prohibitions of Subsection B of this section apply to all users of the City public sewer system whether or not the user is subjectt to any other local, state or federal requirements governing use of the City public sewer system.

B. No person shall discharge the following into the City public sewer system: (13) Any substance, materials, waters or wastes of such nature or in such quantities or

Village of Johnson City

§ 222-1. Definitions

Sewage - Includes the water-carried human or animal wastes from residences, buildings, industrial establishments or other places, together with such groundwater infiltration and surface water as may be present. The admixture with sewage, as above defined, of industrial waste or other wastes, as hereinafter defined, also shall be considered "sewage" within the meaning of this Part 1.

Part 2, Joint Sewage Treatment Plant [12-18-1984 as L.L. No. 11-1984 (Subpart T of Part I of the 1973 Code)]

ARTICLE II, Title; Policy; Purpose; Applicability

§ 222-9. Applicability.

The provisions of this Part 2 **shall apply to all users of the Binghamton-Johnson City Joint Sewage Treatment Plant**. Municipal users shall be governed by the provisions of their individual contract with the owners and by the rules and regulations of the Joint Sewage Board and shall, except as specifically provided hereinafter, be exempt from the coverage of this Part 2.

ARTICLE III, Definitions

§ 222-10. Definitions; word usage.

Wastewater - The water-carried domestic, human or animal waste from residences, buildings, industrial establishments or other places, together with such ground infiltration, industrial and commercial wastes as may be present.

ARTICLE IV, Joint Sewage Board

§ 222-13. Additional powers, duties and functions.

A. In addition to any other powers, duties and responsibilities previously conferred upon it, the Joint Sewage Board shall have administrative responsibility for implementing, effectuating and enforcing on behalf of the city (village) all requirements necessary to ensure compliance with this Part 2, with the terms and conditions of the SPDES permit issued for the sewage treatment plant and with the industrial waste pretreatment program developed and approved for the sewage treatment plant.

B. To carry out its responsibilities under this Part 2, the Joint Sewage Board

- (1) From time to time, adopt, amend or cancel administrative rules and regulations, not inconsistent with the provisions of this Part 2, governing the use of the sewage treatment

plant and the procedure to be followed with respect to hearings, filing of reports, the issuance of permits and all other procedural matters relating to the use of the plant and any public sewer served by the plant. Such rules and regulations, before becoming effective, shall be approved by the Common Council (Village Board of Trustees).

(4) Make, modify or cancel orders requiring the discontinuance of the discharge of wastewater into any public sewer served by the sewage treatment plant and specifying the conditions and time within which such discontinuance must be accomplished.

(6) Issue or deny permits under such conditions as may be prescribed for the prevention and abatement of pollution, for the discharge of industrial wastewater into any public sewer served by the Binghamton-Johnson City Joint Sewage Treatment Plant; and fix reasonable charges and fees for such permits.

(7) Revoke, suspend or modify any wastewater discharge permit issued under the provisions of this Part 2 whenever, after hearing thereon, the Board determines that such revocation, suspension or modification is necessary or desirable to comply with the intent and purpose of this Part 2; provided, however, that the hearing required under this subsection may be waived, in writing, by the applicant or permittee.

(11) Accept and assume from participating municipalities such powers and functions as are necessary, convenient and proper for enforcing its rules and regulations within such municipalities.

(12) Promote, develop, encourage and assist in the formulation of appropriate sewer use laws by

municipalities which directly or indirectly discharge municipal wastewater into the sewage treatment plant; and cooperate with the appropriate agencies of such municipalities with respect to matters having impact on the sewage treatment plant.

(13) Perform such other and further acts as may be necessary, proper or desirable to carry out effectively the duties and responsibilities prescribed in the provisions of this Part 2.

§ 222-19. Adoption and amendment of rules and regulations.

The Joint Sewage Board prior to the adoption, amendment or repeal of any rule or regulation shall:

A. Publish notice at least ten (10) days prior to the intended action. Notice shall include a statement of either the terms or substance of the intended action or a description of subjects and issues involved, the time and place of the hearing and the manner in which interested persons may present their views.

B. Afford all interested parties reasonable opportunity to submit data, views or arguments, orally or in writing. Reasons for adoption and refusal of proposed rule as well as the decision of the Joint Sewage Board shall be recorded and available for public inspection.

C. File a certified copy of each rule and regulation with the Clerk of the Common Council of Binghamton and the Clerk of the Village Board of Johnson City. The Clerk shall keep a permanent file which may be inspected upon request.

§ 222-67. Inspections.

A. The Director of Services, the Joint Sewage Board and other authorized representatives of the village and representatives of the EPA and the DEC bearing proper credentials and identification shall be permitted to enter all properties at all reasonable times for the purpose of inspection, observation, sampling, flow measurement and testing to ascertain a user's compliance with applicable provisions of federal, state and local law governing use of the village public sewer system and with the provisions of the rules and regulations of the Board. Such representatives shall have the right to set up on the user's property such devices as are necessary to conduct sampling or flow measurement.

§ 222-75. New connections.

No new connections shall be made to the sewer system of the village without a written permit issued by the Director of Services. Applications shall be made on a form supplied by the Village Clerk. No connection from a residential structure shall be granted without the approval of the Director of Services. No connection from any building or structure discharging other than sanitary waste shall be granted without the approval of the Director of Services and the Binghamton-Johnson City Joint Sewage Board. All connections to a sewer shall be made under the direction of and be subject to the approval of the Director of Services and shall conform in all respects with applicable requirements of the village plumbing code.

§ 222-82. Stormwater and other unpolluted water prohibited.

A. No person shall discharge or cause to be discharged any stormwater, swimming pool water, surface water, roof runoff, subsurface drainage, uncontaminated cooling water or unpolluted industrial process waters to any sanitary or combined sewer, unless specifically authorized by the Director of Services. All stormwater, surface water, roof runoff, subsurface drainage, uncontaminated cooling water or unpolluted industrial process water shall be discharged to storm sewers or to any natural watercourse approved by the Director. All existing connections to a sanitary or combined sewer of any stormwater, swimming pool water, surface water, roof runoff, subsurface drainage, uncontaminated cooling water or unpolluted industrial process waters shall be removed from the sewer within.

§ 222-83. Prohibited discharges

B. No person shall discharge the following into the village public sewer system: (13) Any substance, materials, waters or wastes of such nature or in such quantities or concentrations as are prohibited by the rules and regulations of the Joint Sewage Board.

Town of Vestal

§18-21 Definitions

Sewage or wastewater means the water-carried human or animal wastes, sanitary or domestic sewage from residences, buildings, industrial establishments or other places, together with such groundwater infiltration and surface water as may be present. "Sewage" includes the admixture with domestic sewage or with industrial waste or other wastes.

§18-26 Use of public sewers

- (a) No groundwaters, stormwaters, subterranean waters, rainwaters or waters from rain spouts, cellar spouts, footer drains, eaves or otherwise shall be drained into any building sewer or trunk sanitary sewer line.
- (f) The discharge of industrial waste into the town-owned public sewer system shall, in addition to any other requirements, be governed by the provisions of division 3 or 4 of this article.

DIVISION 4. INDUSTRIAL PRETREATMENT PROGRAM IN BINGHAMTON-JOHNSON CITY JOINT SEWAGE TREATMENT PLANT SERVICE AREA

Sec. 18-91. Definitions

Industrial user means any nonresidential user of the town-owned public sewer system which is identified in the Standard Industrial Classification Manual, 1972, Office of Management and Budget, as amended and supplemented under one (1) of the following divisions:

Division A—Agriculture, Forestry and Fishing

Division B—Mining

Division D – Manufacturing

Division E—Transportation, Communication, Electrical, Gas and Sanitary Services

Division I—Services

Industrial wastewater discharge permit means a permit issued by the board, authorizing the user to deposit or *discharge* industrial wastewater into any town-owned public sewer served by the Binghamton-Johnson City Sewage Treatment Plant.

Joint sewage treatment plant or treatment plant means the Binghamton-Johnson City Joint Sewage Treatment Plant. The term includes all intercepting sewers, outfall sewers, sewage collection systems, pumping, power and other equipment and appurtenances under the jurisdiction and control of the Binghamton-Johnson City Joint Sewage Board.

Pretreatment means the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to discharge to the town-owned public sewer system and regulations of the board and this division.

Rules and regulations of the board means the “Rules and Regulations Relating to the Use of the Binghamton-Johnson City Joint Sewage Treatment Plant,” promulgated by the Binghamton-Johnson City Joint Sewage Board.

User means any person who contributes causes or permits the contribution of wastewater into the town-owned public sewer system and discharged into the joint sewage, treatment plant.

Wastewater means the water-carried domestic, human or animal waste from residences, buildings, industrial establishments or other places, together with such ground infiltration, industrial and commercial wastes as may be present.

Sec. 18-92. Application

The provisions of this division shall apply exclusively to the discharge of industrial wastes to any town-owned public sewer which conveys wastewater to the Binghamton-Johnson City Joint Sewage Treatment Plant

Sec. 18-93. Authority of joint sewage board.

- (a) The admission into the town-owned public sewers of any industrial wastes shall be subject to the review and approval of the joint sewage board. The joint board is granted authority, concurrent with that of the town, to enforce against any user within the town all requirements necessary to ensure compliance with the provisions of the rules and regulations of the board and this division.
- (b) In exercising its authority over users discharging industrial wastes into the town public sewer system, the joint board may:
 - (1) Require pretreatment of the user's wastewater to a condition acceptable for discharge to the public sewer.
 - (2) Require the user to apply for and obtain an industrial wastewater discharge permit as a means of controlling the quantities and rates of discharge
 - (3) Require payment by the user to cover any added cost of handling and treating the wastewater not covered by existing fees or charges.
 - (4) Require the development of compliance schedules by the user to meet any applicable requirements prescribed by the board's **rules and regulations**.
 - (5) Require the user to submit such reports and supplemental information which the joint board deems necessary to assure compliance with any applicable requirements prescribed by the joint board's rules and regulations.
 - (6) Carry out all inspection surveillance and monitoring necessary to ascertain the user's compliance with applicable requirements prescribed by the joint board's rules and regulations
 - (7) Investigate or make inquiry in a manner to be determined by it, as to any condition within the town affecting the operation of the joint sewage treatment plant, and as to any alleged act or omission or failure to comply with the joint board's rules and regulations.

- (8) Obtain remedies for noncompliance by any such user as specified in section 18-97.
- (9) Reject the user's wastewater where the joint board determines that the wastewater contains substances or possesses characteristics which have a deleterious effect on the sewage treatment plant and its appurtenant facilities, or the processes, equipment or receiving waters of the treatment plant, or which constitute a public nuisance or hazard.
- (10) Take such other measures as it deems necessary and proper to ensure compliance with this law, with applicable state and federal law, and with the rules and regulations of the board.

Sec. 18-84. Inspections.

The town, the joint sewage board, and representatives of the EPA and DEC hearing proper credentials and identification shall be permitted to enter all properties at all reasonable times for the purpose of inspection, observation, sampling, flow measurement and testing to ascertain a user's compliance with the applicable provisions of federal, state and local law governing use of the town public sewer system, and with the provisions of the rules and regulations of the board. The town and the joint board shall have the right to set up on the user's property such devices as are necessary to conduct sampling or flow measurement. The town and the joint board shall additionally have access to and may copy any records the **user** is required to maintain under the rules and regulations of the board or the town's sewer use law. Where a user has security measures in force which would require proper identification and clearance before entry into the premises, the user shall make necessary arrangements so that upon presentation of suitable identification, inspecting personnel will be permitted to enter without delay for the purpose of performing their specific responsibilities.

Sec. 18-98. Cooperation of town officials.

Town officers and employees shall cooperate fully with the joint board in the joint board's enforcement and administration of its rules and regulations within the town.

ARTICLE III LATERAL SEWERS

Sec. 18-131. Storm and rain waters.

No groundwater, stormwater, subterranean water, rainwater or water from rain spouts, cellar spouts, eaves or otherwise shall be; drained into any lateral or trunk, sanitary sewer line. Sanitary sewer drains located in a basement or cellar may be connected to any lateral or trunk sanitary sewer line if the drainage therein conveyed is solely that of sanitary sewage and/or 'water coming from the water supply system of the subject premises. Any such sanitary sewer drain shall be properly trapped and the property owner shall be solely responsible for providing adequate protection against backflow and/or back pressure.

Town of Kirkwood

Section 1. Purpose

The purpose of this Ordinance of the Town of Kirkwood is to regulate the installation of lateral sanitary sewers and lateral sanitary sewer connections, and to provide specifications in all sanitary sewer districts and within any extensions thereof in the Town of Kirkwood, Broome County, New York.

Section 2. Definitions

“Wastewater” shall mean the water-carried domestic, human or animal waste from residences, buildings, industrial establishments or other places, together with such ground infiltration, industrial and commercial wastes as may be present.

Section 4. Storm and Rain Waters

No ground waters, storm waters, subterranean waters, rain waters or waters from rain spouts, cellar spouts, eaves or otherwise shall be drained into any lateral or trunk sanitary sewer line. Sanitary sewer drains located in a basement or cellar may be connected to any lateral or trunk sanitary sewer line if the drainage therein conveyed is solely that of sanitary sewage and/or water coming from the water supply system of the subject premises. Any such sanitary sewer drain shall be properly trapped and the property owner shall be solely responsible for providing adequate protection against backflow and/or back pressure.

Section 13. Restrictions and Limitations on Use of Sewers

(2) No person shall discharge the following into the Town’s sanitary sewer system: (m) Any substance, materials, waters, or wastes of such nature or in such quantities or concentrations as are prohibited by the Rules and Regulations of the Joint Sewage Board, including among other things:

Section 22. Industrial Waste Discharges

A Memorandum of Understanding has been entered into between the Town and Joint Sewage Board providing, among other things, that:

- e. The Joint Sewage Board will not seek to control the volume of flow from any new industry locating within the Town discharging only sanitary waste water to the treatment plant by reason of the adoption by the Joint Sewage Board of its said rules and regulations and the adoption by the Town Board of said model sewer local law and without reference to the said agreement of December 20, 1968.

Village of Port Dickinson

Section 49-3.B.(1) - Purposes - To prohibit "[e]xcessive volumes ... of flow...." (p.6)

Section 49-12.A. - Right of entry for inspections - "The ... Joint Sewage Board ... shall be permitted to enter all properties at all reasonable time for the purpose of inspection, observation, sampling, flow measurement and testing to ascertain a user's compliance with applicable provisions of federal state and local law governing use of the village public sewer system and with the provisions of the rules and regulations of the Board." (p.9)

Section 49-20 - New connections - "No connection from any building or structure discharging other than sanitary waste shall be granted wiithout the approval of the Village Engineer and the Binghamton Johnson City Joint Sewage Board." (p.11)

Section 49-27 - Discharge of certain waters prohibited - "No person shall discharge or cause to be discharged any stormwater, swimming pool water, surface water, roof runoff, subsurface drainage, uncontaminated cooling water or unpolluted industrial process waters to any sanitary or combined sewer unless specifically authorized by the Village Engineer. All stormwater, swimming pool water, surface water, roof runoff, subsurface drainage, uncontaminated cooling water or unpolluted industrial process waters shall be discharged to storm sewers or to any natural watercourse approved by the Village Engineer." (p.14)

Section 49-28.B.13 - Prohibited discharges - includes "Any ... waters ... prohibited by the rules and regulations of the Joint Sewage Board...." (p.16)

Section 49-28.C. - Prohibited discharges - "Effluent limitations promulgated by the Federal Act and New York State Department of Environmental Conservation shall apply in any instance where there are more stringent than limitations in this law. [sic]" (p.17)

Town of Binghamton

§173-1. Purpose

The purpose of this chapter is twofold:

- A. To provide for healthy, attractive, soil pollution-free residential neighborhoods in the more densely populated areas of the Town served by public sanitary sewer collecting systems
- B. To regulate sanitary sewers and to provide specifications for those installations and connections in all sanitary sewer districts and within any extensions thereof in the Town of Binghamton, Broome County, New York.

§173-5. Drainage of certain waters prohibited

No groundwaters, stormwaters, subterranean waters, rainwaters or waters from rain spouts, sump pumps, foundations drains, eaves or otherwise shall be drained into any lateral or trunk sanitary sewer line.

§173-15. Prohibited discharges

Users of sanitary sewers shall not discharge into the same any waste materials which are not allowed to be so discharged by the Binghamton-Johnson City Sewer Use Ordinance as adopted by the City of Binghamton and the Trustees of the Village of Johnson City.

Town of Union

§165-1 Definitions

“Sewage or Wastewater” - Includes sanitary or domestic sewage from residences, buildings, industrial establishments or other places, together with such groundwater infiltration and surface water as may be present. The admixture of domestic sewage, as above defined, with industrial waste or other wastes, as herein defined, also shall be considered "sewage" within the meaning of this chapter.

§165-19 Discharge of unpolluted waters restricted

No person shall discharge or cause to be discharged any stormwater, surface water, groundwater, roof runoff, subsurface drainage, cooling water or other unpolluted waters to any sanitary sewer.

§165-3 Prohibited Activities

A. No user discharging or proposing to discharge wastewater into the Town public sewer system shall violate any of the provisions of or fail to perform any duty imposed by the rules and regulations of the Board, or any order or determination of the Board promulgated thereunder, or the terms and conditions of any permit issued by the Board.

Town of Dickinson.

§447-2 Definitions

“Unpolluted Water” – Water to which no constituent has been added, either intentionally or accidentally, which would render such water unacceptable to the agency having jurisdiction thereof for disposal to storm or natural drainages or directly to surface waters

“Wastewater” - The water-carried domestic, human or animal waste from residences, buildings, industrial establishments or other places, together with such ground infiltration and industrial and commercial wastes as may be present.

§447-3 Purposes

A. To control discharges into the public sewers of the Town of Dickinson public sewer system or tributaries thereto, including the Binghamton-Johnson City joint sewage treatment plant.

B. To prohibit the discharge of: (1) Excessive volumes and/or inordinate rates of flow into the Town of Dickinson public sewer system.

D. To provide the authority for the Binghamton-Johnson City Joint Sewage Board to exercise regulatory control over users discharging industrial wastes into the Town public sewer system.

G. To enforce promulgated final standards and/or procedures set by the New York State Department of Environmental Conservation or the United States Environmental Protection Agency.

§447-7 Inspections

The Superintendent, the Joint Sewage Board and other authorized representatives of the Town and representatives of the EPA and DEC bearing proper credentials and identification shall be permitted to enter all properties at all reasonable times for the purpose of inspection, observation, sampling, flow measurement and testing to ascertain a user's compliance with applicable provisions of federal, state and local law governing the use of the Town's public sewer system and with the provisions of the rules and regulations of the Board.

§447-15 New Connections

No new connections shall be made to the sewer system of the Town without a written permit issued by the Superintendent. Applications shall be made on a form supplied by the Town Clerk. No connection from a residential structure shall be granted without the approval of the Superintendent. No connection from any building or structure discharging other than sanitary

waste shall be granted without the approval of the Superintendent and the Binghamton-Johnson City Joint Sewage Board.

Article VI – User Restrictions

§447-27

No person shall discharge or cause to be discharged any stormwater, swimming pool water, surface water, roof runoff, subsurface drainage, uncontaminated cooling water or unpolluted industrial process waters to any sanitary or combined sewer, unless specifically authorized by the Superintendent. All stormwater, surface water, roof runoff, subsurface drainage, uncontaminated cooling water or unpolluted industrial process water shall be discharged to storm sewers or to any natural watercourse approved by the Superintendent. All existing connections to a sanitary or combined sewer of any stormwater, swimming pool water, surface water, roof runoff, subsurface drainage, uncontaminated cooling water or unpolluted industrial process waters shall be removed from the sewer within 60 days from the service of a written notice by the Superintendent to disconnect from the sewer.

§447-28 Prohibited Discharge

No person shall discharge the following into the Town public sewer system (13) Any substance, materials, waters or wastes of such nature or in such quantities or concentrations as are prohibited by the rules and regulations of the Joint Sewage Board.

§447-29 Point of Discharge

No person shall discharge substances directly into a manhole or other opening in a public sewer other than through an approved building sewer.

Town of Conklin

§106-1. Purpose

The purpose of this chapter of the Town of Conklin is to regulate sanitary sewers and to provide specifications for installations and connections in all sanitary sewer districts and within any extensions thereof in the Town of Conklin, Broome County, New York.

§106-2 Definitions

Wastewater – The water-carried domestic, human or animal waste from residences, buildings, industrial establishments or other places, together with such ground infiltration, industrial and commercial wastes as may be present.

§106-5. Drainage of certain waters prohibited

No groundwaters, stormwaters, subterranean waters, rainwaters or waters from rain spouts, sump pumps, foundations drains, eaves or otherwise shall be drained into any lateral or trunk sanitary sewer line.

§106-17. Restrictions and limitations on use of sewers

A. Stormwater and other unpolluted water prohibited. No person shall discharge or cause to be discharged any stormwater, swimming pool water, surface water, roof runoff, subsurface drainage, uncontaminated cooling water or unpolluted industrial process waters to any sanitary sewer, unless specifically authorized by the Superintendent.

B. Prohibited Discharges

(2) No person shall discharge the following into the town's sanitary sewer system:

(m) Any substance, materials, waters or wastes of such nature or in such quantities or concentrations as are prohibited by the rules and regulations of the Joint Sewage Board.

Town of Fenton

§110-3 Authority of Joint Sewage Board

A. Notwithstanding any other provisions of law, the admission into the town-owned public sewers of any industrial wastes shall be subject to the review and approval of the Joint Sewage Board. The Board is hereby granted authority, concurrent with that of the town, to enforce against any user within the town all requirements necessary to ensure compliance with the provisions of the rules and regulations of the Board.

B. In exercising its authority over users discharging industrial wastes into the town public sewer system, the Board may:

(6) Carry out all inspection, surveillance and monitoring necessary to ascertain the user's compliance with applicable requirements prescribed by the Board's rules and regulations.

(10) Take such other measures as it deems necessary and proper to ensure compliance with this Part, with applicable state and federal law and with the rules and regulations of the Board.

§110-5 Prohibited Acts

A. No user discharging or proposing to discharge wastewater into the town public sewer system shall violate any of the provisions of or fail to perform any duty imposed by the rules and regulations of the Board or any order or determination of the Board promulgated thereunder or the terms and conditions of any permit issued by the Board.

§110-9 Purpose

The purpose this Part 2 is to regulate and control the use of the sanitary sewer system facilities of the Town of Fenton, to regulate the installation of lateral sanitary sewers and lateral sanitary sewer connections, provide specifications for all work pertaining to sewer connections, regulate private sewage disposal facilities, provide for financing of public sewer projects and, in general, to control and regulate the disposal of sewage and other wastes within the Town of Fenton.

§110-10 Definitions

“Sanitary Sewer” - A sewer which carries sewage and to which storm, surface and groundwaters are not intentionally admitted.

§ 110-13 Use required

Except as hereinafter provided, it shall be unlawful to construct or maintain any privy, privy vault, septic tank, cesspool or other facilities intended or used for the disposal of sewage

§ 110-25 Runoff and groundwater not permitted

No connections of roof downspouts, exterior foundation drains, areaway drains, sump pumps or other sources of surface runoff or groundwater to a building drain or building sewer which in turn is connected directly or indirectly to a public sewer shall be permitted.

§ 110-29 Stormwater and drainage discharge

A. No person shall discharge or cause to be discharged any storm-, ground- or surface water; roof runoff; subsurface drainage; or any other unpolluted water, including noncontact cooling water, to any sanitary sewer.

B. Stormwater and all other unpolluted drainage shall be discharged to such sewers as are specifically designated storm sewers or to a natural outlet approved by the Administrative Officer. Industrial noncontact cooling water or other unpolluted waters may be discharged, on approval of the Administrative Officer, to a storm sewer or natural outlet.



Appendix E

SUMMARY REPORT

Binghamton-Johnson City Joint Sewage Board • Flow Management Plan



Steering Committee Meeting – April 26, 2011

Report Date: May 31, 2011

Discussion Summary:

Steering Committee members received an overview from the GHD Consulting Engineering Team (GHD) regarding the Flow Management Plan development project.

GHD reported that:

- The NYS Department of Environmental Conservation (NYSDEC) stated two significant positions after its review and approval of the mapping and modeling report: 1) The City and Village collection systems are currently in compliance with their Combined Sewer Overflow Long-Term Control Plans; however, 2) both the City and Village must take action to plan for the future in order to stay in compliance.
- The NYSDEC believes that for both the City and Village to remain in compliance, both municipalities will need to manage flows throughout the collection system, balancing future growth and expansion with wet weather flows and existing dry weather capacity. The NYSDEC also recommended evaluating the feasibility of several flow management programs/tasks to help the collection system maintain compliance.

GHD presented their Flow Management Plan concept, which included the following three programs:

- 1) Development of a technical specification for a Capacity, Management, Operation and Maintenance (CMOM) Program for the system's Owners and Outside Users to follow to create their own CMOM Plan/Programs;
 - 2) Development of an Inflow and Infiltration (I/I) Offset program to be used by the system's Owners and Outside Users to reduce wet weather flows and control combined sewer overflows;
 - 3) Development of a Standard Operating Procedure (SOP) for approving new or modified sewer system connections.
- The Joint Sewage Board and the GHD Team strive to develop the Flow Management Plan with input from all system municipalities, and ultimately complete a Final Flow Management Plan in a form that is endorsable by the Owners' legislative bodies and approvable by the NYSDEC.
 - GHD intends that the Flow Management Plan be designed to be positive and proactive in nature, and could enhance economic development opportunities and community growth by promoting more efficient use of capacity in the current system. In accordance with NYSDEC recommendations, the Plan will include flow management programs as the means to maintain compliance, as opposed to major capital projects or upgrades.
 - The development of the Flow Management Plan will also include an affordability – financial feasibility assessment and a review of current inter-municipal agreements relating to capacity management and program implementation.

SUMMARY REPORT

Binghamton-Johnson City Joint Sewage Board • Flow Management Plan



Schedule:

- Time frame for development of the Flow Management Plan is now through mid-September; the plan must be submitted to the NYSDEC before the end of September.

Decisions and Actions:

- GHD Consulting Team members will conduct conversations with representatives of all the Owners and Users to assess interests, concerns and questions, as well as provide a framework for their input. Interests will be included in future Steering Committee discussions as part of Plan development.

Next Steps:

- A series of workshops with system Owners and Outside Users and additional Steering Committee meetings will take place between May and September to develop the Flow Management Plan Program.
- A joint meeting of Steering Committee members will be scheduled in June, including a presentation about CMOM by NYSDEC personnel.

Steering Committee Members In Attendance:

Catherine Aingworth, *Superintendent, Binghamton-Johnson City Joint Sewage Treatment Facilities*

Pete Andreasen, *Town of Vestal*

Richard Bassler, P.E., *Town of Fenton*

Robert A. Bennett, P.E., *Village of Johnson City*

Ronald Brown, *City of Binghamton*

Edward Crumb, *Binghamton-Johnson City Joint Sewage Board*

Luke Day, *Binghamton-Johnson City Joint Sewage Board*

Sandy DeJohn, *Binghamton University*

Michael Donahue, *Town of Binghamton*

Scott Groats, *Town of Vestal*

Eugene Hulbert, Sr., *Binghamton-Johnson City Joint Sewage Board*

Richard Jones, Sr., *Town of Kirkwood*

Philip Krey, P.E., *City of Binghamton*

Ron Lake, P.E., *Town of Dickinson; Village of Port Dickinson; Town of Conklin*

Michael Marinaccio, *Town of Dickinson*

John Mastronardi, P.E., *Towns of Conklin and Kirkwood*

Dan Miller, *Town of Dickinson*

Caroline Quidort, *City of Binghamton*

Daniel Schofield, *Broome County, representing Patrick Brennan*

SUMMARY REPORT

Binghamton-Johnson City Joint Sewage Board • Flow Management Plan



GHD Consulting Team in Attendance:

John LaGorga, P.E., BCEE

Nancy Pattarini

Diane Stirling

Other Steering Committee Members or Interested Parties:

Bob Aagre, Village of Port Dickinson

Stephen W. Andrew, Binghamton-Johnson City Joint Sewage Board

John Bernardo, Town of Union

Kevin Burke, Village of Port Dickinson

Lou Caforio, Town of Union

Michele Cuevas, Secretary, Binghamton-Johnson City Joint Sewage Board

Tom Delamarter, Town of Conklin

Dave Hamlin, Town of Fenton

Dennis Hannon, Village of Johnson City

Joel Kie, Town of Dickinson

Gordon Kniffen, Town of Kirkwood

George Kolba, Jr., Binghamton-Johnson City Joint Sewage Board

Debra Preston, Town of Conklin

Frank Root, Town of Fenton

Matthew Ryan, City of Binghamton

Annette Testani, Binghamton-Johnson City Joint Sewage Board

James VanVoorst, Binghamton University

Tim Whitesell, Town of Binghamton

SUMMARY REPORT

Binghamton-Johnson City Joint Sewage Board • Flow Management Plan



Steering Committee Meeting – June 7, 2011

Report Date: June 27, 2011

Key Elements of a Proposed Flow Management Plan

The GHD Engineering Consultant Team presented an outline of proposed components of the Binghamton-Johnson City Joint Sewage Treatment Facility Flow Management Plan, including its approach to managing system capacity through implementation of specific programs designed to manage and treat both wet-weather and dry-weather flows.

The specific programs are:

1. I/I Offset Program
2. New/Modified Sewer Connection Approval Program
3. CMOM Program

I/I Offset Program

The I/I Offset Program is based on the following “three fundamental understandings”:

1. No increase in Combined Sewer Overflow (CSO) volume and no Sanitary Sewer Overflows (SSOs);
2. Since every new or modified sewer extension has the potential to increase CSO volume and cause greater risk of SSOs, there is a need for an Infiltration and Inflow (I/I) Offset Plan;
3. Developers or entities creating new or modified sewer extensions would be responsible to pay for the Infiltration and Inflow (I/I) Offset. This element extends the burden for any new/modified sewer connections to developers.

The I/I Offset Program would take account of the following concepts:

- Undertaking the most cost effective reduction projects first, regardless of municipal boundaries;
- Recognizing that I/I reduction projects must occur upstream of tributary CSO, known SSO, or known bottleneck in the collection system;
- Requiring that developers or other entities seeking new/modified sewer extensions are responsible to pay for the project, but not necessarily responsible to construct the project.

The I/I Offset Program would utilize the following definitions, specifications and/or guidelines:

- “Extensions” would apply to projects requiring 2,500 gpd or higher (thus would not be applicable to single-family home construction). This references NYSDEC Reg. 6 NYCRR 750-1.2 (a)(79)-(80).
- NYSDEC Design Standards for Wastewater Treatment Works 1988 would be used to quantify sewage flow rates for new/modified extensions.
- Site-specific methods would be used to quantify I/I flow reductions from projects to replace, repair or maintain existing collection system infrastructure.
- I/I reductions need to occur upstream of the tributary CSOs.
- Regarding project funding: public monies can be applied only to public projects, while private funding can be used to develop public and private projects.
- Accounting of I/I offsets and new/modified connections will be tracked as “ins” and “outs” or “credits” and “debits” within each CSO tributary area.

SUMMARY REPORT

Binghamton-Johnson City Joint Sewage Board • Flow Management Plan



- Regarding locations where I/I offsets might occur, the Board would want to assure NYSDEC that neither the collection system nor the plant is being overburdened.
- A developer may pay fees in lieu of mitigation, since the program will feature a free market for sales and purchases of I/I reduction credits.

Creation of an I/I Offset Bank for managing flow credits. Elements would include:

- Accounting would occur according to CSO tributary areas
- A ledger would be structured according to the owners of the credits
- The Binghamton-Johnson City Joint Sewage Board would serve as administrator of the bank
- Reporting requirements would include:
 - a copy of the building permit;
 - a copy of the sewer extension permit;
 - a bill of sale for credits (if applicable);
 - engineering information

New/Modified Sewer Connection Approval Program

The Flow Management Plan also will include a standard operating procedure (SOP) for new/modified sewer extension approvals.

Required Information for New/Modified Sewer Extension Approvals:

- A developer and/or an Outside User would be required to provide the following information to the City of Binghamton or Village of Johnson City and the Board:
 - project location and description
 - proposed sewage flow rate
 - confirmation of sewer pipe capacity within the applicable Outside Users' boundaries
- A developer and/or City of Binghamton or Village of Johnson City would need to provide the following to the Board:
 - confirmation of sewer pipe capacity within City or Village's boundary. The City or Village may choose to have the capacity analysis completed by the Joint Sewage Board at the cost of the developer.
- The Joint Sewage Board would need to provide:
 - confirmation of terminal pump station and treatment plant hydraulic capacity
 - confirmation of treatment plant pollutant load capacity

The New/Modified Sewer Extension Approval Process:

- A Sewer Extension Engineering Report would be submitted to the municipality in which the parcel is located for that municipality's approval.
- The Sewer Extension Engineering Report would then be submitted to the City of Binghamton/ Village of Johnson City and Joint Sewage Board for review/approval.
- The City or Village would develop a Sewer Capacity Analysis Report and submit this report to the Joint Sewage Board for review and approval.
- The Joint Sewage Board would perform a Treatment Facilities Flow and Pollutant Load Capacity Analysis.

SUMMARY REPORT

Binghamton-Johnson City Joint Sewage Board • Flow Management Plan



- The Joint Sewage Board would be responsible for approval of the Sewer Extension Engineering Report and the Sewer Capacity Analysis Report, and certification of their Facilities Flow and Pollutant Load Capacity Analysis.

GHD noted that the New/Modified Sewer Extension Approval Process is designed to include the following:

- Provide maximum flexibility for each municipality/entity's interests.
- Municipalities or governmental entities may choose to wait for developers to emerge to pay for the I/I reductions.
- A municipality also may consider providing municipal funds to front the costs of I/I reductions early as an economic development tool to prompt development. In that case, I/I reduction costs could be recouped by collecting reimbursement as developers initiate projects.
- The offset bank is innovative and would present a free market system where:
 - developers can purchase credits as well as own credits created as a result of developer-financed work.
 - municipalities/entities also can buy from the bank as a way to achieve the needed offsets
 - municipalities/entities/developers can sell credits to each other

GHD summarized its presentation with the following comments:

- An extensive range of sewer separation projects to mitigate I/I, dating back to 1997, have already been implemented by the City of Binghamton and Village of Johnson City.
To assure that information is up-to-date, all system Owners and Outside Users are being asked to prepare a list of the sewer improvement and water conservation projects they have already undertaken, and submit that information to GHD. That data will provide GHD with a full perspective of achievements already made toward I/I reduction. It also will facilitate the assessment of which locations will be the most cost effective sites for I/I reductions, and therefore the potential sites where projects would be completed first.
- A benefit of having a Flow Management Plan in place is that it signals to potential developers that the community has no barriers to development, and with respect to wastewater conveyance and treatment service, that there are less risks associated with a specific site because the community has proactively addressed and mitigated the issues of infrastructure delays, legal hurdles, and project approvals.

Discussion Summary

Discussion points and comments that arose included:

- As a baseline, credit should be given for past I/I reduction work.
- The Town of Conklin should receive offset credit due to the loss of homes during the flood.
- An entity installing low-use water fixtures should be able to use modified (reduced) sewage loading rates.
- Binghamton University and Town of Vestal have unique circumstances in that they essentially connect directly into the sewage treatment plant or terminal pumping station and the I/I Offset Program should take those unique characteristics into account.
- Once development projects are underway, there should be a process for making modifications based on how pre-connection assumptions line up with post-construction discharge realities.

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Meeting Attendance

Steering Committee Members In Attendance:

Catherine Aingworth, *Superintendent, Binghamton-Johnson City Joint Sewage Treatment Facilities*
Pete Andreasen, *Town of Vestal*
Richard Bassler, P.E., *Town of Fenton*
Lou Caforio, *Town of Union*
Ray Coolbaugh, *Town of Kirkwood*
Edward Crumb, *Binghamton-Johnson City Joint Sewage Board*
Luke Day, *Binghamton-Johnson City Joint Sewage Board*
Sandy DeJohn, *Binghamton University*
Kelly Donovan, *Binghamton University*
John Finch, Jr., *Town of Kirkwood*
Scott Groats, *Town of Vestal*
Jesse Holmes, P.E., *representing Town of Binghamton*
George Kolba, Jr., *Binghamton-Johnson City Joint Sewage Board*
Ron Lake, P.E., *Town of Dickinson; Village of Port Dickinson; Town of Conklin*
Michael Marinaccio, *Town of Dickinson*
John Mastronardi, P.E., *Town of Conklin and Town of Kirkwood*
Daniel Schofield, *Broome County, representing Patrick Brennan*

GHD Consulting Team in Attendance:

John LaGorga, P.E., *BCEE*
Nancy Pattarini
Diane Stirling

Other Steering Committee Members or Interested Parties:

Bob Aagre, *Village of Port Dickinson*
Stephen W. Andrew, *Binghamton-Johnson City Joint Sewage Board*
Robert A. Bennett, P.E., *Village of Johnson City*
John Bernardo, *Town of Union*
Ronald Brown, *City of Binghamton*
Kevin Burke, *Village of Port Dickinson*
Michele Cuevas, *Secretary, Binghamton-Johnson City Joint Sewage Board*
Tom Delamarter, *Town of Conklin*
Michael Donahue, *Town of Binghamton*
Dave Hamlin, *Town of Fenton*
Dennis Hannon, *Village of Johnson City*
Eugene Hulbert, Sr., *Binghamton-Johnson City Joint Sewage Board*
Joel Kie, *Town of Dickinson*

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Other Steering Committee Members or Interested Parties, cont'd.

Gordon Kniffen, *Town of Kirkwood*

Philip Krey, P.E., *City of Binghamton*

Dan Miller, *Town of Dickinson*

Debra Preston, *Town of Conklin*

Caroline Quidort, *City of Binghamton*

Frank Root, *Town of Fenton*

Matthew Ryan, *City of Binghamton*

Annette Testani, *Binghamton-Johnson City Joint Sewage Board*

James VanVoorst, *Binghamton University*

Tim Whitesell, *Town of Binghamton*

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Steering Committee Meeting – June 28, 2011

Report Date: July 6, 2011

Presentation Summary

CMOM (Capacity, Management, Operations, Maintenance) Information

The GHD Engineering Consulting Team presented information regarding the purpose and history of United States Environmental Protection Agency (US EPA) requirements for CMOM programs. The primary purpose of a CMOM program is to assure the capacity of, and to properly manage, operate and maintain a collection system. US EPA guidelines were distributed for the information of each government entity. (In relation to the Flow Management Plan project at hand, CMOM is one of three programs GHD is recommending the communities implement.)

GHD reported that as part of the Flow Management Plan project, the Binghamton-Johnson City Joint Sewage Board (BJCJSB) has begun a study of the collection system capacity. The study has included updating the mapping of the collection system, flow metering, developing a model from the mapping and metering information as well as using that model to look at the capacity of the main trunk sewers.

NYSDEC Presentation

Sandra Lizlovs, P.E., Environmental Engineer 2, Division of Water, New York State Department of Environmental Conservation (NYSDEC) Region 7, attended the meeting to provide an overview of how the NYSDEC views CMOM as a program that can be beneficial to a community. Ms. Lizlovs said NYSDEC considers CMOM a very important element in a community's collection system management program. CMOM provides a way to collect and organize information that is directly applicable to collection system maintenance and asset management, and serves as a planning tool for collection system capacity. She noted that NYSDEC recognizes that each of the BJCJSB system communities faces a unique situation, and she will review proposed CMOM programs with the view of what will best serve that community versus a "one-size-fits-all" approach.

Ms. Lizlovs cited Old Forge's CMOM asset management plan as a model for developing a program that manages and protects a community's wastewater infrastructure investment. It included these steps:

- 1) Developing an inventory of assets (all components of the system)
- 2) Assessing criticality and condition of assets (including the importance of noting potentially obsolete equipment; public and environmental health impact; redundancy; potential failures; customer service aspects)
- 3) Ranking and prioritizing assets (to show areas that most need addressing)
- 4) Developing a capital improvement plan (urgent needs first, then those desired; with cost projections and a multi-year approach)
- 5) Projecting full-cost pricing (including determining funds needed; developing a capital reserve fund; determining sewer revenues and rate considerations)

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- 6) Forming an asset advisory committee (to ensure a CMOM program is implemented with oversight in order to protect system investments)
- 7) Ongoing elected official and public education (to assure that the value of the system is understood and how an asset management plan protects that investment)

GHD's John LaGorga noted at the end of the presentation that most communities already conduct CMOM programs, and that asset management is a complementary extension of this function. As related to the Flow Management Plan, CMOM (and by extension, asset management) is one of the three programs being proposed as a means to assure capacity for growth within the system, without resorting to capital projects or major repairs.

GHD Presentation: Draft CMOM Specification Outline

GHD presented a preliminary draft of an outline for a proposed CMOM technical specification. Attendees and other system representatives were asked to review, assess, comment and provide feedback on the proposal, which will be discussed in depth at the next meeting, scheduled for July 12, 2011.

The suggested time frame being proposed in this outline is:

- Documentation of existing CMOM activities be completed within nine months after the Binghamton-Johnson City Joint Sewage Board's CMOM technical specification becomes effective. (The steps which must be taken before the CMOM technical specification becomes effective were summarized; realistically, the effective date could be 9-15 months following DEC approval of the Flow Management Plan.)
- Documentation for all required CMOM efforts (both existing and those which need to be developed) be completed within two years of the time the CMOM technical specification becomes effective. However, during the meeting it was suggested and agreed upon that each government entity would set their schedule for developing/implementing required CMOM efforts that are not yet developed as a part of the community's preparation of their CMOM program document, which would be submitted to the DEC for approval. The schedule would be part of the first submission of the CMOM documentation.

Discussion Summary

Questions and comments regarding the NYSDEC presentation included:

- Do state funds exist to help communities reduce residential sources of inflow and infiltration to the sewer system, or funding mechanisms to assist property owners to do so? (NYSDEC responded that there is little likelihood of funding available from the state right now for either.)
- What is the approval process for CMOM plans at NYSDEC? Is NYSDEC expecting individual System Users to submit their CMOM programs for approval? (NYSDEC said it does not plan to

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initiate inspections/monitoring of the CMOM program, but will respond to and investigate complaints received. NYSDEC will expect the communities to develop written CMOM programs, file them with NYSDEC, and carry out implementation. If a complaint is received, NYSDEC will assess the extent to which the documented program is being followed. If it is not, the entity could face enforcement action.)

The Steering Committee and GHD also noted that:

- o Due to home rule provisions, each government entity will need to develop its own CMOM plan which would be submitted to the BJCJSB and NYSDEC;
- o An annual CMOM status report would also need to be submitted to the BJCJSB and NYSDEC;
- o The I/I offset programs and the New/Modified Connection SOP (the two other programs proposed for the Flow Management Plan) are anticipated to be approved by the NYSDEC and administered via the BJCJSB. However, all sewer extensions would still need to be approved by the NYSDEC or the Department of Health. (Under present NYSDEC regulations, a "sewer extension" is any development or project[s] which adds 2,500 or more gallons per day sewage flow to the collection system [6 NYCRR §750-1.2(a)(79) and (80)].)
- Are there any particular aspects of CMOM that have a higher priority for the NYSDEC now? *(NYSDEC responded that its criteria will involve looking at what is most critical for each community, recognizing that those elements will vary greatly according to the specific community.)*
- What will the timeline be regarding the NYSDEC's approval of the proposed Flow Management Plan? *(NYSDEC responded that this is undetermined, based on other issues within the region at present, and other project workload. However, it is NYSDEC's intention to move the approval process along as quickly as is possible. In the meantime, if any community has a pending development project that will trigger capacity issues it should contact the NYSDEC to see if extensions, or some other sort of transition period or plan, can be cooperatively developed in the interim.)*

Questions/comments regarding the proposed Draft CMOM Specification Outline included:

- The timeframe of a two-year implementation schedule for undeveloped CMOM requirements may be unrealistic, based on the availability of records, staff time to complete the tasks, resources, etc. *(GHD responded: Each government entity can develop their own schedule for developing/implementing currently undeveloped CMOM requirements and present this schedule to the NYSDEC in the first submission of the CMOM plan. However, we will need to develop an implementation schedule that is both realistic and takes into account what NYSDEC will expect.)*

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- Will each municipality be required to have a written CMOM program or, instead, adopt the BJCJSB's CMOM technical specification formally? *(GHD responded: A written CMOM program will be required, and whether adoption of the technical specification as a part of the entity's sewer use law will be required may be a possibility – this will be referred to the legal advisor for the Flow Management Plan for analysis and advice; if so, the time required to have municipal boards formally adopt the specification may lengthen the timeline for implementation accordingly.)*
- Can there be an exploration of shared services where communities can work together to capture data and use information sources, human resources, equipment, and facilities needed for the development of each community's CMOM spec? *(GHD responded: This certainly can be explored. Steering Committee members noted that current emergency equipment and services sharing among the local municipalities already provides a potential model.)*

Schedule of Upcoming (July) Meetings

July 12 CMOM Technical Specification Discussion

(Part I: All Steering Committee members, including BJCJS Board)

(Part II: Discussion involving System Users only)

Noon - 2:00 p.m. Binghamton University, Facilities Dept. Conference Room

July 19 I/I Offset Plan Discussion New/Modified Sewer Extension SOPs Discussion

(All Steering Committee members attending)

5:30 p.m., Binghamton University, Facilities Dept. Conference Room

July 26 CMOM Specifications/Legal Language Presentation

(All Steering Committee members attending)

5:30 p.m., Binghamton University, Facilities Dept. Conference Room

Meeting Attendance

Presenter:

Sandra Lizlovs, P.E. - *NYS Department of Environmental Conservation, Region 7*

Steering Committee Members in Attendance:

Catherine Aingworth, Superintendent, *Binghamton-Johnson City
Joint Sewage Treatment Facilities*

Stephen Andrew, *Binghamton-Johnson City Joint Sewage Board*

Richard Bassler, P.E., *Town of Fenton*

Robert Bennett, P.E., *Village of Johnson City*

Ronald Brown, *City of Binghamton*

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Ray Coolbaugh, *Town of Kirkwood*
Edward Crumb, *Binghamton-Johnson City Joint Sewage Board*
Luke Day, *Binghamton-Johnson City Joint Sewage Board*
Sandy DeJohn, *Binghamton University*
Kelly Donovan, *Binghamton University*
John Finch, Jr., *Town of Kirkwood*
Eugene Hulbert, Sr., *Binghamton-Johnson City Joint Sewage Board*
Gordon Kniffen, *Town of Kirkwood*
Ronald Lake, P.E., *Towns of Conklin and Dickinson; Village of Port Dickinson*
John Mastronardi, P.E., *Towns of Conklin and Kirkwood*
Michael Marinaccio, *Town of Dickinson*
Leonard Perfetti, *representing Lou Caforio, Town of Union*
Caroline Quidort, *City of Binghamton*
Daniel Schofield, *representing Patrick Brennan, Broome County*

GHD Consulting Team in Attendance:

John LaGorga, P.E., BCEE
Nancy Pattarini
Diane Stirling

Other Steering Committee Members or Interested Parties:

Bob Aagre, *Village of Port Dickinson*
Pete Andreasen, *Town of Vestal*
John Bernardo, *Town of Union*
Kevin Burke, *Village of Port Dickinson*
Michele Cuevas, *Secretary, Binghamton-Johnson City Joint Sewage Board*
Tom Delamarter, *Town of Conklin*
Michael Donahue, *Town of Binghamton*
Scott Groats, *Town of Vestal*
Dave Hamlin, *Town of Fenton*
Dennis Hannon, *Village of Johnson City*
Jesse Holmes, P.E., *representing Town of Binghamton*
Joel Kie, *Town of Dickinson*
George Kolba, Jr., *Binghamton-Johnson City Joint Sewage Board*
Philip Krey, P.E., *City of Binghamton*
Dan Miller, *Town of Dickinson*
Debra Preston, *Town of Conklin*
Frank Root, *Town of Fenton*
Matthew Ryan, *City of Binghamton*
Annette Testani, *Binghamton-Johnson City Joint Sewage Board*
James VanVoorst, *Binghamton University*
Tim Whitesell, *Town of Binghamton*

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Steering Committee Meeting – July 26, 2011

Report Date: August 17, 2011

Meeting Summary

GHD Engineering provided a review of the draft Infiltration and Inflow ("I/I") Offset Program it has compiled as one of three component programs comprising the proposed Flow Management Plan for the Binghamton-Johnson City Sewage Board. The elements of the draft program were presented and Steering Committee members had the opportunity to ask questions, provide feedback and comment, and discuss details.

GHD noted that the Owners (the City of Binghamton and the Village of Johnson City) are currently in compliance with New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) Permits (at Sewage Treatment Plant and Combined Sewer Overflows). Nevertheless, in order to maintain the Owners' compliance with those permits, the draft program has been developed so that any new amounts of sewage flow coming into the system would have to be offset with reductions in Infiltration and Inflow (I/I). The ratio of offset proposed in this program is 1:1; however, this ratio is subject to the approval of the NYSDEC.

GHD believes that the Flow Management Plan (including the I/I Offset Program) will be submitted to the NYSDEC in late 2011 and that the NYSDEC will likely approve review the Flow Management Plan in the 1st or 2nd quarter of 2012. The effective date of the I/I Offset Program would likely be January 1, 2013, which will permit time for municipalities to build offset reduction projects into their budgets for the 2013 fiscal year.

Flow Credit Bank

The program proposes a Sewer Flow Credit Bank as a mechanism to promote I/I offset completion and to provide a means for tracking, developing, and exchanging flow credits, achievable through offset reductions that are made by municipalities and developers and or other private parties. The concept of a sewer flow credit bank is akin to that of a checking account, GHD explained. Each municipality/entity would have its own account. The administrator of the bank would be the Sewage Board or its designee.

GHD explained that the program would operate like a bank account, tracking the Owners' and Outside Users' flow credits for each entity as they are created, used, or transferred. Each entity would own its own credits, and there would be no expiration date. Accounts would be tracked regularly, with statements issued at least on an annual basis. Flow credits would be organized by Combined Sewer Overflow (CSO) basins. This is designed to prevent causing any additional Combined Sewer Overflows, and be in-line with the goal of maintaining compliance with the Owners' current CSO permits. Both municipalities and developers would have the ability to accrue credits when they create offsets.

After discussion at the Steering Committee meeting, according to GHD Engineering, the sewer flow

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credit bank concept has been designed so that municipalities maintain control of their own flow credits, but also have the flexibility to design their own processes within a standard framework, pertinent to their own needs.

Several questions and comments/suggestions were voiced by Steering Committee members regarding various aspects of the flow credit process, and the Board and GHD made the commitment to provide answers at upcoming Steering Committee meetings. Those questions, and some comments, included:

- Would each municipality need to establish their own priorities and processes for dealing with flow credits?
- Can municipalities purchase flow credits from other municipalities?
- Would developers have the ability to accrue and bank flow credits?
- How is a price for flow credits determined?
- Can municipalities receive flow credits for I/I offset already completed, and if so, how far back can that work be considered?
- Is it feasible to create storage in order to develop and store flow credits for later use?
- Can a series of models be produced for consideration so Steering Committee members can envision how the flow credit bank would work within a range of scenarios and situations?
- Is it possible to look at a flow credit exchange relationship between the Owners (the City of Binghamton and the Village of Johnson City) and the Outside Users to get a sense of what that model would look like?
- Is it possible to create an Infiltration and Inflow storage system to see how that works into the program model?
- What would the approval process be like for transferring flow credits to a developer?
- A suggestion was made by a Steering Committee member that the municipalities continue to own the flow credits, unless the municipality provides them to a developer.
- A Steering Committee member made the comment that such goals would be easier to accomplish if the group members were a county form of government, but that is not the case.
- Another Committee member commented that based on Smart Growth concepts, economic growth that would result from improvements to the sewer system would push development to the more urban areas, as opposed to the outlying municipalities.
- Various elements of the draft I/I program were reviewed by the group. One of the committee's recommendations was that the draft Program include a map that shows boundaries where Combined Sewer Overflows (CSO) exist.

In summarizing the draft I/I Offset Program, GHD noted that its goals are designed as a long-term program to support economic development, looking at the elements of fairness and equity, continuity between municipalities, and the ease of management of programs. Copies of the complete I/I offset program proposal were provided to Steering Committee members for review and additional feedback.

Legal Authority

The engineering firm also noted that project attorneys' research concludes that the legal

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authority for the Joint Sewage Board to implement the I/I offset program already exists, and that

the process for implementing the I/I Offset program for the Outside users can be appropriately created via amendments to the Board's current rules and regulations.

Conference calls will be conducted August 11 and 12 for Outside User preliminary discussions with the GHD Consultant Team attorney and their representatives regarding the legal authority topic. Formal discussion of the matter of the Board's legal authority to implement the Flow Management Plan programs is on the agenda for the Steering Committee meeting of August 16, 2011.

Meeting Attendance (July 26, 2011)

Steering Committee Members in Attendance:

Tarik Abdelazim, City of Binghamton
Catherine Aingworth, Superintendent, Binghamton-Johnson City Treatment Facility
Pete Andreasen, Town of Vestal
Richard Bassler, P.E., Town of Fenton
Robert Bennett, P.E., Village of Johnson City
Ronald Brown, City of Binghamton
Lou Caforio, Town of Union
Ray Coolbaugh, Town of Kirkwood
Edward Crumb, Binghamton-Johnson City Joint Sewage Board
Luke Day, Binghamton-Johnson City Joint Sewage Board
Kelly Donovan, Binghamton University
John Finch, Jr., Town of Kirkwood
Joel Kie, Town of Dickinson
Philip Krey, P.E., City of Binghamton
Ronald Lake, P.E., Towns of Conklin and Dickinson; Village of Port Dickinson
Philip Schmidt, Town of Union
Daniel Schofield, representing **Patrick Brennan**, Broome County
Chris Statsky, representing the Towns of Conklin and Kirkwood

GHD Consulting Team in Attendance:

John LaGorga, P.E., BCEE
Nancy Pattarini
Diane Stirling

Other Steering Committee Members or Interested Parties:

Bob Aagre, Village of Port Dickinson
Stephen W. Andrew, Binghamton-Johnson City Joint Sewage Board
John Bernardo, Town of Union
Kevin Burke, Village of Port Dickinson
Michele Cuevas, Secretary, Binghamton-Johnson City Joint Sewage Board
Tom Delamarter, Town of Conklin
Sandy DeJohn, Binghamton University
Michael Donahue, Town of Binghamton
Scott Groats, Town of Vestal

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Dave Hamlin, *Town of Fenton*

Dennis Hannon, *Village of Johnson City*

Jesse Holmes, P.E., *representing Town of Binghamton*

Eugene Hulbert, Sr., *Binghamton-Johnson City Joint Sewage Board*

Gordon Kniffen, *Town of Kirkwood*

George Kolba, Jr., *Binghamton-Johnson City Joint Sewage Board*

Michael Marinaccio, *Town of Dickinson*

John Mastronardi, P.E., *Towns of Conklin and Kirkwood*

Dan Miller, *Town of Dickinson*

Leonard Perfetti, *Town of Union*

Debra Preston, *Town of Conklin*

Frank Root, P.E., *Town of Fenton*

Matthew Ryan, *City of Binghamton*

Tim Steed, P.E., *Hunt Engineers, Town of Vestal*

Annette Testani, *Binghamton-Johnson City Joint Sewage Board*

James VanVoorst, *Binghamton University*

Tim Whitesell, *Town of Binghamton*

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Billing Information Session and Regular Steering Committee Meeting

Meeting Date: August 16, 2011

Report Date: August 26, 2011

Billing Information Session

In response to questions from members of the Binghamton-Johnson City Joint Sewage Board (BJCJSB) Steering Committee at prior meetings, the Board conducted a short informational session to explain how billings for sewer fees are formulated.

Board member Edward Crumb (Chair of the Board's Finance Committee) provided a comprehensive packet illustrating charts and numeric illustrations of how expenses are calculated for Outside Users and Owners. This included handouts of:

- Binghamton Flow Side and Johnson City Flow Side 2009 billable flows, with statistics broken out by municipality for all Outside Users and Owners;
- Sewage Board Final Revenue and Expenditure Budget Reports;
- 2009 Owner local systems costs derivations;
- An explanation of the data-gathering process used by the Sewage Board;
- An illustration of how flow ratios are computed by the fiscal officer, including documents showing apportionment of pumping expenses; Owner debt service; local system costs; aggregate components of the billing; net payments made; and final adjustments based on balances and refunds.

A number of procedural and computation questions were asked and answered. When these were done, the Board adjourned the meeting and began the regularly scheduled BJCJSB Flow Management Plan Project Steering Committee meeting.

Steering Committee Meeting

The Steering Committee meeting opened with a notation by the GHD Consulting Team public information liaison regarding the high level and impressive degree of participation and collaboration illustrated throughout the Steering Committee meeting process. It was noted that, while this meeting concluded the formal participation format of Steering Committee meetings for the project, members remain welcome to contact the GHD Team with questions, comments, ideas, and feedback. The target date for any additional final comments was set as Friday, August 26. However, any municipality in need of more time was asked to notify GHD Engineering of when they could have final comments ready. At the meeting⁽¹⁾ it was stated that the Flow Management Plan is slated to be finalized about mid-September. GHD stated that it would supply the Steering Committee with an updated schedule of actions and dates regarding completion of the Flow Management Plan from here on.

The Steering Committee meeting also included presentations on the financial feasibility of the project in view of the region's economic standing, and a legal interpretation of the authority of the Binghamton-Johnson City Joint Sewage Board to require the Owners and Outside Users to implement the Flow Management Plan programs.

(1) Since the meeting, a schedule extension has been requested from the NYSDEC. If this extension is granted, then the Flow Management Plan is slated to be finalized near the end of the 2011 calendar year.

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Financial Feasibility

Environmental Capital LLC consultants Richard McCarthy and Pranita Suvarna presented elements of the financial feasibility assessment that is underway regarding the draft Flow Management Plan.

The method used in the assessment was discussed. This included the U.S. Environmental Protection Agency's "*Guidance for Financial Capability Assessment and Schedule Development*" as a way to assess the financial impact of the proposed Flow Management Plan. The data used for this assessment came from the U.S. Census Bureau, NYS Department of Labor, NYS Office of the Comptroller, official statements and audited financial statements of, as well as correspondence with, the towns, cities and villages in the BJCJSB system; and information from the Binghamton-Johnson City Joint Sewage Board.

It was explained that the assessment included a two-phase process which involved the development of a residential indicator as well as a permittee indicator for each municipal user. The residential indicator provides a ratio between the anticipated cost per household of wastewater costs and the median household income for residential units within each municipal user. The permittee indicator evaluates debit, socioeconomic and financial conditions of each of the municipal users, including factors such as unemployment rates, property tax collection rates, median household income, bond ratings, and overall debt of the municipal users. Together, the indicators determine a financial capability category that categorizes the financial burden of wastewater treatment costs to be of a "high," "medium," or "low" level to residential households in each of the municipal users.

With that data, McCarthy and Suvarna provided projected future annual cost increases that each municipal user might face due to implementation of the Flow Management Plan based on the three proposed programs (CMOM, I/I Offset, and a new sewer connection approval process). These potential future costs were derived from similar communities implementing Flow Management Plans and included a 1% or 2% ratio of system rehabilitation per year. It was clarified that the costs illustrated as examples do not include a reduction for the amounts being spent at present by any of the municipalities for CMOM programs that may already be in place, thereby representing "worst-case" scenarios. It also was noted that the costs shown had not been adjusted for inflation in future years. Environmental Capital LLC consultants stated that they would report back in the near future with final assessments and determinations from the data on whether the municipalities rate as low, medium or high-burden communities.

A question was asked as to why the NYS Comptroller's "average wastewater cost per household" was not used instead as a criteria. The consultants responded that the U.S. EPA method is used since it addresses the question of the real burden of projected costs on the local households. Further, the NYSDEC is very familiar with the U.S. EPA method and in reviewing such financial assessments, will potentially base the timeframe it allows a community to complete sewer rehabilitation plans on how large a burden those costs place on a community, moving things more quickly, or slowing them down accordingly.

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The question of how the NYS-enacted 2% property tax cap would affect cost feasibility and affordability calculations was raised. GHD Consultant Team legal partner Bruce Tobey, of the firm Pannone, Lopes, Devereaux and West, noted that the “hard reality” is that the U.S. EPA is not concerned with any issues of property taxes, since its only interests are in making sure its environmental standards are met. Further, the U.S. EPA would rather see sewer costs funded through an enterprise fund (i.e. “sewer fund”) rather than a community’s general fund, it was noted by Tobey. The former would not be affected by a property tax cap.

BJCJSB sewage treatment plant Superintendent Catherine Aingworth commented that one of the factors in favor of using EPA standards is that this is one of the primary data points referenced in grant applications, and thus would aid the region if government grant funding is applied for in relation to the Flow Management Plan programs.

BJCJSB member Ed Crumb noted that the calculations presented do not take into account any possible state or federal funds that the region could possibly attain for the project. Instead, the figures present a “worst case” analysis since the Board did not want to estimate low and discover later that costs are actually higher than presented.

Additional questions were raised by some of the Steering Committee members and their legal counsel attending the meeting. Those questions (with answers given presented in *italics*), included:

- Are some of these costs subject to the 2% property tax cap put into law in New York State?
It is believed that the 2% cap applies only to property taxes, not user fees. Consequently, the issue is dependent on how municipalities choose to allocate their revenue funds.
- Has the fact that a community may or may not be a growing community been factored into the financial assessment?
Not exactly, but the methodology takes into account the financial well-being of the municipal government and the residents.
- Will implementation dates be adjusted per the levels of financial burden determined for each community?
The dates to submit a community’s CMOM Plan and to begin implementing the CMOM Program, the I/I Offset Program and the New/Modified Connection Approval Program will be established in the Flow Management Plan. The dates for completing CMOM work and sewer rehabilitation will be established by each community and should be based on the financial burden level of such costs.

Legal Authority

Legal consultant Bruce Tobey provided an assessment of the Joint Sewage Board’s legal authority to require Owners and Outside Users to comply with the Flow Management Plan being developed. Tobey said that the assessment took into account review of all the user municipality agreements, sewage treatment plant use rules and regulations, local law, and bonding provisions, all within the backdrop of the U.S. EPA Clean Water Act.

Based on that review, the firm has concluded that the Board does have the adequate authority to require each category of users to implement the Flow Management Plan now being compiled. All of

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the users (except the Town of Vestal, which must respond to the NYSDEC because of its own NYSDEC Consent Order, and Binghamton University) are subject to the rules and regulations of the Board. To exercise its authority, the Owners and Board must only amend their Joint Sewage Treatment Plant Law (Owners) and the Rules and Regulations (Board) accordingly, Tobey stated. For Binghamton University, the Board must amend the University's Industrial Wastewater Pretreatment Permit. The attorney noted that the questions being faced by the group are not unusual, given that the business of sewage treatment is an evolving one where rules and regulations can change at any time.

Comment, Question/Answer Session

During an open discussion session, comments made, questions asked and answers given (*shown in italics*) were as follows:

- It seems that this program does not address the core problem, and instead shifts the burden of doing Infiltration and Inflow (I/I) offset to the Outside Users, rather than those users who actually have the most I/I.
The Sewage Board disputes that. The most recent engineering studies show that there is Infiltration and Inflow everywhere in the collection system. Also, the Binghamton and Johnson City systems were designed and permitted as combined sewer systems to accept inflow and the U.S. EPA accepts that the Owners' collection systems consist of combined sewers because it is built into the permits with the NYSDEC, which has said the system is in compliance.
- Have alternatives to a flow management plan of programs been considered, even a capital project with costs spread over 30 years?
The Flow Management Plan currently proposed is designed to provide assurance of system capacity in ways where communities can have control over their programs, and can plan program costs over a period of time without the financial burden of a major capital (plant construction) project. The GHD consulting team believes this is the least costly approach to staying in compliance.
- On what basis can the NYSDEC tell us that we can have no new connections?
The I/I Offset plan being proposed in the Flow Management Plan would not impact individual homeowner new connections, but would affect only new sewer extensions greater than 2,500 gallons per day, it was noted. Currently, NYSDEC has an approval process for these new sewer extensions. Moving forward, the NYSDEC could disapprove such sewer connections on the grounds that they result in more combined sewage volume, if not offset.

Flow Credits

In response to a question about flow credits, GHD Engineering noted that after meetings that morning with Binghamton and Village of Johnson City officials, both municipalities stated that they wanted to work with the Outside Users on an agreement where there would be sharing of flow credits created through both Owner municipalities' reduction of Infiltration and Inflow. GHD noted that it had been a concern of some Outside Users that the Owners (the City and Village) would have more flow credits than the Outside Users due to the size differences in their systems and the amount of I/I that can be removed.

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Sewage Board member Luke Day noted that there could be some possibility of the region obtaining state economic development funds for I/I removal in the City and Village systems, and if that possibility becomes a reality, the credits created could be shared so that every one of the Users would start out with some flow credits as economic development tools. It was stated that once a flow credit sharing program is developed, that model formula would be formally adopted as part of the Flow Management Plan.

City of Binghamton representative Philip Krey, P.E. noted that the City does not intend to lock away all the flow credits created through I/I reduction just for its own use, because those credits will help the entire area. He said the City's perspective is that there may likely be more flow credits created than can be used by everyone, so there is no need for the City to maintain them just for its own use.

A question was asked about providing retroactive flow credits to municipalities that have already done a good share of I/I removal on their own in years past. GHD Engineering reported that project engineers have been discussing the issue with NYSDEC. GHD said they have asked that retroactive credits be allowed back to 1998 when some of the municipalities began their sewer rehabilitation and I/I removal programs. The state was also asked to permit an allowance for the homes lost to flooding in the Town of Conklin. GHD noted that the state has entertained the question so far without indicating how it will answer, but in follow-up has asked GHD to estimate the amount of retroactive credits that this projection would comprise. GHD noted that the City of Binghamton and Village of Johnson City are also looking at sharing flow credits retroactively. However, until NYSDEC makes a decision, the entire question remains unanswered, GHD said.

The meeting was adjourned at 7:45 p.m.

Steering Committee Members and Others in attendance:

Tarik Abdelazim, *City of Binghamton*
Catherine Aingworth, *BJCJSB, sewage treatment plant Superintendent*
Gerald Angelo, *Towns of Conklin and Kirkwood*
Richard Bassler, *P.E., Town of Fenton*
Robert Bennett, *P.E., Village of Johnson City*
Ron Brown, *City of Binghamton*
Lou Caforio, *Town of Union*
Ray Coolbaugh, *Town of Kirkwood*
Edward Crumb, *Binghamton-Johnson City Joint Sewage Board*
Luke Day, *Binghamton-Johnson City Joint Sewage Board*
Sandy DeJohn, *Binghamton University*
Michael Donahue, *Town of Binghamton*
Kelly Donovan, *Binghamton University*
Ben Eisenhop, *attending for Weixing Zhu, Binghamton University*
John Finch Jr., *Town of Kirkwood*
Scott Groats, *Town of Vestal*
Jesse Holmes, *P.E., representing Town of Binghamton*
Eugene Hulbert Sr., *Binghamton-Johnson City Joint Sewage Board*
Gordon Kniffen, *Town of Kirkwood*
Philip Krey, *P.E., City of Binghamton*
Ron Lake, *P.E., of Conklin and Dickinson; Village of Port Dickinson*

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Michael Marinaccio, *Towns of Conklin and Kirkwood*
Laura McKane, *Town of Vestal*
Allison Philips, Esq., *Young Sommer, LLC*
Dan Schofield, *representing **Patrick Brennan**, Broome County*
Kevin Young, Esq., *Young Sommer, LLC*

Other Steering Committee Members or Interested Parties:

Bob Aagre, *Village of Port Dickinson*
Pete Andreasen, *Town of Vestal*
Stephen W. Andrew, *Binghamton-Johnson City Joint Sewage Board*
John Bernardo, *Town of Union*
Kevin Burke, *Village of Port Dickinson*
Michele Cuevas, *Secretary, Binghamton-Johnson City Joint Sewage Board*
Tom Delamarter, *Town of Conklin*
Dan Griffith, P.E., *representing Towns of Conklin and Kirkwood*
Dennis Hannon, *Village of Johnson City*
Joel Kie, *Town of Dickinson*
George Kolba Jr., *Binghamton-Johnson City Joint Sewage Board*
John Mastronardi, P.E., *Towns of Conklin, Kirkwood*
Dan Miller, *Town of Dickinson*
Leonard Perfetti, *Town of Union*
Debra Preston, *Town of Conklin*
Frank Root, P.E., *Town of Fenton*
Matthew Ryan, *City of Binghamton*
Philip Schmidt, *Town of Union*
Christopher Stastny, *representing Towns of Conklin and Kirkwood*
Tim Steed, P.E., *representing Town of Vestal*
Annette Testani, *Binghamton-Johnson City Joint Sewage Board*
James Van Voorst, *Binghamton University*
Tim Whitesell, *Town of Binghamton*

GHD Consulting Team in Attendance:

John LaGorga, P.E., *BCEE, GHD Project Engineer*
Richard McCarthy, *Environmental Capital LLC*
Nancy Pattarini, *The Paige Group*
Diane Stirling, *The Paige Group*
Pranita Suvarna, *Environment Capital LLC*
Bruce Tobey, Esq., *Pannone Lopes Devereaux & West*

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Planners Informational Roundtable

Meeting Date: August 16, 2011

Report Date: August 23, 2011

As was requested by some members of the Binghamton-Johnson City Joint Sewage Board (BJCJSB) Steering Committee, the Sewage Board conducted a Planners Informational Roundtable in order to familiarize the region's municipal planning personnel with the draft BJCJSB Flow Management Plan, and the collaborative process that has been underway to develop it.

Planners were provided with an outline of the draft project and its purpose in helping to maintain the wastewater infrastructure, keeping the environment healthy and clean, and providing system capacity for future economic development. They heard the history of how the region's municipalities have worked for many years to ensure that wastewater infrastructure remains in compliance with New York State Department of Environmental Conservation (NYSDEC) regulations.

GHD Consultant Team John LaGorga, P.E., discussed how significant progress has been made, and that the City of Binghamton and Village of Johnson City collection systems currently are in compliance. However, he noted that the NYSDEC's determination of compliance came with additional requirements by the NYSDEC that required a Flow Management Plan be developed in order to assure the wastewater system can maintain its status of compliance. LaGorga reported that a Flow Management Plan is a unique aspect of wastewater regulations in New York State. He said that the NYSDEC generally requires such a plan whenever a wastewater treatment plant is nearing design level or when combined sewer overflows (CSOs) are near capacity or design levels.

LaGorga said that, historically, when NYSDEC requests or requires that a Flow Management Plan be implemented, it generally includes major capital projects. The approach of this Plan, however, is to avoid spending large capital sums, and to proactively provide flow management solutions through proper planning, operations and maintenance, capital investments over time, and programmatic solutions instead.

GHD explained that three programs are planned within the draft Flow Management Plan:

- 1) Capacity, Management, Operation and Maintenance (CMOM), a program that includes adhering to industry standard operations and maintenance standards;
- 2) Infiltration and Inflow (I/I) Offset, a program that reduces the amount of stormwater and groundwater entering the sewer system;
- 3) A standard operating procedure specification for the approval of new connections to the wastewater system.

GHD also explained the process of how, through a number of Steering Committee meetings since late May, municipal leaders and community representatives have been reviewing draft program components, asking questions, reflecting on the concepts presented, contributing their own ideas, providing input and thus collaboratively developing the components of the draft Plan.

Those in attendance brought up a number of questions and added comments regarding Plan development. These included:

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- There is a need to assure that Plan components not conflict, and be feasible and compatible with any proposals that may come from Governor Cuomo's Regional Economic Development Council.
- In light of Smart Growth initiatives regarding public infrastructure at the state level, have priority areas for development been established, such as brownfield sites?
- Is there any issue in the plan development, as related to natural gas hydrofracking, to be concerned about or taken advantage of?
- Is there any consideration about consolidating plant ownership in the future, either it being assumed by the county or by an authority?
- What is an alternate plan for funding all the improvements if the flow credit system does not generate the money needed to make them?
- What projects could be done that would provide the greatest improvements in the system for the most efficient (or lowest) costs?
- How are flow credits quantified?
- Has an understanding been achieved as to the source origination of the majority of infiltration and inflow that is occurring in the system? Is this source the City of Binghamton or the Village of Johnson City?
- Can we make sure that whatever process added through this plan is a streamlined one, so it therefore doesn't discourage development?
- How does each user manage a CMOM program? Is it more prudent to centralize CMOM activity at the plant and build in user fees for it, or do the municipalities need these to be separate activities?

The planners in attendance, as well as others who were unable to be present, were added to a distribution list to receive updates regarding future meetings and additional process and plan information.

Meeting attendance

Tarik Abdelazim, *City of Binghamton*

Pete Andreasen, *Town of Vestal*

Gary Campo, *Town of Vestal*

Brett Chellis, *Broome County Office of Emergency Services*

Edward Crumb, *Binghamton-Johnson City Joint Sewage Board*

Beth Egitto, *Broome County Planning Department*

Tom Evans, *Southern Tier East Regional Planning Development Board*

Paul Nelson, *Town of Union and Village of Johnson City*

Dan Schofield, *representing Patrick Brennan, Broome County*

GHD Consultant Team

John LaGorga, *P.E., BCEE*

Bruce Tobey, *Esq.*

Nancy Pattarini

Diane Stirling

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Steering Committee Meeting – January 17, 2012

Report Date: January 18, 2012

Meeting Summary

GHD Engineering provided the purpose of the Flow Management Program, which is to **maintain compliance** with federal and state regulations. The Flow Management Program will ensure that compliance is maintained while accommodating economic development.

GHD provided a review of three of the cornerstone programs of the Flow Management Program, including:

- New/Modified Sewer Connection Approval Program
- Infiltration and Inflow ("I/I") Offset Program
- Capacity, Management, Operation & Maintenance Program

The elements of the program were presented and Steering Committee members had the opportunity to ask questions, provide feedback and comment, and discuss details. The Steering Committee members were requested to provide written feedback through email by January 20, 2012.

GHD also provided a review of the Financial Capability Analysis results. There are possible future capital projects at the sewage treatment plant in addition to the costs associated with administering and implementing the Flow Management Plan. The financial impact of these costs was assessed according to the USEPA Financial Capability Analysis Guidelines. It was noted again that the costs analyzed represent a "worst-case" scenario.

An end-of-project schedule was presented. The need for continued Steering Committee Meetings was discussed. There was a general acknowledgment that future meeting would be helpful.

Comments and Question Summary

During the meeting several comments and questions were made. Some of these comments/questions and responses were as follows:

A question was asked about modified sewage flow rates. A modified sewer connection must have a net gain of greater than 2,500 gallons per day to require a Sewer Extension Engineering Report, Approval of Intermediate Municipal Users (if applicable), Owners and Board, and an I/I Offset. The modified sewer connection does not need to have the exact sewer connection point as the original sewer connection point. An example of Binghamton University (BU) was given; if BU takes down one building and builds three more in the same sewer basin as part of the same development project, then even though the connection points are not in the same location together they would be considered a modified connection and a net gain calculation would be required.

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A question was asked about baseline flow for the Sewer Capacity Analysis. For Outside Users, the flow data collected in 2006 and 2008 should be used as the baseline for determining the "existing" average flow rate, onto which you would add the new/modified sewage flow rate for the sewer capacity analysis. As the Plan is written, only new/modified sewage flow rates since the effective date of the Flow Management Program would be considered. However, if there are known large new/modified connections that have occurred between 2006 and the effective date of the Flow Management Program, then on case-by-case basis they should be considered.

A comment was made about ownership of flow credits. The original concept for the I/I Offset Bank and ownership of flow credits was to have a "free market" that allowed public and private ownership of credits. This concept has been changed to allow only Municipal Users to own flow credits initially, and each Municipal User then has the authority to transfer credit to developers and/or allow developers to own credits.

A question was asked regarding Outside Users receiving retroactive flow credits for sewer work completed in their communities. GHD and the Board negotiated on behalf of the City of Binghamton and the Village of Johnson City for retroactive flow credits from past sewer separation projects only as a proportion of the retroactive flow credits will be allocated to Outside Users. The Plan states that "Following approval of the Flow Management Plan by NYSDEC and the adoption of the new Article in the Rules and Regulations as provided in Appendix G, Outside Users and the owners will be able to apply for recognition of other I/I offset credits for past work retroactive to 1998 upon submission of approvable supporting documentation."

A question was asked about Town of Fenton's cost increase shown in the financial capability analysis. This response is general and can be applied to each of the Municipal Users. There are potential future capital projects at the sewage treatment plant. The costs of these potential projects were distributed to Municipal Users based on water usage. The Town of Union and the Town of Fenton had the largest percent increase on a percentage basis resulting from these potential future capital projects, 42% and 33%, respectively. The average was 28%. There also costs associated with administering and implementing the Flow Management Program, these costs were estimated based on costs from the City of Oswego, which is implementing a similar program. Some of the Flow Management Program costs have economy of scale, costing the larger communities relatively less than the smaller communities. The Town of Fenton, having the least amount of pipe, had the largest increase on a percentage basis resulting from the Flow Management Program costs, a 26% increase versus an average of 12.5%. For these reasons, the Town of Fenton also had the largest percent increase in costs as a result of the potential future capital projects and Flow Management Program costs. There is flexibility in the Flow Management Program to schedule work according to financial capability and therefore equitably manage costs over time. Every community should consider such scheduling, but especially the Town of Fenton and the Town of Dickinson (which reached a high burden condition as a result of potential future capital projects and Flow Management Program costs).

A request was made to notify Municipal Users of approval status. If the NYSDEC approves the Plan before April 1, 2012, then the Flow Management Program will have an effective date of

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January 1, 2013. If the NYSDEC approves the Plan between April 1, 2012 and March 31, 2013, then the Flow Management Programs will have an effective date of January 1, 2014. The Board will inform the Municipal Users of the approval status on April 1, 2012, or before if approved.

A request was made to have a list of submittal dates associated with the Flow Management Program. It was proposed that this list could be part of a future Steering Committee meeting once the Program was approved.

A question was asked about funding opportunities. Potential funding opportunities are presented in Appendix I of the Flow Management Plan. Professor Weixing Zhu (BU) recommended that communities become aware of the Chesapeake Bay Initiative, though there no specific funding sources associated with the initiative currently, there may be in the future.

A question was asked about whether this type of Program was unique. Other communities that have I/I and capacity concerns have been required to have I/I Offset Programs and CMOM Programs. Also, CMOM is now becoming a requirement of SPDES permits, so we expect in the next five years most if not all permit holders will be required to implement CMOM Programs.

A suggestion was made to have a media roll-out news conference or press release once the Flow Management Plan was approved by NYSDEC. The Board will consider this.

Meeting Attendance (January 17, 2012)

Steering Committee Members in Attendance:

Catherine Aingworth, Superintendent, Binghamton-Johnson City Wastewater Treatment Facilities
Richard Bassler, P.E., Town of Fenton
Robert Bennett, P.E., Village of Johnson City
Ronald Brown, City of Binghamton
Edward Crumb, Binghamton-Johnson City Joint Sewage Board
Luke Day, Binghamton-Johnson City Joint Sewage Board
Sandy DeJohn, Binghamton University
Michael Donahue, Town of Binghamton
John Finch, Jr., Town of Kirkwood
Scott Groats, Town of Vestal
Jesse Holmes, P.E., representing Town of Binghamton
Eugene Hulbert, Sr., Binghamton-Johnson City Joint Sewage Board
Gordon Kniffen, Town of Kirkwood
Philip Krey, P.E., City of Binghamton
Ronald Lake, P.E., representing Towns of Conklin and Dickinson; Village of Port Dickinson
Michael Marinaccio, Town of Dickinson
John Mastronardi, P.E., representing Towns of Conklin and Kirkwood
Daniel Miller, Town of Dickinson
Philip Schmidt, Town of Union
Daniel Schofield, Broome County
John Schaffer, Town of Vestal
Weixing Zhu, Ph.D., Binghamton University

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GHD Consulting Team in Attendance:

John LaGorga, P.E., BCEE
Nancy Pattarini

Other Steering Committee Members or Interested Parties:

Tarik Abdelazim, City of Binghamton
Bob Aagre, Village of Port Dickinson
Stephen W. Andrew, Binghamton-Johnson City Joint Sewage Board
Rose Sotak, Town of Union
Kevin Burke, Village of Port Dickinson
Michele Cuevas, Secretary, Binghamton-Johnson City Joint Sewage Board
Lou Caforio, Town of Union
Ray Coolbaugh, Town of Kirkwood
Tom Delamarter, Town of Conklin
Kelly Donovan, Binghamton University
Dave Hamlin, Town of Fenton
Dennis Hannon, Village of Johnson City
Joel Kie, Town of Dickinson
George Kolba, Jr., Binghamton-Johnson City Joint Sewage Board
Leonard Perfetti, Town of Union
Debra Preston, Broome County
Frank Root, P.E., Town of Fenton
Matthew Ryan, City of Binghamton
Chris Statsky, representing the Towns of Conklin and Kirkwood
Tim Steed, P.E., Hunt Engineers, Town of Vestal
Ronald Davis, Binghamton-Johnson City Joint Sewage Board
James VanVoorst, Binghamton University
Tim Whitesell, Town of Binghamton



Appendix F

ARTICLE 14

NEW OR MODIFIED SEWER CONNECTION APPLICATION PROGRAM

§14.01 AUTHORITY

The Binghamton-Johnson City Joint Sewage Board (Board), having an approved Flow Management Plan, as required under a series of administrative consent orders by the New York State Department of Environmental Conservation to manage and provide for treatment of wastewater flows, is the local authority for the requirements of and implementation of the New or Modified Sewer Connection Application Program.

§14.02 PURPOSE AND GOALS

The purpose of this Article is to control sewer flow to the Binghamton-Johnson City Joint Sewage Treatment Plant (Treatment Plant), and maintain compliance with the City of Binghamton's and the Village of Johnson City's Combined Sewer Overflows Long-Term Control Plan, as required by the U.S. Environmental Protection Agency.

The New or Modified Sewer Connection Application Program will promote a unified, consistent and coordinated process for evaluating the effects of new or modified sewer connections and assuring that new or modified sewer connections do not result in exceeding the capacity of the sewage collection system.

§14.03 EFFECTIVE DATE

The effective date of this New or Modified Sewer Connection Application Program is January 1, 2013.

§14.04 DEFINITIONS

These terms and their definitions whenever used in this regulation shall apply to only this regulation, unless otherwise expressly stated or required by subject matter of context:

“Affected Owner” shall mean the Owner whose sewage collection system will transport or convey the wastewater from the new or modified sewer connection.

“Applicant” shall mean an entity that requests approval for a new or modified sewer connection and/or sewer extension.

“Area tributary to” – refers to a series of pumping stations, force mains and gravity sewers owned by various municipalities that together convey wastewater to a specific location, such as the Treatment Plant or a combined sewer overflow, in the sewage collection system.

“Available Sewer Capacity” shall be the difference between a sewer pipe's theoretical full pipe capacity calculated using Manning's Equation, and the average wastewater flow in the pipe based on the 2006, 2008 and 2010 flow metering data plus the estimated peak sewage flow rate increase from the new or modified sewer connection. The 2006 and

2008 flow metering data was presented in the September 2009 Flow Management Evaluation Report-Appendix C (approved by NYSDEC in October 2009), and the 2010 flow metering data was presented in the April 2011 Flow Management Process, Collection System Mapping Enhancement and Modeling Study –Section 7 (approved by NYSDEC in March 2011).

“Board” or “Joint Sewage Board” shall mean the Binghamton-Johnson City Joint Sewage Board, established under the contract between the City of Binghamton and the Village of Johnson City for the operation of the joint wastewater treatment facility. The term includes any duly authorized designee, agent, or representative of the Board.

“Effective date” shall mean the date upon which an act of legal significance such as an Agreement or a contract is considered to take effect and which may be different from the date upon which the event described therein actually occurs or is recorded.

“Flow Credit Note” shall mean an agreement between the Board and the Applicant that flow credits shall be made available to the Applicant, Developer, or a Municipal User under specific terms.

“Flow Management Plan” is specific to the Third Modification Consent Order (Case #R7-0580-90-12) between the New York State Department of Environmental Conservation and respondents City of Binghamton, Village of Johnson City, and the Binghamton-Johnson City Joint Sewage Board, and refers to the written document approved by the New York State Department of Environmental Conservation in March 2012. The Flow Management Plan describes a programmatic approach to convey, receive, and treat the wastewater and ensure current and future flows receive adequate treatment.

“Hydraulic and Pollutant Loading Capacity Analysis” refers to comparing the average wastewater flow rate and pollutant design values of each unit process at the Treatment Plant to the average wastewater flow rate and pollutant load plus the estimated peak sewage flow rate and pollutant load from the new or modified sewer connection.

“I/I Offset Flow Credits” shall mean gallons per day of flow capacity available for proposed new or modified sewer connections that are generated through “I/I Remediation Projects”.

“I/I Remediation Project”, is an improvement, public work, or repair that reduces infiltration and inflow into the Sewage Collection System.

“Infiltration/Inflow” or “I/I” shall mean the total quantity of water from both Infiltration and Inflow, without distinguishing the source.

“Infiltration” shall mean wastewater, other than sewage, that enters a sewage collection system, (including sewer service connections) from the ground through such means as defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, Inflow.

“Inflow” shall mean water, other than sewage, that enters a sewage collection system, (including sewer service connections) from sources such as: roof leaders; cellar drains; sump pumps; missing or defective cleanout caps; swimming pools; yard drains; area drains; foundation drains; drains from springs and swampy areas; manhole covers; cross

connections between stormwater sewers and sanitary sewers; catch basins; cooling towers; stormwaters; surface runoff; street wash waters; or drainage. Inflow does not include, and is distinguished from, Infiltration.

“Intermediate Municipal User” shall mean the Municipal User whose sewage collection system will transport or convey the new or modified sewage flow from the Principal Municipal User’s sewage collection system to the Affected Owner’s sewage collection system.

“Municipal User” shall mean a municipality or government entity which owns, or has jurisdiction over, any public sewer which conveys wastewater to the Treatment Plant.

“New or Modified Sewer Connection” shall mean the construction of a new sewer connection to a sewer pipe owned by a Municipal User tributary to the Treatment Plant, or the modification of an existing sewer connection to a sewer pipe owned by an a Municipal User tributary to the Treatment Plant.

“New or Modified Connection Application Program” shall refer to the Board’s Application Program established pursuant to this Article (or, alternatively, these rules and regulations) that will promote a unified, consistent and coordinated process for evaluating the effects of new or modified sewer connections and assuring that new or modified sewer connections do not result in exceeding the capacity of the sewage collection system.

“Principal Municipal User” shall mean the Municipal User to whose Sewage Collection System the new or modified sewer connection is being made.

“Private Sewer” shall mean a sewer not owned or controlled by a Municipal User, not including lateral sewers.

“Publicly Owned Treatment Works” or POTW shall mean a treatment works as defined by Section 212 of the Federal Clean Water Act (33 USC 1292). This definition includes any directly or indirectly connected sewers and appurtenances that convey wastewater to the wastewater treatment plant, but does not include pipes, sewer laterals or other conveyances serving not more than a single home development not connected directly to the POTW.

“Sewage” shall mean the water-carried domestic human or animal waste from residences, industrial and commercial establishments, together with industrial and commercial waste. Neither infiltration nor inflow are components of “sewage”.

“Sewage Collection System” shall mean all facilities for collecting, regulating, pumping, and transporting, sewage and may include a sanitary sewer system or, where permitted by the NYSDEC, a combined sewer system.

“Sewer Connection Application” shall refer to the form in which the Applicant provides information about the new or modified sewer connection and requests permission to make such connection.

“Sewer Extension” shall mean any and all sanitary sewer facilities, including sewer pipe and manholes, and any fittings and connections related thereto which are to become part of the POTW and which are anticipated to increase flows in the sewer system by more

than 2,500 gallons per day. It shall also include, where applicable, all pumping stations, force mains, and associated facilities.

“Sewer Extension Engineering Report” shall refer to the document that accompanies a Sewer Connection Application in which the Applicant provides information about the new or modified sewer connection and the affected sewage collection system.

“Sewer System Capacity Analysis” refers to comparing the difference between a sewer pipe’s theoretical full pipe capacity calculated using Manning’s Equation and the average wastewater flow in the pipe based the 2008 flow metering data as presented in the September 2009 Flow Management Evaluation Report-Appendix C (approved by NYSDEC in October 2009) plus the estimated peak sewage flow rate increase from the new or modified sewer connection.

“Treatment Plant” shall mean the Binghamton-Johnson City Joint Sewage Treatment Plant.

“Wastewater” is the composite of all flow constituents conveyed in a sewer including sewage and infiltration and inflow.

§14.05 PROGRAM REQUIREMENTS

§14.05.01 SEWER CONNECTION APPLICATION

A Municipal User shall prepare in accordance with the provisions of this Article (or, alternatively, these rules and regulations) a Sewer Connection Application that is required to be completed by an Applicant and approved by the Municipal User before a sewer connection can be made. A sample Sewer Connection Application can be found in Appendix A.

The Sewer Connection Application shall include at a minimum a parcel ID number (i.e., tax map number), estimated date for completion of the new or modification development construction, and an estimate of the pre-construction/modification sewage flow rate and post-construction/modification sewage flow rate.

If a sewer connection or modification results in new sewage flows of more than 2,500 gallons per day, then said connection is defined as Sewer Extension and the application requires approval from the Affected Owner, Board and possibly an Intermediate Municipal User (refer to Section 14.05.04 - New or Modified Sewer Connection Greater than 2,500 gallons per day).

Other applications or documents or fees may apply to developing a property and supplying the property with utilities with respect to applicable local, county or state laws.

This Article pertains only to a sewer connection in the area tributary to the Treatment Plant and the required Sewer Connection Application.

§14.05.02 SEWER CONNECTION ENGINEERING REPORT

If the Sewer Connection Application is for an increase in sewage flow rate to the Treatment Plant of more than 2,500 gallons per day, then the application must be accompanied by a Sewer Extension Engineering Report. The Sewer Extension Engineering Report shall include:

1. Development location and description.
2. Existing Site description, including existing sewage flow to the POTW, if any.
3. Description of proposed new or modified Private Sewer.
4. (if applicable) Proposed new or modified POTW (sewers or treatment plant), alternatives, financing and permits.
5. Anticipated sewage volume/flow in gallons per day (to be used for a computation of the minimum-required I/I Offset Flow Credits under this Program) and Pollutant Load Generation to POTW.
6. Existing Sewer System Capacity Analysis.
7. Listing of all applicable permits.
8. Plan and Program for construction supervision and sewer testing.

The Sewer Extension Engineering Report shall be prepared and certified by a New York State Licensed Professional Engineer. The Sewer Extension Engineering Report shall include a Sewer System Capacity Analysis of the Municipal User's and (if applicable) the Intermediate Municipal User's sewage collection system from the point of the new or modified sewer connection to the Affected Owner's sewage collection system. The Sewer Connection Engineering Report must certify that there is available sewer capacity or make provisions for providing available sewer capacity before submitting the Sewer Connection Application and Report for approval.

§14.05.03 NEW OR MODIFIED SEWER CONNECTION SEWAGE FLOW RATES

Determining the sewage flow rates of new or modified sewer connections to the POTW shall follow the guidelines shown on Table 14.05.03. Residential, commercial, restaurants, industrial, and other flows are based on the "Design Standards for Wastewater Treatment Works", 1988 edition as published by NYSDEC or future revisions or republications of the same (such revisions or republications shall only be applicable prospectively, however, beginning with respect to applications submitted on or after the first day of the month which is at least 90 days following the public release of the final version of the revision or republication). For industrial and other facilities listed in the Table 14.05.03-1, the sewage flow rates will be determined at the time of application by the Applicant based on similar type and size of business. Sewage flow

rates shall be computed by a New York State Licensed Professional Engineer and are subject to approval by the Board.

§14.05.04 NEW OR MODIFIED SEWER CONNECTION (LESS THAN OR EQUAL TO 2,500 GALLONS PER DAY)

(a) Applicant shall submit a Sewer Connection Application to:

1. Principal Municipal User
2. Intermediate Municipal User
3. Affected Owner
4. Board
5. Other Governing Agencies (if applicable)

(b) Other applications or documents or fees may apply to developing a property and supplying the property with utilities. This Article pertains only to a sewer connection in the area tributary to the Treatment Plant and the required Sewer Connection Application.

(c) Upon approval of the Sewer Connection Application by the Principal Municipal and other Governing Agencies (if applicable) the Applicant can proceed with the new or modified sewer connection.

TABLE 14.05.03-1: NEW DEVELOPMENT SEWAGE FLOW RATES

Source of Flow	Flow Rate to be Added to the POTW ⁽²⁾	Reference
Residential Homes	1 Bedroom - 150 gal/day 2 Bedroom - 300 gal/day 3 Bedroom - 400 gal/day 4 Bedroom - 475 gal/day 5 Bedroom - 550 gal/day	<i>Design Standards for Wastewater Treatment Works</i> , 1988 edition as published by the NYSDEC ⁽¹⁾
Apartments	1 Bedroom - 150 gal/day 2 Bedroom - 300 gal/day 3 Bedroom - 400 gal/day	<i>Design Standards for Wastewater Treatment Works</i> , 1988 edition as published by the NYSDEC ⁽¹⁾
Office Buildings	Based on the larger of 15 gal/day times the number of employees or 0.1 gal/day times the total square footage of space	<i>Design Standards for Wastewater Treatment Works</i> , 1988 edition as published by the NYSDEC ⁽¹⁾
Restaurants	Ordinary Restaurant (more than 50 seats)– 35 gal/day/per seat 24-hr Service Restaurant (more than 50 seats) – 50 gal/day/per seat Tavern (less than 50 seats) – 20 gal/day/per seat	<i>Design Standards for Wastewater Treatment Works</i> , 1988 edition as published by the NYSDEC ⁽¹⁾
Industrial Flows	To be determined at the time of application based on similar industry type and size	
Other sources such as Stores, Motels/Hotels, Recreational Facilities, etc.	To be determined at the time of application based on similar business type and size or the <i>Design Standards for Wastewater Treatment Works</i> , 1988 edition as published by the NYSDEC ⁽¹⁾	

- (1) In the event that NYSDEC amends the 1988 edition, the amended edition shall govern prospectively only, with respect to applications submitted on or after the first day of the month which is at least 90 days following the public release of the final version of the amendment.
- (2) The Design Standards for Wastewater Treatment Works, 1988 edition as published by NYSDEC allow for the following:
- Hydraulic loading rates based on actual water usage data if available for the specific type of new development/facility.
 - 20% reduction in the above listed flow rates if certified water saving plumbing fixtures are used.
 - Expected hydraulic loading rates (flow rates) based on new/alternative technologies will be considered on a case-by-case basis.

§14.05.05 NEW OR MODIFIED SEWER CONNECTION (GREATER THAN 2,500 GALLONS PER DAY)

(a) Applicant shall submit a Sewer Connection Application and Sewer Connection Engineering Report to:

1. Principal Municipal User
2. Intermediate Municipal User
3. Affected Owner
4. Board
5. Other Governing Agencies (if applicable)

(b) A Principal Municipal User can be an Owner or an Outside User to whose Sewage Collection System the new or modified sewer connection is being made. The Principal Municipal User is obligated to disapprove a new or modified sewer connection if such action is required for reasons set forth in the local ordinances or if the flows associated with the new or modified sewer connection will exceed the capacity of the Principal Municipal User's Sewage Collection System.

(c) Upon approval of the Sewer Connection Application and Sewer Connection Engineering Report by the Principal Municipal User and (if applicable) the Intermediate Municipal User, the Applicant shall submit the Application and Report to the Affected Owner and Board.

(d) The Affected Owner shall perform a Sewer Capacity Analysis from the point of the Outside User's connection to the Treatment Plant.

(e) The Affected Owner shall Approve or Approve-with-Conditions the Application based on the Sewer Capacity Analysis limited to conditions required to protect the collection system. Certification of available sewer capacity or provisions for providing available sewer capacity shall be part of the Affected Owner's approval.

(f) The Affected Owner shall send "Approved" or "Approved-with-Conditions" Sewer Connection Application to the Applicant, Municipal User(s) and Board within 45 days of receiving the Sewer Connection Application and Sewer Connection Engineering Report.

(g) The Board may begin the Capacity Analysis immediately upon receiving the Sewer Connection Application and Sewer Connection Engineering Report from the Applicant or wait until receipt of the "approval" notice from the affected Owner.

(h) The Board shall perform Hydraulic and Pollutant Loading Capacity Analysis at the Treatment Plant.

(i) The Board shall Approve or Approve-with-Conditions the Application based on the Hydraulic and Pollutant Loading Capacity Analysis limited to conditions required to

protect the collection system, TPS and Plant. Certification of available sewer capacity or provisions for providing available sewer capacity shall be part of the Board's approval.

(j) The Board shall send "Approved" or "Approved-with-Conditions" Sewer Connection Application to the Applicant, Municipal User(s) and Affected Owner within 45 days of receiving the "approved" Sewer Connection Application from the Affected Owner, with the Board's approval being contingent upon issuance of Flow Credit Note (refer to Article 13 – I/I Offset Program).

(k) Other applications or documents or fees may apply to developing a property and supplying the property with utilities. This Article pertains only to a sewer connection in the area tributary to the Treatment Plant and the required Sewer Connection Application and Sewer Connection Engineering Report.

(l) Developer can begin New/Modified Sewer Connection work upon receiving "approved" Sewer Connection Application from:

1. Principal Municipal User
 2. Intermediate Municipal User
 3. Affected Owner
 4. Board
 5. Other Governing Agencies (if applicable)
- AND
6. Upon receiving Flow Credit Note (refer to Article 13 – I/I Offset Program).

§14.06 ADMINISTRATIVE PROCEDURES

The provisions of Article IV of the Joint Sewage Treatment Plant Law and Article 3 of the Joint Sewage Treatment Plant Law Rules and Regulations shall govern all matters involving proceeding pursuant to this Article.

APPENDIX A – APPLICATION FOR NEW/MODIFIED SEWER CONNECTION PERMIT

BINGHAMTON – JOHNSON CITY JOINT SEWAGE BOARD APPLICATION FOR NEW OR MODIFIED SEWER CONNECTION PERMIT

1. Applicant

Name	Telephone
Address	Fax

2. Project Location

Address	Parcel ID No.
	I/I Remediation Basin

3. Estimated Date for Completion and/or Occupancy

Date

FLOW & FEE/CREDIT WORKSHEET (Attach support Engineering Report if more than 2,500 gpd)

Part I

Source of Flow (check all that apply)	Unit Flow Rate	No. of Units	Peaking Factor	Total Flow Rate (gpd)
Pre-Application Flow (if applicable)				(-)
Residential (people)	X	X		=
Commercial/Office Bldg (employees)	X	X		=
Restaurant (employees + seats)	X	X		=
Industrial or Other Sources -----> (Stores, Motels and Hotels, Recreational Facilities, etc)				

Flow rate to be determined based on accepted standards for similar industry or business type and size.

PART II (check A or B) ONLY APPLICABLE IF NET FLOW CHANGE EXCEEDS A POSITIVE 2,500 gpd

- ___ A. Purchase/Acquire Flow Credits (Fees in Lieu of Mitigation) Yes or No
- ___ B. Earn Flow Credits (I/I Remediation Agreement for Developers/Builders only) Yes or No
Applicant agrees to carry-out or fund acceptable I/I Remediation Project(s) under the terms and conditions of the Offset Program to earn flow credits at the time new/modified sewer construction is certified as complete.

Applicant Signature	Date
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**BINGHAMTON – JOHNSON CITY JOINT SEWAGE BOARD
APPLICATION FOR NEW OR MODIFIED SEWER CONNECTION PERMIT
(Continued)**

PRINCIPAL MUNICIPAL USER PERMIT APPROVAL/ APPROVAL-with-CONDITIONS/ DISAPPROVED

Municipality in Which Parcel is Located Notes for Condition(s) (if any) Name and Title Signature	A new or modified sewer connection for this applicant has been granted Approval or Approval-with-Conditions or is Disapproved (circle one that applies and strike the one that do not apply) Date
--	---

**INTERMEDIATE MUNICIPAL USER PERMIT APPROVAL/ APPROVAL-with-CONDITIONS
(IF APPLICABLE)**

Municipality Effected by Connection (if applicable) Notes for Condition(s) (if any) Name and Title Signature	A new or modified sewer connection for this applicant has been granted Approval or Approval-with-Conditions (circle one that applies and strike the one that does not apply) Date
--	---

AFFECTED OWNER PERMIT APPROVAL/ APPROVAL-with-CONDITIONS

Municipality Owning CSO Notes for Condition(s) (if any) Name and Title Signature	A new or modified sewer connection for this applicant has been granted Approval or Approval-with-Conditions (circle one that applies and strike the one that does not apply) Date
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JOINT SEWAGE BOARD PERMIT CONTINGENT APPROVAL/ APPROVAL-with-CONDITIONS

Municipality Effected by Connection (if applicable) Notes for Condition(s) (if any) Name and Title Signature	Contingent Approval or Approval-with-Conditions of a new or modified sewer connection for this applicant. New or modified sewer connection permit approved contingent upon the issuance of a Flow Credit Note for _____ gpd flow credits. (circle one that applies and strike the one that does not apply) Date
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Appendix G

ARTICLE 13

INFILTRATION/INFLOW OFFSET PROGRAM

§13.01 AUTHORITY

The Binghamton-Johnson City Joint Sewage Board, having an approved Flow Management Plan, as recommended under a series of administrative consent orders by the New York State Department of Environmental Conservation to manage and provide for treatment of wastewater flows, is the local authority for the requirements of and implementation of the Infiltration/Inflow Offset Program.

§13.02 PURPOSE AND GOAL

To control wastewater flow to the Binghamton-Johnson City Joint Sewage Treatment Plant (Treatment Plant), and maintain compliance with the City of Binghamton's and the Village of Johnson City's Combined Sewer Overflows Long-Term Control Plan, as required by the U.S. Environmental Protection Agency.

The goal of this Infiltration/Inflow Offset as Program established pursuant to this Article is to ensure adequate hydraulic capacity throughout the sewage collection system and adequate hydraulic and treatment capacity at the Treatment Plant.

§13.03 EFFECTIVE DATE

The effective date of this I/I Offset Program is January 1, 2013.

§13.04 DEFINITIONS

These terms and their definitions whenever used in this law shall apply to only this law, unless otherwise expressly stated or required by subject matter of context:

“Affected Owner” shall mean the Owner whose sewage collection system will transport or convey the wastewater from the new or modified sewer connection.

“Affected Sewers” shall mean the sewer pipes that convey sewage from a new or modified sewer connection.

“Applicant” shall mean an entity that requests approval for a new or modified sewer connection and/or sewer extension.

“Bank Administrator” shall mean the Board or its designee. The Bank Administrator will manage the Sewer Flow Credit Bank, and review and sign off on all approved applications for flow credit creation, Bank deposits, withdrawals and transfers.

“Board” or “Joint Sewage Board” shall mean the Binghamton-Johnson City Joint Sewage Board, established under the contract between the City of Binghamton and the Village of Johnson City for the operation of the joint wastewater treatment facilities. The term includes any duly authorized designee, agent, or representative of the Board.

“Combined Sewer Overflow or CSO” shall mean the portion of flow from a combined sewer system (CSS) that discharges into a water body from an outfall located upstream of the headworks of a POTW, usually during a rainfall event; also, the outfall pipe which carries this discharge.

“CMOM Program” shall mean a Capacity, Management, Operation and Maintenance Program used by Municipal Users to operate and maintain their sewage collection system.

“Default” shall mean if a certificate of occupancy has not been issued within one year from the time of issuance of the flow credit note or, if later, within the additional time allowed for issuance of the certificate of occupancy when extended as provided herein.

“Developer” shall mean an “Applicant” applying to make a new or modified sewer connection and/or sewer extension, and which may or may not be responsible for the construction of a new or modified sewer connection and/or sewer extension and the construction of an “I/I Remediation Project”.

“Fees in Lieu of Mitigation” shall mean money paid by an “Applicant” into a fund so the applicant may use available flow credits rather than funding and undertaking an “I/I Remediation Project”.

“Flow Credits” shall mean gallons per day of flow capacity available for proposed new or modified sewer connections that are generated through “I/I Remediation Projects”, which is a project that reduces infiltration and inflow into the Sewage Collection System.

“Flow Credit Holder” shall mean the entity that owns the flow credits associated with a given “I/I Remediation Project”.

“Flow Credit Note” shall mean an agreement between the Board and the Applicant that flow credits shall be made available to the Applicant, Developer, or a Municipal User under specific terms.

“Infiltration” shall mean water, other than sewage, that enters a sewage collection system, (including sewer service connections) from the ground through such means as defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, inflow.

“Inflow” shall mean water, other than sewage, that enters a sewage collection system, (including sewer service connections) from sources such as: roof leaders; cellar drains; sump pumps; missing or defective cleanout caps; swimming pools; yard drains; area drains; foundation drains; drains from springs and swampy areas; manhole covers; cross connections between storm sewers and sanitary sewers; catch basins; cooling towers; stormwaters; surface runoff; street wash waters; or drainage. Inflow does not include, and is distinguished from, infiltration.

“Infiltration/Inflow” or I/I shall mean the total quantity of water from both infiltration and inflow, without distinguishing the source.

“I/I Remediation Basin” shall mean the sewage collection system, in its entirety that is tributary to a particular component of the POTW, such as a CSO or pumping station. I/I Remediation Basins represent the areas for which sewer connections need to be offset by I/I reductions in the same area. A I/I Remediation Basin may cross municipal boundaries.

“I/I Remediation Projects” shall mean specific projects (as described herein) including system improvements, repairs, and upgrades that reduce I/I gallons conveyed by the sewage collection system. Improvements, repairs and upgrades, such as manhole sealing, pipe joint grouting and sewer lining are considered I/I Remediation Projects under this Program.

“I/I Remediation Engineering Report” shall refer to the document that provides information about the scope of a project that is designed to remove infiltration and/or inflow from the sewage collection system and provides an estimate of the expected infiltration and/or inflow removal.

“Intermediate Municipal User” shall mean the Municipal User whose sewage collection system will transport or convey the new or modified sewage flow from the Principal Municipal User’s sewage collection system to the Affected Owner’s sewage collection system.

“Municipal User” shall mean a municipality or government entity which owns, or has jurisdiction over, any public sewer which conveys wastewater to the Treatment Plant.

“New or Modified Sewer Connection” shall mean the construction of a new sewer connection to a sewer pipe owned by an Owner or Outside User tributary to the Treatment Plant, or the modification of an existing sewer connection to a sewer pipe owned by an Owner or Outside User tributary to the Treatment Plant, which would require an offset if it is defined as a Sewer Extension, adding greater than 2,500 gallons per day of flow.

“Offset Ratio” shall mean the ratio of required gallons of I/I removed from the sewage collection system to the additional gallons allowed for new sewer connections.

“Principal Municipal User” shall mean the Municipal User to whose Sewage Collection System the new or modified sewer connection is being made.

“Private Sewer” shall mean a sewer not owned or controlled by governmental agency, not including lateral sewers.

“Public Sewer” shall mean a sewer controlled by governmental agency.

“Publicly Owned Treatment Works” or POTW shall mean a treatment works as defined by Section 212 of the Federal Clean Water Act (33 USC 1292). This definition includes any directly or indirectly connected sewers and appurtenances that convey wastewater to the wastewater treatment plant, but does not include pipes, sewer laterals or other conveyances serving not more than a single home development not connected directly to the POTW.

“Sanitary Sewer Overflow” or SSO shall mean a discharge of untreated wastewater from a sewage collection system designed for sanitary sewage only, including infiltration and inflow in excess of the capacity of the collection system, resulting in untreated wastewater discharges from the sewage collection system.

“Sewage” shall mean the water-carried domestic human or animal waste from residences, industrial and commercial establishments, together with industrial and commercial waste. Neither infiltration nor inflow are components of “sewage”.

“Sewage Collection System” shall mean all facilities for collecting, regulating, pumping, and transporting, sewage. May be a sanitary sewer system or, where permitted by the NYSDEC, a combined sewer system.

“Sewer Flow Credit Bank” shall mean a mechanism to track flow credit deposits, withdrawals, and transfers.

“Sewer Extension” shall mean any and all sanitary sewer facilities, including sewer pipe and manholes, and any fittings and connections related thereto which are to become part of the POTW and which are anticipated to increase flows in the sewer system by more than 2,500 gallons per day. It shall also include, where applicable, all pumping stations, force mains, and associated facilities.

“Wastewater” is the composite of all flow constituents conveyed in a sewer including sewage and infiltration and inflow.

§13.05 I/I OFFSET PROGRAM REQUIREMENTS

New or modified sewer connections greater than 2,500 gallons per day (gpd) shall be offset by an equal quantity of infiltration and/or inflow removal. This offset is a one to one (1:1) offset. The offset of infiltration and/or inflow shall occur in the same I/I Remediation Basin as the new or modified sewer connection, unless otherwise approved in writing by the Board. The I/I Remediation Basins are geographic boundaries and are identified in Figure 13.05-1.

Infiltration and/or inflow removal shall be the result of I/I Remediation Projects and said projects shall be completed prior to a new or modified sewer connection being completed. A system to account for the balance between infiltration and inflow removal and new and modified sewer connection sewage flows is set forth in this Article. The system is herein referred to as the Sewer Flow Credit Bank, and is administered by the Board or its designee, the Bank Administrator.

§13.06 EXEMPTIONS FROM I/I REMEDIATION PROJECTS

A Municipal User or Applicant may be exempt from performing an I/I Remediation Project within the Principal Municipal User's municipal boundary with respect to a new or modified sewer connection application if:

- (1) The quantity of infiltration/inflow required to be removed cannot be economically eliminated from the Principal Municipal User's sewage collection system as determined in a cost-effectiveness analysis that compares the cost of implementing the I/I Remediation Project to the total costs for conveyance and treatment of the infiltration/inflow. The cost-effectiveness analysis shall be performed by a professional engineer, licensed in the State of New York, and is subject to approval by the Board.

The cost for transportation and treatment of the infiltration/inflow shall be based on actual billing rates from the most recent year for which the Joint Sewage Board's Fiscal Officer has computed the final billing calculation. The cost of the I/I Remediation Project shall be based on the specific project proposed to achieve the required flow credits. The methods for performing this analysis shall follow, *Guidelines for Performing Infiltration/Inflow Analyses and Sewer System Evaluation Survey*, Commonwealth of Massachusetts, Revised January 1993, or equal method approved by the Board.

Or,

- (2) The quantity of wastewater flow, excluding industrial flow rates, is less than 120 gallons per capita per day as measured at the discharge of an Outside User (as documented in the *Flow Management Evaluation Report*, September 2009) or for the Owners at locations of discharge of major sewer basins (as documented in *Flow Management Process, Collection System Mapping Enhancement and Modeling Study*, January 2011).

And,

- (3) The maximum total wastewater flow rate during storm events does not result in chronic operational problems related to hydraulic overloading of the POTW or which does not result in a total wastewater flow, excluding industrial flow rates, of more than 275 gallons per capita per day as measured at the discharge of an Outside User (as documented in the *Flow Management Evaluation Report*, September 2009) or for the Owners at locations of discharge of major sewer basins (as documented in *Flow Management Process, Collection System Mapping Enhancement and Modeling Study*, January 2011). Chronic operational problems may include surcharging, backups, bypasses, and overflows.

If a Municipal User or Applicant claims such exemption with respect to a given application, it shall deliver a letter claiming such application to the Board together with such supporting documentation as may be required by the Board to rule on such an exemption claim. Upon approving an exemption claim, the Board shall notify the Bank Administrator.

Even though, with respect to a given application, a Municipal User or Applicant may be exempt from completing an I/I Remediation Project within the Principal User's municipal boundary, all new or modified sewer connections greater than 2,500 gallons per day (i.e. sewer extension) must be offset by removal of an equal volume of infiltration and/or inflow within the tributary I/I Remediation Basin or upstream of a known SSO or known bottleneck in the sewage collection system. In such cases, the Applicant, or Municipal User on behalf of the Applicant, shall secure flow credits from within the I/I Remediation Basin according to the procedures set forth in Section 13.08 – Flow Credit Allocations and Flow Credit Sales.

§13.07 FLOW CREDITS FOR PAST I/I REMEDIATION PROJECTS

The NYSDEC approved the City of Binghamton and Village of Johnson City's Combined Sewer Long-Term Control Plans, which were developed using a baseline condition of 1998. Since 1998 the City and Village have each implemented multiple sewer separation projects, which have effectively reduced infiltration and inflow throughout their sewage collection systems. The NYSDEC has approved Flow Credits associated with these sewer separation projects according to the following table.

City of Binghamton and Village of Johnson City New York State Department of Environmental Conservation Approved I/I Offset Flow Credits Resulting from Sewer Separation Projects (1998-2011)	
I/I Remediation Basin	I/I Offset Flow Credits (gpd)
City of Binghamton	
I/I Remediation Basin 001 (B001)	0
I/I Remediation Basin 002 (B002)	500,000
I/I Remediation Basin 003 (B003)	270,000
I/I Remediation Basin 004 (B004)	375,000
I/I Remediation Basin 005 (B005)	0
I/I Remediation Basin 006 (B006)	150,000
I/I Remediation Basin 007 (B007)	285,000
I/I Remediation Basin 009 (B009)	100,000
I/I Remediation Basin Front St. PS (BFSPS)	0
I/I Remediation Basin 013 (B013)	310,000
I/I Remediation Basin STP (BSTP)	190,000

Village of Johnson City	
I/I Remediation Basin 001 (JC001)	21,000
I/I Remediation Basin 002 (JC002)	170,000

The NYSDEC approved the Flow Credits shown above on the basis that inflow removed by these historical sewer separation and other type projects would be credited with generating Flow Credits at a ratio of one offset Flow Credit for each two units removed (i.e., 1:2). In other words, the City of Binghamton and Village of Johnson City provided engineering documentation demonstrating the removal of twice the inflow in gallons per day corresponding to the Flow Credits approved by NYSDEC. This approach is grounded in conservatism to the extent that, in the absence of formal CMOM Programs for the respective collection systems in the past, there may have been some degree of increase in I/I contributed by other segments of the collection systems which did not see improvement projects.

Through June 30, 2013, Municipal Users may apply to the Bank Administrator for recognition of past I/I Remediation Projects from the effective date of this Article retroactive to 1998 with corresponding flow credits to be granted pertaining to recognized past I/I Remediation Projects at a ratio of one offset credit for each two units of I/I removed (in other words, 1:2). Municipal Users wishing to apply shall submit to the Bank Administrator a letter of application, project documentation, and an engineering report quantifying the I/I flow reduction in accordance with §13.14, below. Upon receipt, the Bank Administrator shall immediately transmit a copy of the entire application to the New York State Department of Conservation Region 7 Water Engineer, either by certified mail - return receipt requested, or by other means of delivery which provides written or printable confirmation of actual delivery and the delivery date. The NYSDEC Region 7 Water Engineer may provide written comments to the Bank Administrator within 30 days from receipt of the application. Upon expiration of the 30 day comment period or, if sooner, upon receipt of written comments from the NYSDEC Region 7 Water Engineer, the Bank Administrator shall process the application and forward it, together with any written comments received, to the Board for determination. The Board shall make its determination on the application within 90 days from the Bank administrator's receipt of the application. Written notice of the Board's determination shall be delivered to the Bank Administrator, who shall notify the Municipal User and, if flow credits are granted as a result of the determination, adjust the Flow Credit Bank account ledger of the Municipal User accordingly.

§13.08 FLOW CREDIT ALLOCATIONS AND FLOW CREDIT SALES

For Flow Credits generated by past I/I Remediation Projects (refer to Section 13.07 - Flow Credits For Past I/I Remediation Projects) the City of Binghamton shall allocate a portion of the flow credits to Outside Users according to the following table.

City of Binghamton Allocated I/I Offset Flow Credits To Municipal Users Resulting from Sewer Separation Projects (1998-2011)											
Municipal User	Allocated I/I Offset Flow Credits (gpd) by I/I Remediation Basin										
	B001	B002	B003	B004	B005	B006	B007	B009	BFSPS	B0013	BSTP
Town of Vestal	0	0	0	0	0	0	0	0	0	0	38,079
Town of Kirkwood	0	0	0	0	0	0	0	0	0	54,738	0
Binghamton											
University	0	0	0	0	0	0	0	0	0	0	40,459
Town of Dickinson	0	10,710	0	0	0	0	0	0	0	10,710	0
Town of Binghamton	0	0	0	0	0	0	5,950	1,983	0	0	3,967
Village of Port Dickinson	0	0	0	0	0	0	0	0	0	9,520	0
Town of Conklin	0	0	0	0	0	0	0	7,140	0	0	0
Town of Fenton	0	0	0	0	0	0	0	0	0	2,380	0

For Flow Credits generated by past I/I Remediation Projects that have not been allocated, the terms and conditions of transferring or selling these Flow Credits will be negotiated between the City of Binghamton and the Outside Users on a case-by-case basis.

For Flow Credits generated by future I/I Remediation Projects the City of Binghamton pledges to offer the opportunity for Outside Users to purchase Flow Credits in advance of an I/I Remediation Project. The Flow Credits will be sold at the actual cost per flow credit. If an Outside User elects not to purchase future Flow Credits during the planning and budgeting phase of an I/I Remediation Project, then the City of Binghamton would be the sole owner of the resulting Flow Credits, and the terms and conditions of transferring or selling these Flow Credits will be negotiated between the City of Binghamton and the Outside Users on a case-by-case basis.

For Flow Credits generated by past I/I Remediation Projects (refer to Section 13.07 - Flow Credits For Past I/I Remediation Projects) the Village of Johnson City shall allocate a portion of the flow credits to Outside Users according to the following table.

Village of Johnson City Allocated I/I Offset Flow Credits To Municipal Users Resulting from Sewer Separation Projects (1998-2011)		
Municipal User	Allocated I/I Offset Flow Credits (gpd) by I/I Remediation Basin	
	JC001	JC002
Town of Vestal	0	11,258
Town of Dickinson	0	2,135
Town of Union	4,853	0

For Flow Credits generated by past I/I Remediation Projects that have not been allocated, the terms and conditions of transferring or selling these Flow Credits will be negotiated between the Village of Johnson City and the Outside Users on a case-by-case basis.

For Flow Credits generated by future I/I Remediation Projects the Village of Johnson City pledges to offer the opportunity for Outside Users to purchase Flow Credits in advance of an I/I Remediation Project. The Flow Credits will be sold at the actual cost per flow credit. If an Outside User elects not to purchase future Flow Credits during the planning and budgeting phase of an I/I Remediation Project, then the Village of Johnson City would be the sole owner of the resulting Flow Credits, and the terms and conditions of transferring or selling these Flow Credits will be negotiated between the Village of Johnson City and the Outside Users on a case-by-case basis.

§13.09 APPLICATIONS FOR NEW OR MODIFIED SEWER CONNECTION(S) AND/OR SEWER EXTENSION(S)

Applications for New or Modified Sewer Connection(s) and/or Sewer Extension(s) are required and shall be completed in accordance with Article 14 - New or Modified Sewer Connection Application Program.

§13.10 NEW OR MODIFIED SEWER CONNECTION SEWAGE FLOW RATES

New or Modified Sewer Connection sewage flow rates shall be calculated in accordance with Article 14 - New or Modified Sewer Connection Application Program.

§13.11 SEWER FLOW CREDIT BANK

The Sewer Flow Credit Bank (Bank) is a mechanism administered by the Board through which flow credits generated from the successful completion of I/I Remediation Projects can be deposited, and then withdrawn or transferred for new or modified sewer connections.

- (a) Flow credits shall only be used in the specific I/I Remediation Basin in which they were generated. They are not transferrable to another I/I Remediation Basin, unless approved by the Board.
- (b) Once an I/I Remediation Project is certified complete, flow credits generated by I/I Remediation Projects shall be deposited into a separate sub-account within the Bank for the use by the Municipal User having jurisdiction over the site of the I/I Remediation Project. A Municipal User may, at its sole option, grant, sell, or otherwise transfer flow credits to entities other than the Municipal User, whether on a case-by-case basis or by operation of generally applicable local law, provided written notice of such transaction and/or local law is furnished to the Bank Administrator.

- (c) If an I/I Remediation Project performed by any entity generates more flow credits than necessary for a specific new or modified sewer connection, then all excess flow credits will remain “on deposit” in the Municipal User’s sub-account with no expiration date. A Municipal User may, at its sole option, grant, sell, or otherwise transfer flow credits to entities other than the Municipal User, whether on a case-by-case basis or by operation of generally applicable local law, provided written notice of such transaction and/or local law is furnished to the Bank Administrator.
- (d) Flow credits are subject to eminent domain; a Municipal User having jurisdiction over the I/I Remediation Basin can mandate that credits “on deposit” in the name of a private entity generated in relation to an I/I Remediation Project within such Municipal User’s boundaries shall be “condemned” for a “public purpose”.
- (e) Flow Credits shall be denominated in gallons per day.
- (f) The quantity of flow credits required for a new or modified sewer connection shall be equal to the estimated peak sewage flow rate increase for the specific new or modified sewer connection, referred to as a one-to-one offset ratio.
- (g) The transfer of flow credits between Municipal Users and other entities shall be allowed. The Bank Administrator shall have no obligation to process a transfer or sale of flow credits in the absence of documentation found by it to be proper documentation of the transaction, such as notarized bill of sale or memorandum of gift or grant describing the transaction. While in an “on deposit” status in the Bank, flow credits shall have no monetary value, accrue no interest, and may not be assigned or pledged as collateral.
- (h) Flow credit withdrawal and use in relation to an application shall be:
 - (1) subject to approval of the Bank Administrator based on demonstration by the Applicant of adequate hydraulic and treatment capacity in the sewage collection system and Treatment Plant in relation to the application under the Article 14- New or Modified Sewer Connection Application Program, of these Rules and Regulations.
 - (2) approval for the new or modified sewer connection under the Article 14- New or Modified Sewer Connection Application Program, of these Rules and Regulations.
- (i) The existence of flow credits “on deposit” or posted to the account or sub-account of any entity creates no “vested rights” or entitlement whatsoever to make a new or modified sewer connection until all requirements and conditions applicable at the proposed new or modified sewer connection

site are satisfied in the judgment and discretion of the governmental entity having jurisdiction thereof.

§13.12 IDENTIFYING I/I REMEDIATION PROJECTS

Municipal Users shall identify specific I/I Remediation Projects located on publicly owned property or on private property, including system improvements, repairs, and upgrades, that reduce I/I flow rates within the area tributary to permitted CSOs, known SSOs, or known bottlenecks in the sewage collection system.

Maintenance, such as returning manhole covers into the proper position or cleaning debris that is causing inflow to enter to the sanitary sewer system, shall not be considered as an acceptable I/I Remediation Project under this Program. Repairs, such as manhole sealing, pipe joint grouting and sewer lining will be considered I/I Remediation Projects under this Program.

I/I Remediation Projects shall be identified on an annual basis and documented in the Annual Sewer-Capital Improvement Plan (refer to Article 12.06.01 - Annual Sewer-Capital Improvement Plan). I/I flow rate reductions for each I/I Remediation Project shall be estimated, to be later verified by a New York State licensed Professional Engineer, and documented in I/I Remediation Engineering Report.

§13.13 UNDERTAKING I/I REMEDIATION PROJECTS

A Municipal Users may undertake the work of I/I Remediation Projects on public property using in-house staff or by contract.

Developers may undertake a I/I Remediation Project on their private property and on public property upon approval of the Principal Municipal User, Affected Owner (if applicable) and Board.

An Engineering Report for I/I Remediation Projects shall be prepared by a professional engineer, licensed in the State of New York. The I/I Remediation Engineering Report shall include a calculation of estimated I/I flow rate reduction according to Section 13.14 - I/I Flow Reduction Quantification, and provisions for the Principal Municipal User to certify that the scope of work of the I/I Remediation Project was satisfactorily completed. For Developers, provisions also shall be made for the I/I Remediation Engineering Report to be approved by the Principal Municipal User, Affected Owner and Board.

A representative from the Principal Municipal User where the I/I Remediation Project is completed shall observe and certify to the Board that the I/I Remediation Project work was completed in accordance with the Engineering Report. In accordance with 6 NYCRR 750-2.3, representatives of the New York State Department of Environmental Conservation shall be allowed to enter onto any property where an I/I Remediation Project is being performed, for the purpose of observing such project.

The Bank Administrator shall issue a notice that flow credits have been generated and deposited into the Bank upon the Board's receipt of the Principal Municipal User's certification that the I/I Remediation Project work was completed in accordance with the I/I Remediation Engineering Report.

§13.14 I/I FLOW REDUCTION QUANTIFICATION

The following infiltration and inflow quantification guidelines are to be used by all entities subject to this I/I Offset Program to calculate infiltration and inflow removed from the system by I/I Remediation Projects. The quantification of infiltration and inflow shall be prepared by a professional engineer, licensed in the State of New York, and presented in an I/I Remediation Engineering Report.

- (a) Determining infiltration flow contribution for specific defects shall be according to the guidelines shown on Table 13.14-1.
- (b) As specified in Table 13.14-2, inflow flow contribution for specific defects shall be determined according to the Natural Resources Conservation Service methodology Technical Release 55 (TR-55). Table 13.14-3 presents a list of recommended curve numbers to be used in the TR-55 calculation.
 - i. In order for a sewer separation project to be qualified for flow credits, the new separated stormwater system must be conveyed to a receiving water and not redirected back to the combined sewer system in any way.

TABLE 13.14-1: INFILTRATION GUIDELINES

INFILTRATION			
Problem Type		Contribution (gpm)	Reference
Manholes	Joint Leaks- Paved Areas ⁽¹⁾	Heavy- 1.1 gpm ⁽¹⁾ Moderate- 0.65 gpm ⁽¹⁾ Minor- 0.27 gpm ⁽¹⁾ or To be determined on a case by case basis ⁽²⁾	ASCE Manual of Practice No. 92
	Joint Leaks- Unpaved Areas ⁽¹⁾	Heavy- 4.6 gpm ⁽¹⁾ Moderate- 2.3 gpm ⁽¹⁾ Minor- 1.1 gpm ⁽¹⁾ or To be determined on a case by case basis ⁽²⁾	ASCE Manual of Practice No. 92
	Defective Covers/ Frames Exposed to Surface Water	To be determined on a case by case basis ⁽²⁾	
Pipe Segments		To be determined for each specific project by using calculations, flow metering, and/or televised inspection and data from previously completed studies ⁽²⁾	
Laterals/ Other Connections		To be determined for each specific project by using calculations, flow metering, and/or televised inspection and data from previously completed studies ⁽²⁾	

(1) Based on condition of manhole. "Heavy" means severe cracks and cracks throughout manhole. "Moderate" means moderate cracks within manhole. "Minor" means minor cracks within manhole.

(2) Calculations must be prepared by a New York State Licensed Professional Engineer.

TABLE 13.14-2: INFLOW GUIDELINES

PROBLEM TYPE	CONTRIBUTION	REFERENCE
Sump pumps	5 gpm ⁽¹⁾	Gould's model ST51 at 20 feet of head pressure
Roof drains, catch basins, drainage through manhole covers, cross connections AND sewer separation projects.	To be calculated based on Natural Resources Conservation Service methodology TR-55. The 1-year, 24-hour storm event utilizing the Type II Standard Rainfall Distribution will be used. 1-year storm rainfall amount is 2.1 inches for City of Binghamton per Northeast Regional Climate Center.	TR-55

(1) Based on 5 gpm over a 24-hour per day period.

TABLE 13.14-3: CURVE NUMBERS FOR USE IN RUNOFF CALCULATIONS⁽¹⁾

-----Cover description-----		Curve numbers for ----hydrologic soil group----			
Cover type and hydrologic condition	Average percent impervious area	A	B	C	D
Open space (lawns, parks, golf courses, cemeteries, etc.)					
Poor condition (grass cover <50%).....		68	79	86	89
Fair condition (grass cover 50% to 75%).....		49	69	79	84
Good condition (grass cover >75%).....		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way).....		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding Right-of-way).....		98	98	98	98
Paved; open ditches (including right-of-way).....		83	89	92	93
Gravel (including right-of-way).....		76	85	89	91
Dirt (including right-of-way).....		72	82	87	89
Urban districts:					
Commercial and business.....	85	89	92	94	95
Industrial.....	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses).....	65	77	85	90	92
1/4 acre.....	38	61	75	83	87
1/3 acre.....	30	57	72	81	86
1/2 acre.....	25	54	70	80	85
1 acre.....	20	51	68	79	84
2 acres.....	12	46	65	77	82

TABLE 13.06-3: CURVE NUMBERS FOR USE IN RUNOFF CALCULATIONS CONTINUED⁽¹⁾

-----Cover description-----		Curve numbers for ----hydrologic soil group----			
Cover type	Hydrologic condition	A	B	C	D
Pasture, grassland, or range – continuous forage for grazing.	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow – continuous grass, protected from grazing and generally mowed for hay.	---	30	58	71	78
Brush – brush-weed-grass mixture with brush the major element.	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30	48	65	73
-----Cover description-----		Curve numbers for ----hydrologic soil group----			
Cover type	Hydrologic condition	A	B	C	D
Woods – grass combination (orchard or tree farm).	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods.	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30	55	70	77
Farmsteads – buildings, lanes, driveways, and surrounding lots.	---	59	74	82	86

(1) United States Department of Agriculture, Urban Hydrology for Small Watersheds, TR-55

§13.15 WITHDRAWING FLOW CREDITS FOR A NEW OR MODIFIED SEWER CONNECTION

The Applicant shall request in writing to withdraw Flow Credits from the Bank, indicating the exact quantity of Flow Credits. The Applicant shall provide reference to the Sewer Connection Application and Sewer Connection Engineering Report (refer to Article 14 - New or Modified Sewer Connection Application Program) for which the Flow Credit withdraw is being requested. The applicant shall provide documentation of ownership of the requested Flow Credits and shall also provide documentation that shows the requested Flow Credits were generated in the same I/I Remediation Basin for which the new or modified sewer connection is being proposed.

Flow Credits shall only be made available if there is available capacity of both the affected sewers and the Treatment Plant to accommodate the estimated peak sewage flow associated with such credits as documented in the Sewer Connection Engineering Report (refer to Article – 14 New or Modified Sewer Connection Application Program).

The Bank Administrator shall verify that the Board has approved the Sewer Connection Application and Sewer Connection Engineering Report (refer to Article – 14 New or Modified Sewer Connection Application Program) and verify that Flow Credits are available within the I/I Remediation Basin for which the new or modified sewer connection is being made, and that the Applicant owns the requested Flow Credits.

Upon verification, the Bank Administrator shall issue a pre-approval “Flow Credit Note” with an expiration of one year from the time of issuance which has the effect of encumbering the affected flow credits while the note remains in force. For good cause shown prior to the expiration date, the Bank Administrator may extend a flow credit note for an additional one-year period. The flow credit note shall identify the Bank sub-account to which the corresponding flow credits shall revert in the event of a default. If a developer defaults in the completion of a development covered by a Sewer Connection Application, any flow credits earned and generated shall be released as provided in the flow credit note or, if none, to the account of the Principal Municipal User which owns the public sewer system on which the corresponding I/I Remediation Project was performed. No payment shall be made or refund given for costs incurred by a developer which has defaulted to purchase flow credits, undertake I/I Remediation Projects, or complete a development covered by an application.

All new or modified sewer connections require approval by the Principal Municipal User and all new or modified sewer connections greater than 2,500 gpd additionally require approval by the Intermediate Municipal User (if applicable), Affected Owner and Board. If a new or modified sewer connection is made without prior approval and without a Flow Credit Note as stated above, the Board shall refer this matter to the Broome County Department of Health and the NYSDEC and NYSDOH.

Upon completion of the new or modified sewer connections, the Applicant shall notify the Board of the connection, and flow credits will be withdrawn from the account.

§13.16 PERIODIC AUDITING REQUIREMENTS

Approximately every three years the Board shall have an independent entity audit the I/I Offset Program Sewer Flow Credit Bank. Though the flow credits in the Bank hold no monetary value, the audit shall be completed in general accordance with Government Auditing Standards (the “Yellow Book”, downloadable at <http://www.gao.gov/yellowbook>).

The goal of the audit shall be to provide a reasonable assurance that the account balances fairly represent the actual positions of the credit holders, and that the appropriate approval processes were completed before the issuance of flow credits notes or the withdraw or deposit of flow credits.

§13.17 RECORD-KEEPING REQUIREMENTS

Municipal Users and the Board shall maintain records of all information resulting from the I/I Offset Program for a minimum of three (3) years, whether or not such information was required by the Program. The period of retention shall be extended during the course of any unresolved dispute. The records shall be made available for inspection and copying by the Board.

§13.18 REPORTING REQUIREMENTS – MUNICIPAL USERS

Each Municipal User shall retain records as to the status of the implementation and management of I/I Remediation Projects within its jurisdiction under this I/I Offset Program and submit them to the Bank Administrator on at least an annual basis. The Board will make provisions for these records to be retained and made available for public inspection by regulatory agencies and other interested parties as to the status of the implementation and management of this I/I Offset Program. Records shall include the following information:

- (1) Prioritized list of identified/available I/I Remediation Projects in the Municipal Users' public sewage collection systems and private property.
- (2) I/I Remediation Projects completed on the Municipal Users' public sewage collection systems and private property within its incorporated boundaries, describing the remediation work performed and estimated I/I removed. If not previously furnished, provide completed certification letter for I/I Remediation Projects completed (see Appendix A for letter format).
- (3) List of applications for proposed new or modified sewer connections and sewer extensions to the Municipal Users' public sewer systems.
- (4) List of new or modified sewer connections and sewer extensions completed since January 1, 2013, the date when this Program went into effect.

§13.19 REPORTING REQUIREMENTS – THE BOARD

The Board shall make provisions for records to be retained and made available for public inspection by the regulatory agencies and other interested parties as to the status of the implementation and management of Sewer Flow Credit Bank. Records shall include the following information:

- (1) Bank ledger including flow credit balances, flow credits deposited and withdrawn, flow credit notes outstanding, and flow credits purchased/transferred.
- (2) Certification letters of completed I/I Remediation Projects.
- (3) Notification letters of completed new or modified sewer connections.

The Board shall issue an Annual Statement that reports the activities of the preceding year. The Annual Statement shall be intended to give Municipal Users, regulatory agencies and other interested people information about the I/I Offset Program's status.

The Annual Statement shall include, but not be limited to:

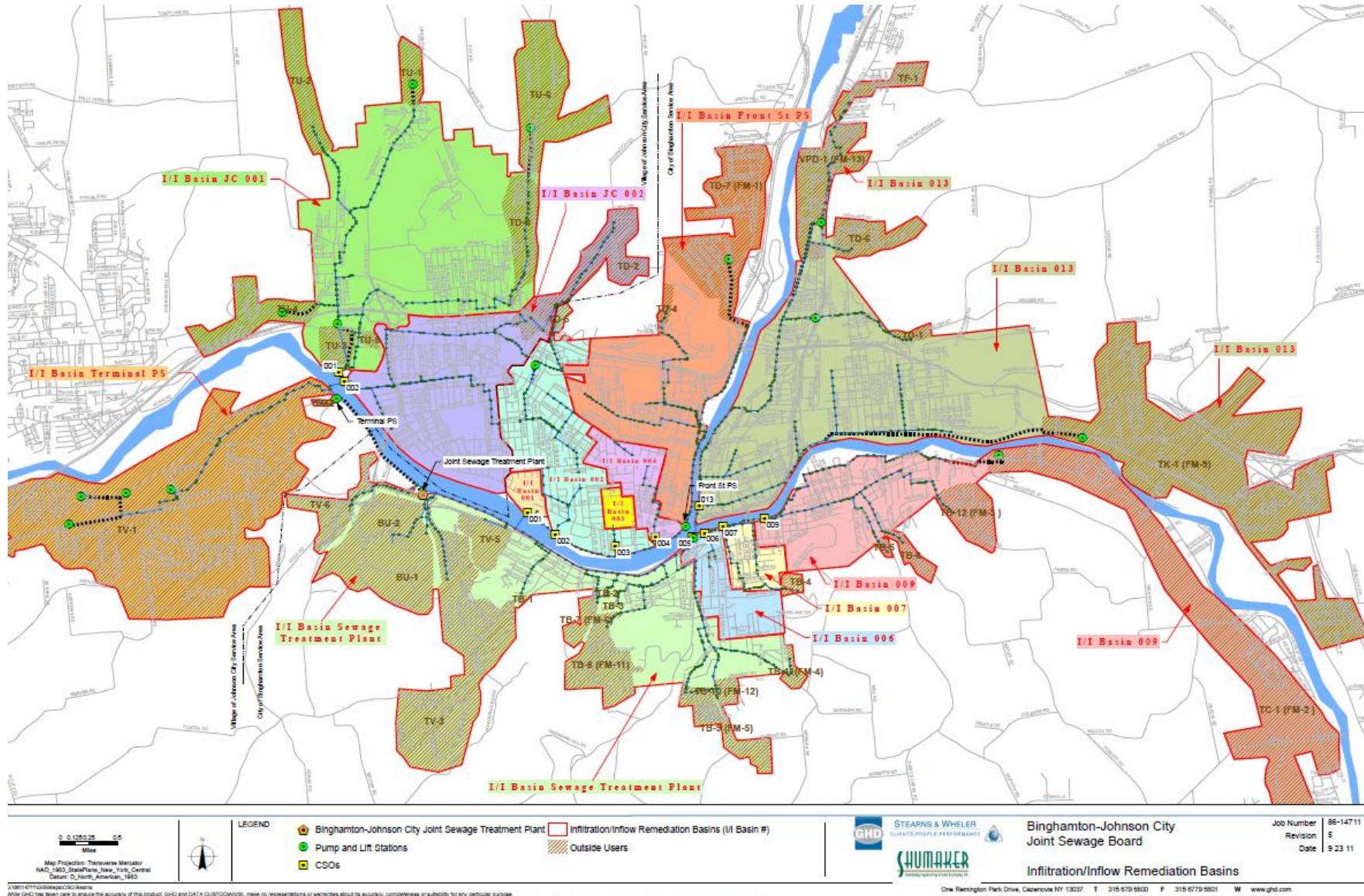
- (1) Treatment Plant Flow Information
- (2) Summary of New/Modified Sewer Connection Applicants
- (3) Summary of I/I Remediation Projects
- (4) Status of Flow Credit Notes Outstanding
- (5) Record of Bank Credits, Debits and Transfers

The Bank Administrator shall issue the Annual Statement to credit holders and municipal users. The annual statements of the flow credits shall be provided by I/I Remediation Basin, and each credit holder shall receive a statement for the I/I Remediation Basin from which they hold credits.

§13.20 ADMINISTRATIVE PROCEDURES

The provisions of Article IV of the Joint Sewage Treatment Plant Law and Article 3 of the Joint Sewage Treatment Plant Law Rules and Regulations shall govern all matters proceeding pursuant to this Article.

FIGURE 13.05-1: I/I REMEDIATION BASINS



APPENDIX A – MUNICIPAL USER CERTIFICATION LETTER FORMAT

Date

Sewer Flow Credit Bank Administrator
Binghamton-Johnson City Joint Sewage Board
4480 Vestal Road
Vestal, NY 13850

Re: I/I Remediation Project (State Specific Name from I/I Remediation Project Engineering Report)

Dear Sewer Flow Credit Bank Administrator:

This letter is to confirm that the above referenced I/I Remediation Project was completed in accordance with the Engineering Report. Therefore _____ gallons per day flow credits have been earned.

As documentation of this completed I/I Remediation Project please find attached the record drawings and construction photos.

OR

This letter is to confirm that the above referenced I/I Remediation Project was completed; however with variance with the original Engineering Report.

Please find attached the revised Engineering Report that reflects the actual I/I Remediation Project. Therefore _____ gallons per day flow credits have been earned.

As documentation of this completed I/I Remediation Project please find attached the record drawings and construction photos.

I hereby affirm that information provided in this letter and the attached exhibits is true to the best of my knowledge and belief.

Owner or Outside User Representative Signature

cc: Owner (applicable to Outside User that discharges to or through an Owners sewage collection system)



Appendix H



September 26, 2011

To	New York State Department Conservation		
Copy to	Binghamton-Johnson City Joint Sewage Board		
From	GHD Consulting Engineers	Tel	315.679.5768
Subject	Historical Sewer Separation Projects for the City of Binghamton and Johnson City and resulting Inflow Reductions	Job No.	8614711 00

A. Purpose.

To identify location and scope of sewer separation projects in the City of Binghamton and Village of Johnson City from 1998 to current, and to estimate the inflow reduction resulting from these projects using the Soil Conservation Service/National Resources Conservation Service ("SCS/NRCS") TR-55 method.

B. Background.

The GHD Consulting Team, working on behalf of the Binghamton – Johnson City Joint Sewage Board, is developing an Infiltration and Inflow (I/I) Offset Program. The GHD Consulting Team has been providing periodic updates to the New York State Department of Environmental Conservation (Department) on the progress of the I/I Offset Program and other related Programs. In fact the Department has participated in Steering Committee meetings related to the development of these Programs.

Thus far, the I/I Offset Program has been developed based on two major concepts.

► The first major concept was predicated on the understanding that the City of Binghamton and Village of Johnson City are in compliance with the EPA's National CSO policy with respect to capturing 85% of the average wet weather flow and delivering it to a treatment works, and therefore the proposed I/I Offset Program would be used as a capacity management tool to complement a larger CMOM Program and use a one to one (i.e., 1:1) offset for new or modified connections or extensions to the sewer collection system. Because the Owners' combined sewers collection systems have been found by the Department to be in compliance, there is no need for a "punitive" offset ratio going forward (as might be the case were the Flow Management Plan being engineered to remediate collection systems which are out of compliance).

► The second major concept was that the proposed I/I Offset Program would retroactively account for changes in the sewer collection system since the baseline condition of 1998 used in the development of the Owners' Combined Sewers Overflow Long Term Control Plans, which include but are not limited to sewer separation type projects. It was proposed that the inflow removed from these historical sewer separation and other type projects would generate flow credits at a ratio of one offset credit for each two units removed (i.e., 1:2). This proposal is grounded in conservatism to the extent that, in the absence of formal CMOM Programs for the respective collection systems in the past, there may have been some degree of increase in I/I contributed by other segments of the collection systems which did not see improvement projects.

In order for the Department to provide input on the I/I offset ratios and the potential use of retroactive I/I credits, the Department requested further information about the historic sewer separation projects and the resulting inflow reduction. This memo presents this information.

C. Methodology.

The GHD Consulting Team requested updated sewer separation project information from both the City and Village. Both the City and Village keep good records of sewer separation projects in terms of scope and cost. The City and Village updated their records and submitted these records to the GHD Consulting Team.

Only sewer separation projects that completely separated stormwater from the combined sewer system were included in this analysis. There are some multi-phased sewer separation projects that were not complete at the date of this analysis and therefore were not included in the analysis. However, these projects would be eligible to be considered when they are successfully completed.

The GHD Consulting Team reviewed the scope of each sewer separation project and delineated a catchment area for each project. Once the catchment area for each sewer separation project was delineated, a runoff coefficient was defined for each area based on topography and surface condition. In general, a conservative approach was taken; a Soil Class B (moderate infiltration rate) with a CN value of 75 (residential) was assumed, unless the catchment area was a parking lot or downtown parcel where a CN value of 92 was assumed.

An estimate of the total quantity of inflow removed as a result of each sewer separation project was then calculated. The quantity of inflow removed was calculated using HydroCad, TR-55. The synthetic rainfall distributions developed by the Soil Conservation Service/National Resources Conservation Service ("SCS/NRCS") for a one-year 24-hour storm event was used with the appropriate catchment area and runoff coefficient. The rainfall volume was 2.1 inches over a period of 24 hours.

D. Results.

The results of this analysis are organized by major sewer basins known as I/I Remediation Basins. I/I Remediation Basins represent the areas for which sewer connections need to be offset by I/I reductions in the same area. The I/I Remediation Basins are depicted in the attached figure.

The following summary table (Table 1) provides the potential I/I offset credits for each CSO basin for the City of and Village assuming the generation of flow credits at a ratio of one offset credit for each two units removed (i.e., 1:2). Based on an offset ratio of 1:2, the City would have no flow credits for I/I Remediation Basins 001 and 005, and as much as 500,000 gpd credits for I/I Remediation basin 002. Similarly the Village would have a 21,000 gpd credits for I/I Remediation Basin 001 and 170,000 gpd credits for I/I Remediation Basin 002.

The results for the City of Binghamton's sewer separation projects are presented in Table 2 and the results for the Village of Johnson's sewer separation projects are presented in Table 3. Each table is organized by I/I Remediation Basin, and for each I/I Remediation Basin there is the sewer separation project name, date of project completion, catchment area and estimated inflow quantity. Tables 2 and 3 also present the total inflow quantity for each I/I Remediation Basin for the City of and Village, respectively.

Table 1 City of Binghamton and Village of Johnson City Potential I/I Offset Credits ⁽¹⁾ Resulting from Historical Sewer Separation Projects ⁽²⁾		
CSO Basin	Inflow Reduction (gal.)	Potential I/I Offset Credits (gpd)
City of Binghamton		
I/I Remediation Basin 001	0	0
I/I Remediation Basin 002	1,000,000	500,000
I/I Remediation Basin 003	540,000	270,000
I/I Remediation Basin 004	750,000	375,000
I/I Remediation Basin 005	0	0
I/I Remediation Basin 006	300,000	150,000
I/I Remediation Basin 007	570,000	285,000
I/I Remediation Basin 009	200,000	100,000
I/I Remediation Basin Front St. PS	620,000	310,000
I/I Remediation Basin 013	380,000	190,000
I/I Remediation Basin STP		
Village of Johnson City	42,000	21,000
I/I Remediation Basin 001	340,000	170,000
I/I Remediation Basin 002		

(1) Based on a generation of flow credits at a ratio of one offset credit for each two units removed (i.e., 1:2).

(2) From 1998 to 2011.

Table 2
City of Binghamton Sewer Separation Project Inflow Reduction Estimates

Project Name (Year)	I/I Remediation Basin	Area (acres)	Volume (gallons)
Weslar Crt (99)	002	0.80	8,000
Highland Ave (99)	002	4.80	50,000
Crestmont Rd (99)	002	7.40	80,000
West End Ave (00)	002	8.30	90,000
Stanley St (00)	002	2.60	30,000
West end Ave (01)	002	14.40	150,000
Baxter St (02)	002	6.90	70,000
Matthews St (02)	002	8.30	90,000
Tracy St (03)	002	7.60	80,000
Matthews St (04)	002	5.60	60,000
Boulevard Terrace (04)	002	2.00	20,000
Holland St (09)	002	11.70	120,000
Snow Ave (10)	002	2.40	20,000
Sumner Ave (10)	002	5.20	50,000
Cleveland Ave (10)	002	0.90	9,000
Jarvis St (10)	002	8.00	<u>80,000</u>
Subtotal of I/I Remediation Basin 002 ¹			1,007,000
Montgomery St (99)	003	1.70	20,000
Charles Pl (99)	003	1.20	10,000
Vermont Ave (99)	003	6.90	70,000
Virginia Ave (05)	003	4.00	40,000
Campbell Rd Crt (05)	003	3.40	40,000
Bennett Ave (08)	003	7.60	80,000
Laurel Ave (08)	003	4.80	50,000
Lathrop Ave (09)	003	6.30	70,000
Laurel Ave (09)	003	5.50	60,000
Johnson Ave (11)	003	9.30	<u>100,000</u>
Subtotal of I/I Remediation Basin 003			540,000
Lydia St (99)	004	2.60	30,000
Chestnut St (99)	004	5.00	50,000
Chestnut St (00)	004	4.80	50,000
St John Ave (00)	004	3.00	30,000
Asbury Crt (01)	004	3.40	40,000
Cedar St (02)	004	9.60	100,000
Winding Way (04)	004	6.20	60,000
Gary St (05)	004	4.10	40,000
Vincent St (05)	004	3.70	40,000
Colfax Ave (07)	004	6.50	70,000
Front St (11)	004	14.40	150,000
Water St (05)	004	8.90	<u>90,000</u>
Subtotal of I/I Remediation Basin 004			750,000

Notes: (1) Rounding Difference as Compared to Table 1. (2) WWTP Basin is between CSO 005 and the WWTP

Table 2 (continued)
City of Binghamton Sewer Separation Project Inflow Reduction Estimates

Project Name (Year)	I/I Remediation Basin	Area (acres)	Volume (gallons)
Vestal Street (98)	006	1.40	10,000
South Washington St (00)	006	15.50	160,000
James St (00)	006	1.60	8,000
Mitchell Ave (04)	006	12.00	<u>120,000</u>
Subtotal of I/I Remediation Basin 006 ¹			298,000
Vine Street (98)	007	9.40	100,000
Vine St (00)	007	3.80	40,000
James St (07)	007	6.90	70,000
Westerly Way (07)	007	4.80	50,000
Penston Rd (07)	007	4.90	50,000
Vestal Ave (07)	007	8.60	90,000
Duane Ave (11)	007	4.80	50,000
Newton Ave (11)	007	6.20	60,000
Tremont Ave (11)	007	6.00	<u>60,000</u>
Subtotal of I/I Remediation Basin 007			570,000
Oakridge Drive (98)	009	6.90	70,000
Montour St (99)	009	4.10	40,000
Conklin Ave (02)	009	5.10	50,000
Tompkins St (03)	009	3.70	<u>40,000</u>
Subtotal of I/I Remediation Basin 009			200,000
Griswold Street (98)	013	6.40	70,000
Andrews Avenue (98)	013	2.60	50,000
Riverside Dr (00)	013	4.10	40,000
Howard Ave (00)	013	8.80	90,000
Burton Ave (00)	013	3.40	40,000
Cary St (01)	013	4.60	50,000
Louisa St (02)	013	6.20	60,000
Second St (03)	013	4.10	40,000
Moeller St (04)	013	2.50	30,000
Ardsley Rd (07)	013	6.20	60,000
Robinson St (10)	013	8.60	<u>90,000</u>
Subtotal of I/I Remediation Basin 013			620,000
Rush Ave (09)	STP	4.80	50,000
Zane Rd (09)	STP	3.40	40,000
Kendall Avenue (98)	STP	5.40	60,000
Rush Avenue (98)	STP	5.20	50,000
Fuller Hollow Road (98)	STP	4.00	40,000
Vestal Ave (00)	STP	4.20	40,000
Moore Ave (01)	STP	3.70	40,000
Kendall Ave (03)	STP	6.20	<u>60,000</u>
Subtotal of I/I Remediation Basin ²			380,000

Notes: (1) Rounding Difference as Compared to Table 1. (2) WWTP Basin is between CSO 005 and the WWTP

Table 3
Village of Johnson City Sewer Separation Project Inflow Reduction Estimates

Project Name (Year)	I/I Remediation Basin	Area (acres)	Volume (gallons)
Isabell Parking Lot (99)	001	0.05	2,000
Field Street (99)	001	2.36	24,000
56 Louise Street (09)	001	0.54	6,000
201 Harry L. Drive (11)	001	0.50	5,000
333 Deyo Hill Road (11)	001	0.50	<u>5,000</u>
Subtotal of CSO Basin 001			42,000
Grand Avenue (98)	002	6.80	70,000
Burns Street / Olive Street (98)	002	1.14	12,000
Corliss Avenue (01)	002	6.30	65,000
Sanford St at Columbus Pl (02)	002	0.20	2,000
St. Charles St (04)	002	0.42	5,000
Reconstruction of Arch St (04)	002	1.64	17,000
Floral Avenue and NY Ave (05)	002	0.20	2,000
Floral Avenue, east of Ackley (06)	002	1.16	12,000
Boland and Bernice Street (07)	002	2.80	29,000
Ackley Avenue (07)	002	2.74	28,000
Hudson Street (07)	002	1.20	12,000
Avenue 'D' (08)	002	0.42	5,000
Arlington Avenue (09)	002	0.64	7,000
UHS parking lot (10)	002	1.50	50,000
Davis College (10)	002	2.02	<u>21,000</u>
Subtotal of CSO Basin 002 ¹			337,000

Notes: (1) Rounding Difference as Compared to Table 1.



Appendix I

ARTICLE 12

CAPACITY, MANAGEMENT, OPERATION AND MAINTENANCE (CMOM) PROGRAM

§12.01 AUTHORITY

The Binghamton-Johnson City Joint Sewage Board (Board), having an approved Flow Management Plan, as required under a series of administrative consent orders by the New York State Department of Environmental Conservation to manage and provide for treatment of wastewater flows, is the local authority for the requirements of and implementation of the Capacity, Management, Operation, and Maintenance (CMOM) Program.

§12.02 PURPOSE AND GOALS

The purpose of this Article is to control wastewater flow to the Binghamton-Johnson City Joint Sewage Treatment Plant (“Treatment Plant”), and maintain compliance with the City of Binghamton’s and the Village of Johnson City’s Combined Sewer Overflows Long-Term Control Plan, as required by the U.S. Environmental Protection Agency.

The CMOM Program will promote consistent use of current industry standards for the operation and maintenance of the sewage collection system throughout the area, tributary to the Binghamton-Johnson City Joint Sewage Treatment Plant.

The Goals of the CMOM Program include:

1. Elimination of Sanitary Sewer Overflows (“SSO”) unless under extreme occurrences
2. No increase in Combined Sewer Overflow (“CSO”) volume
3. Reductions in peaking factors and base infiltration and inflow rates as documented by the BJCJSB’s Flow Metering Program. There are no required numeric criteria for the reduction of peaking factor or quantity of base I/I, but infiltration and inflow should not increase and should follow a downward trend. Baseline conditions shall be the 2008 flow metering data as presented in the September 2009 Flow Management Evaluation Report-Appendix C (approved by NYSDEC in October 2009.)

§12.03 EFFECTIVE DATE

The effective date of this CMOM Program is January 1, 2013.

§12.04 SCHEDULE AND GENERAL REQUIREMENTS

Not later than the end of nine months after the effective date the Municipal User shall document existing and new CMOM efforts in a CMOM Program Document in accordance with this Article

and the United States Environmental Protection Agency (USEPA) Guide for Evaluation Capacity, Management, Operation, and Maintenance (CMOM) Programs for Sanitary Sewer Collection Systems, January 2005 or latest revision, subject to review and comment by the Board. Within the CMOM Program Document, the Municipal User shall provide a status for (either “complete” or “incomplete”) each CMOM Program Requirement (refer to Section 12.06). For CMOM Program Requirements that are incomplete, the Municipal User shall provide an implementation schedule or justification that the requirement does not apply in the CMOM Program Document.

A status of the implementation schedule of CMOM Program Requirements shall be updated by the Municipal User annually as part of the Annual Sewer-Capital Improvement Plan (refer to Section 12.06.01 - Annual Sewer-Capital Improvement Plan) and submitted to the Board.

The CMOM Program Document shall be submitted to the Board and NYSDEC on October 1, 2013. The CMOM Program Document shall be updated and submitted to the Board and NYSDEC as needed, but no less frequently than once every five years due to the Board on or before October 1, 2018.

§12.05 DEFINITIONS

These terms and their definitions whenever used in this regulations shall apply shall apply to only this law, unless otherwise expressly stated or required by subject matter of context:

“Annual Sewer-Capital Improvement Plan” shall mean the written document including description and schedule of work to repair defects found during the annual inspection of the previous year.

“Area tributary to” refers to a series of pumping stations, forcemains and gravity sewers owned by various municipalities that together convey wastewater to a specific location, such as the Treatment Plant or a combined sewer overflow, in the sewage collection system.

“As-built/Record Drawing” shall mean a complete set of drawings, which depicts the actual as-built conditions of the completed construction, provides the user with a permanent record of each project feature.

“Board” or “Joint Sewage Board” shall mean the Binghamton-Johnson City Joint Sewage Board, established under the contract between the City of Binghamton and the Village of Johnson City for the operation of the joint wastewater treatment facilities. The term includes any duly authorized designee, agent, or representative of the Board.

“Capacity Assurance” refers to operation and maintenance, projects and programs that adequately preserve and or enhance the capacity of the sewage collection system to transport current and future wastewater flows.

“Capacity, Management, Operation, and Maintenance (CMOM) Program” shall mean the program used by Municipal Users to operate and manage the sewage collection system. The CMOM program consists of a set of best management practices that have been developed by the industry and are applied over the entire life cycle of the sewage collection system and treatment plant. These practices include: designing and construction for operation and maintenance;

knowing what comprises the system (inventory and physical attributes); knowing where the system is (maps and location); knowing the condition of the system (assessment); planning and scheduling work based on condition and performance; repairing, replacing, and rehabilitating system components based on condition and performance; managing timely, relevant information to establish and prioritize appropriate CMOM activities; and training of personnel.

“CMOM Program Document” shall mean the written document which includes all of the elements of the CMOM Program as outlined in its definition and the United States Environmental Protection Agency (USEPA) EPA 305-B-05-002 “Guide for Evaluating Capacity, Management, Operation, and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems”, January 2005 or latest revision.

“CMOM Program Requirements” shall mean all elements in the USEPA’s “Guide for Evaluating Capacity, Management, Operation, and Maintenance (CMOM) Programs a Sanitary Sewer Collection Systems.”

“Effective date” shall mean the date upon which an act of legal significance such as an Agreement or a contract is considered to take effect and which may be different from the date upon which the event described therein actually occurs or is recorded.

“Emergency work” shall mean activities (typically repairs) performed in response to serious equipment or line failure where action must be taken immediately.

“Extreme Occurrences” – refers to infrequent SSOs and other non-compliance events that based on regulatory discretion do not result in an enforcement action.

“Flow Management Plan” is specific to the Third Modification Consent Order (Case #R7-0580-90-12) between the New York State Department of Environmental Conservation and respondents City of Binghamton, Village of Johnson City, and the Binghamton-Johnson City Joint Sewage Board, and refers to the written document approved by the New York State Department of Environmental Conservation in March 2012 which describes a programmatic approach to convey to and receive and treat at the Treatment Plant the wastewater and ensure current and future flows receive adequate treatment.

“Flow Monitoring” shall mean the collection of flow measurement information utilizing flow metering instruments and visual inspections, referencing the Board’s Flow Metering Program.

“flow-through costs” refers to the fee charged by a Municipal User to another Municipal User for the use of their sewage collection system to transport sewage to the treatment facility.

“hydrogen sulfide” shall mean a colorless, flammable poisonous gas, H₂S, having a characteristic rotten-egg odor and used as an antiseptic, a bleach, and a reagent.

“Industry Standards” shall mean a set of criteria within an industry relating to the standard functioning and carrying out of operations in their respective fields of production.

“Infiltration/Inflow” or I/I shall mean the total quantity of water from both Infiltration and Inflow, without distinguishing the source.

“Infiltration” shall mean water, other than sewage, that enters a sewage collection system, (including sewer service connections) from the ground through such means as defective pipes,

pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, Inflow.

“Inflow” shall mean water, other than sewage, that enters a sewage collection system, (including sewer service connections) from sources such as: roof leaders; cellar drains; sump pumps; missing or defective cleanout caps; swimming pools; yard drains; area drains; foundation drains; drains from springs and swampy areas; manhole covers; cross connections between stormwater sewers and sanitary sewers; catch basins; cooling towers; stormwaters; surface runoff; street wash waters; or drainage. Inflow does not include, and is distinguished from, Infiltration.

“Management Information Systems” refers to the process to maintain access to the most current information concerning the facilities. A management information system maintains preventive maintenance and inspection schedules; tracks repairs and work orders; organizes capital replacement plans; manages tools and equipment inventories; creates purchase orders; records customer service inquiries, complaints, or requests; provides measurement of effectiveness of program and O&M activities.

“Modeling” shall mean calculations which are available that are capable of simulating the different flows within the sewage collection system. The purpose of modeling is to determine system capacity requirements with respect to sewer design and structural conditions.

“Municipal User” shall mean a municipality or government entity which owns, or has jurisdiction over, any public sewer which conveys wastewater to the Treatment Plant.

“Peaking Factor” shall mean ratio of wet weather flow during a rain event to typical dry weather flows at the same time of day. Can be expressed in “instantaneous” or “volumetric”

“Planned Maintenance” shall mean a program which is a systematic approach to performing maintenance activities so that equipment failure is avoided. Planned maintenance is composed of predictive and preventative maintenance.

“Planned, but not routine” shall mean “predictive maintenance” work which is a method that tries to look for early warning signs of equipment failure such that emergency maintenance is avoided.

“Public information” – refers to the sharing of facts with community residents to keep the residents informed and to receive comment from the residents.

“Routine work” shall mean “preventative maintenance” work which consists of scheduled maintenance activities performed on a regular basis.

“Sanitary Sewer Overflow” or SSO shall mean a discharge of untreated wastewater from a sewage collection system designed for sewage only, including infiltration and inflow in excess of the capacity of the sewage collection system, resulting in untreated wastewater discharges from the sewage collection system.

“Satellite Community” shall mean a municipality or government entity that owns a sewage collection system but does not own the treatment facility to which it discharges.

“Sewage” shall mean the water-carried domestic human or animal waste from residences, industrial and commercial establishments, together with industrial and commercial waste. Neither infiltration nor inflow are components of “sewage”.

“Sewage Collection System” shall mean all facilities for collecting, regulating, pumping, and transporting, sewage. May be a sanitary sewer system or, where permitted by the NYSDEC, a combined sewer system.

“Sewer System Inspection” shall mean the visual inspection of manholes and pipelines, utilizing various inspection techniques including lamping, camera inspection, sonar, and closed circuit television (CCTV), referencing National Association of Sanitary Sewer Companies (NASSCO) standards.

“Sewer System Testing” shall mean using testing techniques to identify leaks which allow unwanted infiltration into the sewer system and determine the location of illicit connections and other sources of stormwater inflow. Two commonly implemented techniques include introduction of harmless smoke (smoke testing) and dye (dye testing) into sewers to help identify illegal connections of stormwater sources to the sanitary sewer.

“Treatment Plant” shall mean the Binghamton-Johnson City Joint Sewage Treatment Plant.

“Unplanned Maintenance” shall mean work that takes place in response to equipment breakdowns or emergencies. Unplanned maintenance may be corrective or emergency maintenance (emergency work). Corrective maintenance could occur as a result of preventative or predictive maintenance activities which identified a problem situation.

“Wastewater” is the composite of all flow constituents conveyed in a sewer including sewage and infiltration and inflow.

“Water Quality Monitoring” shall mean the collection and analysis of wastewater, stormwater or ambient water such as creeks, rivers or ponds.

“Work Order System” shall mean a comprehensive system which tracks repairs and work orders. The system should clearly define: how the maintenance data management system works; how work orders are generated and distributed; how field crews use the work orders; how data from the field is collected and returned; and how and on whose authority work orders are closed out.

§12.06 PROGRAM REQUIREMENTS

Throughout this regulation there are references to schedules and submittal dates for the program requirements. These schedules and submittal dates can be changed and/or extended if the Municipal User can demonstrate a “high burden” category based on the preceding fiscal year’s data according to the United States Environmental Protection Agency’s 1997 publication *“Combined Sewers Overflows - Guidance for Financial Capability Assessment and Schedule Development.”* The results of the financial analysis along with a revised schedule of program requirements shall be submitted to the Board for approval. The Board shall provide approval or approval-with-conditions within 60 days of receipt of the results and revised schedule.

§12.06.01 ANNUAL SEWER-CAPITAL IMPROVEMENT PLAN

The CMOM Program Document shall include or reference an Annual Sewer-Capital Improvement Plan that provides a description and schedule of work to repair defects found

during the annual inspections of the previous year. The schedule shall include budgeting and when budget will be allocated, and design and construction schedules. So that project status can be tracked, especially for projects that require multiple years, a summary table that provides the status of each project from current and previous years shall be provided. The Annual Sewer-Capital Improvement Plan shall be submitted to the Board by April 1 of each year beginning with the first year following the calendar year in which this Article becomes effective.

§12.06.02 SEWER SYSTEM CAPACITY EVALUATION

(a) Flow Monitoring

The CMOM Program Document shall describe all current and future planned flow monitoring work that applies and shall, at a minimum, reference:

1. The Board's Flow Metering Program

(b) Capacity Assurance

The CMOM Program Document shall identify existing capacity problems, and describe all current and future planned capacity assurance tools that apply and shall, at a minimum, reference:

1. User's Sewer System Modeling Program (refer to Section 12.06.04g - Modeling)
2. Board's Infiltration/Inflow Offset Program (refer to Article 13 – I/I Offset Program)

(c) Sewer System Testing

The CMOM Program Document shall describe existing and future planned smoke testing or dye testing work, which includes methods for smoke test/dye test throughout the sewer system. Smoke testing and dye testing shall be implemented on an as needed basis to find suspected inflow sources or on street improvement projects. Methods shall be based upon industry standards and updated by the Municipal User from time-to-time.

(d) Sewer System Inspection

The CMOM Program Document shall describe existing and future planned manhole inspection or televising inspection programs. Manholes and sewers shall be inspected by an individual certified by National Association of Sewer Service Companies (NASSCO) Manhole Assessment Certification Program (MACP) and/or Pipeline Assessment Certification Program (PACP). Either internal staff or contractor shall use the most current NASSCO standards for manhole and sewer assessment. The CMOM Program Document shall include a schedule of the length of pipe and number of manhole to be inspected. The Municipal User is required to perform annual sewer inspections, which shall consist of cumulative five percent of non-inspected sewers per year per inspection cycle with goal of televising every sewer within a cycle not longer than 25 years. Main trunk sewers and sewers with known defects shall be televised before the remaining sewers. Manholes and sewers known to have significant structural failure or infiltration, according to the NASSCO standards shall be inspected every five years until the defect is repaired, then inspected on the cycle not longer than 25 years.

§12.06.03 SEWER SYSTEM MANAGEMENT

(a) Sewer System Information

The CMOM Program Document shall give description of the sewer system including the following information:

1. Length of sewer pipe by diameter (inventory) by age (original vs. extensions)
2. Date of original sewer system installation
3. Planametric maps showing manhole and pipe location, pipe size and pipe slope

(b) Organizational Structure

The CMOM Program Document shall include organization structure and job descriptions of each position by providing an organization chart, job descriptions of each position, a description of the type of sewer work performed, number of hours of each position dedicated to sewer work and an explanation of why this is an appropriate staff and level of service to operate and maintain sewer system.

(c) Training

The Municipal User shall provide appropriate training to staff to operate and maintain sewer system; five types of training are required:

1. Annual NYS Public Employee Safety and Health (PESH) Safety Training Courses (all staff)
2. Water Environment Federation Collection System Certification (one staff member)
3. NYSDEC Endorsed Training in the Principles and Practices of Erosion and Sediment Control (one staff member)
4. Annual Review of CMOM Program, Sewer Installation and Repair Specifications or Codes AND 10-State Standards (all sewer staff)
5. National Association of Sewer Service Companies (NASSCO) Manhole Assessment and Certification Program (MACP) and Pipeline Assessment and Certification Program (PACP). This is not required if sewer system inspections are contracted to NASSCO MACP and PACP certified contractor.

The CMOM Program Document shall describe the types of training provided to staff and whether training is a program or On-the-Job (OTJ). With respect to the PESH Safety Training Courses, the CMOM Program Document shall describe and explain the courses selected based on actual work type performed (refer to Section 12.06.03 (b)).

(d) Communication

The CMOM Program Document shall include or reference a Communication Plan, which includes methods for communicating to the public (1) routine work, (2) planned but not routine work, (3) emergency work, and (4) public information. Depending on size of sewer system, daily or weekly planned staff meetings are required by the Municipal User for routine work. For non-routine work, staff meetings are required to discuss work scope, specifications and safety by Municipal User. The Municipal User is required to have a single point of contact for communication between internal departments and also in emergency conditions and public

information. The Municipal User shall update the Communication Plan annually and submit that update to the Board by April 1 of each year.

(e) Customer Service

The CMOM Program Document shall describe how customer complaints relevant to the operations and maintenance of the sewage collection system are resolved and documented in the CMOM Program Document. Include such descriptions in the Work Order System described below.

(f) Work Order System

The CMOM Program Document shall describe how work requests are implemented and confirm that planned and unplanned maintenance or repairs are documented using a work order form. The Municipal User shall have a Work Order System which shall be the basis to initiate the work, describe the problem and solution, and close the work. The Work Order System shall include routine operations and maintenance (O&M) and planned and unplanned maintenance or repairs. Documentation of routine O&M that follow a standard operation procedure (SOP) can be done using log sheets or logbooks of O&M efforts.

(g) Management Information Systems

The CMOM Program Document shall describe how work requests are managed. The Information System shall include the type of work reports (log sheets or work order forms) used, how records are kept, and the technology that is used for the Management Information System.

(h) Sanitary Sewer Overflow (SSO) Notification Program

The CMOM Program Document shall include or reference a Sewer Overflow Response Plan (SORP). The NYSDEC SORP template, www.dec.ny.gov/docs/water_pdf/modelsorp.pdf shall be used as a basis for the SORP. This SORP template shall be modified to also include emergency response to wastewater related incidents. The modified document shall be called the Sewer Overflow and Emergency Response Plan (SOERP). The Plan shall be updated by the Municipal User annually by April 1 of each year. (refer to Section 12.06.04 e. – Emergency Preparedness and Response).

(i) Legal Authority of Municipal User

The CMOM Program Document shall specify if the sewer system owned by the Municipal User receives wastewater from another Municipal User or Satellite Community, and if so that there is agreement between the two Municipal Users or the Municipal User and the Satellite Community. Such a written agreement is required, and a copy shall be submitted to the Joint Sewage Board. The agreement must require that the Satellite Community follow a Sewer Use Ordinance that is in compliance with Board's requirements or follow a Sewer Use Ordinance that is equal to the downstream Municipal User's, whichever is more stringent. All Sewer Use Ordinances must reference the Rules and Regulations Relating To Use Of The Binghamton-Johnson City Joint Sewage Treatment Plant Issued By The Binghamton-Johnson City Joint Sewage Board, 1997 as thereafter amended (BJCJSB Rules and Regulations).

§12.06.04 SEWER SYSTEM OPERATION

(a) Budgeting

The CMOM Program Document shall address and describe the following:

1. Person responsible for preparing budget
2. Average annual cost for residential users including, O&M and capital costs for the sewer system, and annual cost for wastewater including proportionate shares of WWTP operation and “flow-through” costs for using City of Binghamton and or Village of Johnson City’s sewer systems.
3. How monies are collected to finance the O&M and capital costs of the sewer system (for example, quarterly fee billings to property owners, property tax levy, *ad valorem* assessments, etc.).
4. Whether sufficient funds are raised from revenue to fully fund the sewer system use.
5. Annual O&M budget and annual long-term capital cost (including bonding) and whether costs for O&M are separated from other utility services (water, storm water, treatment).

(b) Water Quality Monitoring

The CMOM Program Document shall describe all water quality monitoring that applies.

1. Industrial Pretreatment Monitoring (refer to Article 6 - Industrial Wastewater Pre-Treatment Program)
2. Sanitary Sewer Overflow Monitoring (refer to Section 12.06.03 h - SSO Notification Program)
3. Combined Sewer Overflow Monitoring – Outfall and Receiving Water

(c) Hydrogen Sulfide Monitoring and Control

The CMOM Program Document shall describe existing and future planned hydrogen sulfide monitoring and control program and process for eliminating odors and corrosion in the sewer system.

Within one year of the effective date of this Article, and every five years thereafter, the Board shall make inspections for hydrogen sulfide at the manhole locations where sewers cross municipal boundaries or enter the Board’s facilities to determine if hydrogen sulfide is present. If, according to a NASSCO MACP certified person, the manhole shows signs of corrosion or there are odors of hydrogen sulfide present, then the Board shall sample the manhole air for hydrogen sulfide concentrations. If the average hydrogen sulfide concentration is greater than 1ppm or exceeds 5 ppm for any one sample, then the Municipal Users shall develop and implement a hydrogen sulfide control plan or justification of why a hydrogen sulfide control plan is not warranted.

(d) Safety

The CMOM Program Document shall include or reference a Health and Safety Plan. Required safety equipment shall be identified in Health and Safety Plan and made available. Identify existing staff safety education. Annual PESH Law Safety Training is required. The Health and Safety Plan shall be updated by the Municipal User annually by April 1 of each year.

(e) Emergency Preparedness and Response

The CMOM Program Document shall include or reference an Emergency Management Plan specific to wastewater as part of the Sewer Overflow and Emergency Response Plan (SOERP) (refer to Section 12.06.03 h - SSO Notification Program). The SOERP shall be updated and provided to the Board by the Municipal User annually by April 1 of each year. Provide emergency contact numbers which shall be verified and updated more regularly, if needed.

(f) Mapping

The CMOM Program Document shall describe the state of the sewer system as-built/record drawing repository, including sewers, manholes, pumps, siphons and other special structures. Describe where drawings are stored, who uses them and what information they contain. The Municipal User shall have a single repository for as-built/record drawing of the sewer system. An inventory summary of drawings is required. Such repository shall be complete and up-to-date and updated by the Municipal User annually by April 1 of each year to be within 12 months of current.

Historic as-built/record drawings shall be submitted to the Board by April 1, 2015, and new drawings submitted to Board annually thereafter by April 1, preferably in GIS-compatible format. If no new drawings have been developed during the annual reporting period, a “negative report” letter shall be provided to the BJCJSB.

(g) Modeling

The CMOM Program Document shall identify existing and future planned sewer system model(s). At a minimum, by January 1, 2015, a table with the following Municipal User’s information is required to be submitted to the Board:

1. pipe ID
2. pipe diameter
3. pipe slope
4. pipe material
5. pipe age
6. upstream and downstream manhole ID.

The table shall be updated by the Municipal User annually and submitted to the Board by April 1 of each year beginning in the calendar year following the initial submission.

(h) New Sewer Construction and Sewer Rehabilitation

The CMOM Program Document shall describe how new construction is planned, designed, managed and documented. In the CMOM Program Document, identify the person responsible to ensure that as-built/record drawings (refer to Section 12.06.04 f -Mapping) and modeling information (refer to Section 12.06.04 g - Modeling) are developed concurrently with new construction. It is required that trained staff or contractor following specifications and codes be responsible for construction of new sewers. Sewer installation and repair specifications or codes and according to the most recent edition of the, “*Recommended Standards for Wastewater Facilities, Policies for the Design, Review, and Approval of Plans and Specifications for Wastewater Collection and Treatment Facilities*”, by the Committee of the Great Lakes--Upper

Mississippi River Board of State and Provincial Public Health and Environmental Managers, shall be used. Staff or engineer with requisite qualifications/training shall perform inspections. Required tests shall be performed on new sewers and manholes per the applicable specification and codes.

(i) Pump Stations

The CMOM Program Document shall identify the following information:

1. Number of pump stations in the sewer system.
2. Existing emergency by-passes and whether they are permitted by NYSDEC.
3. Individual responsible for operation and maintenance shall be trained staff or engineer or contractor following written specification.
4. Types of inspections/maintenance performed daily/weekly/monthly, etc. Each Pump Station must have an O&M Manual including a Wet-Weather Operating Plan, by April 1, 2014, updated at least every five years thereafter.
5. How maintenance is tracked (Logbook or log sheets are required)
6. Pump station back-up power. If the pump station does not have back-up power, document procedures to provide emergency power (mobile generator/source for same, etc. in emergency procedure, below)
7. Procedure in case of overflows and emergencies which shall be coordinated with Sewer Overflow and Emergency Response Plan (SOERP) (refer to Section 12.06.04 e. – Emergency Preparedness and Response
8. Location of equipment O&M manuals.

§12.06.05 EQUIPMENT AND SEWER SYSTEM MAINTENANCE

(a) Planned and Unplanned Maintenance

The CMOM Program Document shall describe planned maintenance (predictive and preventative) and unplanned maintenance (corrective and emergency) for sewer pipes and CSOs (if applicable). Pump station O&M shall be as documented in O&M Manual (refer to Section 12.06.04 i – Pump Stations). Pump station O&M manuals shall be updated by the Municipal User from time to time.

(b) Sewer Cleaning

The CMOM Program Document shall describe existing and future planned frequency of sewer cleaning. Cleaning shall be completed as needed or with televising. Trained staff or qualified contractor shall be responsible for cleaning.

(c) Parts and Equipment Inventory

The CMOM Program Document shall provide written lists of spare parts, equipment and supplies and identify whether sources of supply are kept updated. Define and/or describe available storage for spare parts, equipment and supplies, individual(s) responsible for maintaining supplies and existing inventory documentation procedures.

§12.07 REPORTING REQUIREMENTS

CMOM Program Document by October 1, 2013 and as needed but no less frequently than once every five years due to the Board by October 1.

Annual Sewer-Capital Improvement Plan is due to the Board by April 1 of each year starting April 1, 2014.

The Communication Plan shall be updated annually and submitted to the Board by April 1 of each year starting April 1, 2014.

Historic as-built/record drawings shall be submitted to the Board by April 1, 2015, and new drawings submitted to Board annually by April 1. If no new drawings have been developed during the annual reporting period, a “negative report” letter shall be provided to the Board.

Sewer System Model Table shall be submitted to the Board by January 1, 2015, and shall be updated annually and submitted to the Board by April 1 of each year beginning in the calendar year following the initial submission. If no changes to the sewer system have occurred during the annual reporting period, a “negative report” letter shall be provided to the Board.

Agreement(s) between Municipal User and Satellite Community shall be submitted to the Board by April 1, 2014, and resubmitted as amended.

§12.08 ADMINISTRATIVE PROCEDURES

The provisions of Article 4 of the Joint Sewage Treatment Plant Law and Article 3 of the Joint Sewage Treatment Plant Law Rules and Regulations shall govern all matters involving proceedings pursuant to this Article.



Appendix J

Binghamton-Johnson City Joint Sewage Board

Treatment Management Plan
Binghamton-Johnson City
Joint Sewage Treatment Facility, 2011

TREATMENT MANAGEMENT PLAN
BINGHAMTON-JOHNSON CITY JOINT SEWAGE TREATMENT FACILITY
2011

Prepared For:
BINGHAMTON-JOHNSON CITY JOINT SEWAGE BOARD

Prepared By:
GHD CONSULTING ENGINEERS, LLC
One Remington Park Drive
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Project No. 8614711

December 2011



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1 Purpose

This document is a Treatment Management Plan for the Binghamton Johnson City Joint Sewage Board. The Treatment Management Plan will assist the Board with the management and monitoring of wastewater flow and pollutant load discharges into the sewage collection system tributary to the treatment plant, with the goals of protecting the treatment plant processes and equipment and meeting effluent limits.

The Treatment Management Plan is intended to be used as a management tool by the Board in guiding them when making decisions about controlling and/or treating flows and pollutant loads reaching the treatment plant. The purpose is to provide possible management strategies for controlling/treating flows and pollutant loads, not specific solutions.

The Treatment Management Plan generally includes:

- review of State Pollutant Discharge Elimination System (SPDES) permit limits
- establishment of the maximum allowable headworks loadings for various pollutants
- an evaluation of the historical flows and load data from April 2008 to March 2011
- comparison of maximum allowable headworks loads and SPDES permit limits to actual flows and loads
- a discussion and summary of each of the water quality parameters for pollutants of concern
- recommendations for parameters requiring immediate action
- a discussion of treatment management approaches

2 Background

The treatment plant was upgraded in April 2008 when full flow began through biological aerated filters (BAFs) for advanced secondary treatment, including carbonaceous biological oxygen demand (CBOD) removal, and nitrification. In June 2009, full flow with methanol feed began through BAFs for advanced tertiary treatment consisting of denitrification. The Plant is capable of providing CBOD removal and nitrification for wastewater flows up to 60 million gallons per day (mgd) and denitrification for flows up to 49 mgd.

Table 1 gives the Plant influent flows and loadings used as the basis of design for the Phase III improvements.¹ The values listed represent the expected flows and loadings to be received at the headworks of the treatment plant.

Table 2 displays the BAF design flows and loadings (including side stream and backwash recycle).¹ The BAFs are separated into three types: the BAF-C filters are for CBOD removal; the BAF-N filters are for nitrification; and the BAF-DN filters are for denitrification.

¹ Engineering Report, Phase III Improvements, C&S Engineers, Inc. (October 24, 2006 revision).



Table 1 Plant Influent Basis of Design Flows and Loadings

	Average Daily	Maximum Month	Peak Hourly
Flow (mgd)	26	35	60
CBOD (lbs/d)	36,000	45,600	NA
Total suspended solids (TSS) (lbs/d)	37,100	54,100	NA
Total Kjeldahl nitrogen (TKN) (lbs/d)	3,400	4,300	NA

Table 2 BAF Design Flows and Loadings (Including Side Stream and Backwash Recycle)

	Average Daily	Maximum Month
Flow (mgd)	34.4	44.4
CBOD (lbs/d)	34,000	42,800
TSS (lbs/d)	34,000	46,000
TKN (lbs/d)	5,570	7,050

A revised SPDES permit was issued in March 2008 modifying many of the water quality parameter discharge limits of the Plant. Table 3 lists some of the water quality parameters of concern for the treatment plant. These values represent the effluent limits of the treatment plant.

Table 3 SPDES Permit Limits, Effective March 2008

Parameter	SPDES Permit Limitations		
	Daily Average	Weekly Average	Monthly Average
Flow			35 mgd ⁽¹⁾
CBOD		27mg/L ⁽²⁾ 7,881 lbs/d ⁽²⁾	18 mg/L ⁽²⁾ 5,254 lbs/d ⁽²⁾
TSS		30 mg/L ⁽²⁾ 8,757 lbs/d ⁽²⁾	20mg/L ⁽²⁾ 5,838 lbs/d ⁽²⁾
Nitrogen, total			6 mg/L
Ammonia (as NH ₃)			2,200 lbs/d ⁽³⁾
Nitrogen, TKN (as N)	13,700 lbs/d ⁽⁴⁾		
Phosphorus, total (as P)	Monitor		
Mercury	200 ng/L ⁽⁴⁾		
Cyanide	10 lbs/d		
Iron	290 lbs/d		
Lead	18 lbs/d		
Copper	20 lbs/d		
Silver	1.7 lbs/d ⁽⁴⁾		

(1) 12-month rolling average.

(2) For flow up to 35 mgd.



- (3) Permit limit applies from June 1 to October 31.
- (4) Daily maximum.

3 Maximum Allowable Headworks Loading

The maximum allowable headworks loading (MAHL) is the maximum pollutant loading that the treatment plant is capable of treating while continuing to meet the SPDES discharge permit. The maximum allowable headworks loading equates to the maximum treatment capacity of the Plant. A maximum allowable headworks loading was determined for CBOD, TSS, TKN, and priority pollutant metals.

Maximum allowable headworks loadings for CBOD, TSS, and TKN were developed on a maximum month basis because these loadings represent the maximum pollutant loading for which the BAFs were designed. The maximum allowable headworks loading for CBOD is 59,200 lbs/d. This is based on a CBOD removal of 35 percent in the primary clarifiers, the BAF basis of design maximum month loading, and a 10 percent safety factor. Percent removal in the primary clarifiers was based on typical literature values due to lack of actual CBOD removal data in the primary clarifiers. A 10 percent safety factor was subtracted from the maximum pollutant because a margin of safety is appropriate when using these maximum allowable headwork loads to manage the Plant (as discussed in Section 6). The following shows the calculation of the CBOD maximum allowable headworks loading:

Determine CBOD MAHL

Given: BAF design maximum month load = 42,800 lbs/d => the basis of design, Table 2

Assumptions: 35 percent removal in primary clarifiers

Calculations: $X \text{ lbs/d (influent)} \cdot (1 - \text{percent removal}) = 42,800 \text{ lbs/d}$

$X = 65,800 \text{ lbs/d}$

$\text{MAHL} = 65,800 \text{ lbs/d} - 10 \text{ percent safety factor}$

$\text{CBOD MAHL} = 59,200 \text{ lbs/d}$

All the maximum allowable headworks loads (or MAHLs) presented herein have been reduced by a reserve or safety factor. For instance, maximum loads were calculated based on set criteria, such as a design load or permit limit, and then these loads or values were reduced to reflect a allowable loads. The MAHLs for the metal pollutants have been reduced by a 25 percent reserve whereas the MAHLs for CBOD, TSS, and TKN have been reduced by a 10 percent safety factor.

The maximum allowable headworks loading for TSS is 82,800 lbs/d. This was calculated using the BAF design maximum month load and assuming 50 percent removal in the primary clarifiers (typical literature value), less a 10 percent safety factor.

The maximum allowable headworks loading for TKN is 6,350 lbs/d. Only a negligible amount of TKN is removed in the primary clarifiers, therefore the MAHL is equal to the design maximum month loading to the BAF-C filters less a 10 percent safety factor because

The maximum allowable headworks loading for the priority metals was previously determined for the "Headworks Analysis Report" prepared by Stearns & Wheler (n/k/a GHD) in February 2006. The loading values were determined by evaluating each metal using pass-thru criterion (i.e., plant removal



efficiencies), biological inhibition criterion, and sludge quality criterion. The maximum headworks load was determined for each metal based on these three criteria and then reduced by 25 percent to accommodate a reserve percentage (room for growth). The most conservative load was then selected as the maximum allowable headworks load.

The maximum allowable headworks loadings have been updated as part of this effort. The average plant flow was increased from 20 mgd to 26 mgd, and the SPDES permit limits were updated with the most recent (2008) permit revisions.

Table 4 is a summary of the maximum allowable headworks load for CBOD, TSS, TKN, and the priority metals. The basis for each parameter is also presented.

Table 4 Maximum Allowable Headworks Load (lbs/d)

Parameter	Maximum Allowable Headworks Load (lbs/d)	Basis
Arsenic	2.5	Digester inhibition
Cadmium	18	Water quality standard
Chromium	21	Digester inhibition
Copper	17	Nitrification inhibition
Cyanide	4	Digester inhibition
Iron	2,175 ⁽¹⁾	SPDES permit limit
Lead	35	SPDES permit limit
Nickel	17	Digester inhibition
Mercury	0	SPDES permit limit
Silver	5.1	SPDES permit limit
Zinc	67	Activated sludge inhibition
CBOD	59,200	Loading to BAF and percent removal in primary clarifiers
TSS	82,800	Loading to BAF and percent removal in primary clarifiers
TKN	6,350	Loading to BAF and no removal in primary clarifiers

(1) Assumes no addition of iron within sewage treatment plant.

4 Effluent Limit

Similar to the influent loads, a safety factor can also be applied to the SPDES permit limits. The purpose is to provide a proactive monitoring approach whereby the operators are reacting to high effluent levels before they experience any violations. A 10 percent safety factor was applied to the SPDES permit limits, referred to as “effluent permit limits reduced by a 10 percent safety factor.” Table 5 presents these limits.



Table 5 Effluent Permit Limits Reduced by a 10 Percent Safety Factor

Parameter	Effluent Permit Limits Reduced By a 10 Percent Safety Factor		
	Daily Average	Weekly Average	Monthly Average
Flow			31.5 mgd ⁽¹⁾
CBOD		24.3 mg/L ⁽²⁾ 7,093 lbs/d ⁽²⁾	16.2 mg/L ⁽²⁾ 4,729 lbs/d ⁽²⁾
TSS		27 mg/L ⁽²⁾ 7,881 lbs/d ⁽²⁾	18 mg/L ⁽²⁾ 5,254 lbs/d ⁽²⁾
Nitrogen, total			5.4 mg/L
Ammonia (as NH ₃)			1,980 lbs/d ⁽³⁾
Nitrogen, TKN (as N)	12,330 lbs/d ⁽⁴⁾		
Phosphorus, total (as P)	Monitor		
Mercury	180 ng/L ⁽⁴⁾		
Cyanide	9 lbs/d		
Iron	261 lbs/d		
Lead	16.2 lbs/d		
Copper	18 lbs/d		
Silver	1.5 lbs/d ⁽⁴⁾		

(1) 12-month rolling average.

(2) For flow up to 35 mgd.

(3) Only applies from June 1 to October 31.

(4) Daily maximum.

5 Results

The historical flow and pollutant load data to the treatment plant from April 2008 to March 2011 was evaluated. This data was derived from the SPDES required treatment plant sampling, and the “*Collection System Flow Characteristics Sampling Study*”.² Some of the parameters were presented graphically to examine the trend over time. The data analysis was conducted for the period of time when the BAFs were fully functional, with the exception of the BAF-DN cells, which have yet to achieve full functionality.

5.1 Average Flow

The “Average Flow” graph in Appendix A shows the historical flow data for the treatment plant from April 2008 to March 2011. The graph includes: (1) the actual average month flow; and (2) the influent design maximum month flow rate of 35 mgd. As shown on the graph, the average monthly influent flow to the treatment plant was less than the design flow.

² “*Collection System Flow Characteristics Sampling Study*,” GHD, July 2011.



5.2 CBOD

The “CBOD Loading” graph in Appendix A shows the historical load data for CBOD from April 2008 to March 2011. The graph includes: (1) design influent loadings at 26 and 35 mgd (from Table 1); (2) the maximum allowable headworks load; (3) the actual average influent load; (4) the effluent permit limit reduced by a 10 percent safety factor; and (5) the actual average effluent load. A summary of the CBOD data is presented] in Table 6.

Table 6 CBOD Summary

Design influent loading ⁽¹⁾	45,600lbs/d
Maximum allowable headworks load	59,200 lbs/d
Actual average influent load	29,200 lbs/d
Effluent permit limit reduced by a 10 percent safety factor	4,729 lbs/d ⁽²⁾ , 7,881 lbs/d ⁽³⁾
Actual average effluent load	1,431 lbs/d

(1) Maximum month treatment plant influent basis of design.

(2) For flows up to 35 mgd.

(3) For flows greater than 35 mgd.

The actual CBOD influent loading is less than the design loadings and the maximum allowable headworks loading. From the graph, it can be seen that the treatment plant has consistently met the CBOD effluent permit limit reduced by a 10 percent safety factor.

5.3 TSS

The “TSS Loading” graph in Appendix A shows the historical load data for TSS from April 2008 to March 2011. The graph includes: (1) design influent loadings at 26 and 35 mgd (from Table 1); (2) the maximum allowable headworks load; (3) the actual average influent loading; (4) the effluent permit limit reduced by a 10 percent safety factor; and (5) the actual average effluent load. A summary of the TSS data is presented in Table 7.

Table 7 TSS Summary

Design influent loading ⁽¹⁾	54,000 lbs/d
Maximum allowable headworks load	82,800 lbs/d
Actual average influent load	27,400 lbs/d
Effluent permit limit reduced by a 10 percent safety factor	5,254 lbs/d ⁽²⁾
Actual average effluent load	719 lbs/d

(1) Maximum month treatment plant influent basis of design.

(2) For flows up to 35 mgd.



The actual TSS influent loading is less than the design loadings and the maximum allowable headworks loading. From the graph, it can be seen that the treatment plant has consistently met the TSS effluent permit limit reduced by a 10 percent safety factor

5.4 TKN

The “TKN Loading” graph in Appendix A shows the historical load data for TKN from April 2008 to March 2011. The graph includes: (1) the design influent loadings at 26 and 35mgd (from Table 1); (2) the maximum allowable headworks load; and (3) the actual average influent loading. A summary of the TKN data is presented in Table 8.

Table 8 TKN Summary

Design influent loading ⁽¹⁾	4,300 lbs/d
Maximum allowable headworks load	6,350 lbs/d
Actual average influent load	4,280 lbs/d
Effluent permit limit reduced by a 10 percent safety factor	12,300 lbs/d ⁽²⁾
Actual effluent load	626 lbs/d ⁽²⁾

(1) Maximum month treatment plant influent basis of design.

(2) Daily maximum.

As can be seen from the graph, the actual influent TKN loading has been less than the maximum allowable headworks load. Effluent data was not included on the chart because the permit limit is monitored on a daily maximum level. However, as shown in Table 8, the actual effluent load has been less than the effluent permit limit reduced by a 10 percent safety factor.

5.5 Ammonia

A maximum allowable headworks load was not developed for ammonia because it is a part of TKN. However, there is value in reviewing the ammonia influent and effluent levels to examine how well the Plant is nitrifying (converting ammonia to nitrate). Table 9 summarizes the ammonia data.

The “Ammonia Loading” graph in Appendix A shows historical load data for ammonia from April 2008 to March 2011. The graph includes: (1) the actual average influent loading; (2) the effluent permit limit reduced by a 10 percent safety factor; and (3) the actual average effluent loading.

Table 9 Ammonia Summary

Design influent loading	NA
Maximum allowable headworks load	NA
Actual average influent load	2,020 lbs/d
Effluent permit limit reduced by a 10 percent safety factor	1,980 lbs/d
Actual average effluent load	145 lbs/d



As can be seen from the graph, the effluent ammonia levels are less than the effluent ammonia permit level reduced by a 10 percent safety factor. This indicates the Plant is having success nitrifying.

5.6 Total Nitrogen (TN)

Total nitrogen is a combination of TKN plus nitrates/nitrites. Typically, the influent of a wastewater treatment plant does not contain a large amount of nitrates/nitrites because these are products of nitrification, the conversion of ammonia to nitrate. Therefore, TN can be approximated by TKN at the headworks of a plant. Because of this, a maximum allowable headworks load for TN is approximate to that of TKN. At the effluent, TN represents the TKN still remaining plus any nitrate or nitrite.

The "Total Nitrogen Concentration" graph in Appendix A includes: (1) the actual average influent TN concentration; (2) the effluent permit limit reduced by a 10 percent safety factor; and (3) the actual average effluent TN concentration. Table 10 summarizes the TN data. The actual average influent loading is also shown in the table to compare it to the maximum allowable headworks load.

Table 10 TN Summary

Design influent loading	NA
Maximum allowable headworks load	6,350 lbs/d
Actual average influent load	2,611 lbs/d
Actual average influent concentration	31 mg/L
Effluent permit limit reduced by a 10 percent safety factor	5.4 mg/L
Actual average effluent concentration	8 mg/L

As shown in the graph, the effluent TN concentration during this period of evaluation generally exceeded the permit level of 6 mg/L. Due to the inconsistent performance of the BAF-DN filters, however, these data results are inconclusive.

5.7 Total Phosphorus (TP)

Currently, there is no SPDES permit limit for phosphorus for the Plant, but it remains a water quality parameter of concern because a phosphorus permit level as low as 0.5 mg/L had been discussed by the USEPA for a "backstop allocation" as part of the Chesapeake Bay Total Maximum Daily Load (TMDL). Presently, NYSDEC is suggesting it will include a 1.4 mg/L TP limit for the Plant under either of two options being considered for inclusion in its Chesapeake Bay Program Phase II Watershed Implementation Plan due to be submitted to USEPA on or about December 15, 2011. Therefore, it is important to know the current influent and effluent phosphorus concentrations to evaluate how much phosphorus is being received by the treatment plant, how much is being removed, and how much more may be required to be removed.

The "Total Phosphorus Concentration" graph in Appendix A includes: (1) the actual average influent TP concentration (mg/L); (2) the actual average effluent TP concentration (mg/L); and (3) the potential future effluent permit limit (mg/L). Table 11 summarizes the phosphorus data.



Table 11 TP Summary

Design influent loading	NA
Maximum allowable headworks load	NA
Actual average influent concentration	3.7 mg/L
SPDES effluent permit limit (potential future)	1.4 mg/L (potential future)
Actual average effluent concentration	1.5 mg/L

Weak to medium wastewater typically has influent TP concentrations ranging from 4 to 10 mg/L. The average TP concentration at the headworks of the treatment plant is 3.7 mg/L and the average TP concentration in the effluent is 1.5 mg/L. If the Chesapeake Bay Initiative results in the imposition of a SPDES effluent limit of 1.4 mg/L, then treatment process optimization alone may be sufficient for compliance. However, if NYSDEC is unsuccessful in managing New York's Chesapeake Bay Watershed water quality so that USEPA requirements are satisfied, the result may be that the USEPA imposes a backstop allocation as low as 0.5 mg/L, in which case some level of advanced treatment would be required.

5.8 Priority Pollutant Metals

In 2006, Stearns & Wheler (n/k/a GHD) completed a headworks analysis for priority pollutant metals. The analysis determined the maximum allowable headworks load to the treatment plant for the metals of concern based on the criteria described in Section 3. A maximum allowable industrial load was then [delete extra space] calculated by subtracting out an uncontrollable load, which is that load of pollutants from uncontrollable sources such as residential and unregulated commercial/industry.

For the purposes of this report, the uncontrollable load is disregarded because the intent of the evaluation is to compare the actual influent metal loading to the Plant, regardless of source, to the maximum allowable headworks load.

The 2006 headworks analysis also presented the permitted industrial load, or permitted allocation. This is the load allowable from permitted industries under the Industrial Wastewater Pretreatment Program if all the industries were discharging at their limits. For this evaluation, the permitted load was updated to account for changes in the number of permitted industries (i.e., new industries, industries no longer discharging), and local limit revisions.

Table 12 summarizes the updated maximum allowable headworks load, actual load for each metal, and the updated permitted industrial load. As shown in the table, chromium and nickel appear to be over-allocated (in other words, the permitted load exceeds the maximum allowable headworks load). The permitted industrial load for chromium is 29.1 lbs/d. This allocated load is not only greater than the maximum allowable headworks load, but is also greater than the maximum allowable headworks load prior to reduction by the reserve (27 lbs/d). In the case of nickel, the permitted industrial load is 20 lbs/d. This allocated load is greater than the maximum allowable headworks load, but is still less than the maximum allowable headworks load prior to reduction by the reserve percentage (22 lbs/d). It is important to note, however, that the actual loading for all metals below sampled in November and December 2010 was below the maximum allowable headworks loading.



Table 12 Metals Summary

Metal	Maximum Allowable Headworks Load (lbs/d)	Actual Average Influent Load (lbs/d)⁽¹⁾	Permitted Industrial Load (lbs/d)
Arsenic	2.5	<1.0	No limit
Cadmium	18	<0.2	2
Chromium	21	4.0	29.1
Copper	17	11	8
Cyanide	4	<1.0	3.6
Iron	2,175	260	No limit
Lead	35	<2.0	10.1
Mercury	0	<0.04	0
Nickel	17	<2.0	20
Silver	5.1	<0.4	2.2
Zinc	67	19	51.7

(1) Data collected from “Collection System Flow Characteristics Sampling Study,” July 2011.

5.9 Summary of Collection System Flow Characteristics Sampling Study

GHD completed a “Collection System Flow Characteristics Sampling Study” in July 2011. The purpose of the study was to provide information to the Board about the pollutant strengths at various points in the sewage collection system and at the influent to the treatment plant to gain a better understanding of the variations of pollutant strength throughout the collection system. The pollutant levels in the collection system were compared to “benchmark levels,” which represented the typical strength of the wastewater parameters at the influent to the Plant.

The study found that high concentrations of CBOD exist in the collection system, particularly at the discharge and downstream of the discharge from the Frito-Lay plant, but the samples taken at the Binghamton and Johnson City influents to the Plant showed that the CBOD concentration was similar to or less than the benchmark level.

The total phosphorus concentrations were also highest at the discharge and downstream of the discharge from the Frito-Lay plant. However, at the treatment plant influent, the TP concentrations were similar to or less than the benchmark level.

TSS concentrations were found to be similar to or less than the benchmark level throughout the collection system.

The study found that TKN concentrations were typically higher than the benchmark level. This corroborates the data presented in the TKN graph in Appendix A. Actual TKN influent loading is often greater than the TKN plant basis of design loadings. However, actual TKN influent loading is still below the maximum allowable headworks loading.

Oil and grease concentrations were found to be similar to or less than the benchmark level.



High levels of mercury were found at several points in the collection system; however, the mercury levels found at the Binghamton and Johnson City influents were similar to or less than the benchmark level.

Measured values of cadmium and chromium in the collection system were all lower than the benchmark levels.

Some measured copper values were higher than the benchmark; however, the copper levels found at the Binghamton and Johnson City influents were similar to or less than the benchmark level.

Measured iron concentrations in the collection system were higher than the benchmark values, but the levels at the Plant influent were similar to or less than the benchmark level.

There were no measured lead or nickel values greater than the benchmark levels.

Silver measurements were less than the benchmark level except at the discharge of the Frito-Lay plant.

At two sampling locations, the measured zinc levels were higher than the benchmark level; however, the zinc levels found at the Binghamton and Johnson City influents were similar to or less than the benchmark level.

6 Discussion

The following is a discussion of the results from the analysis of parameter data from April 2008 to March 2011. The parameters are grouped into two categories: parameters which are currently within acceptable influent and effluent levels and require no immediate action, and parameters which currently have higher influent or effluent levels than anticipated and require action. Recommended management strategies for parameters requiring action are also discussed.

6.1 Parameters Requiring No Immediate Action

Most of the influent parameters to the treatment plant are within the maximum allowable headworks load. The parameters which fall under the category of "Requiring No Immediate Action" are:

- Flow
- CBOD
- TSS
- TKN
- Ammonia
- Total phosphorus
- Arsenic
- Cadmium
- Copper
- Cyanide
- Iron
- Lead
- Silver
- Zinc



All of these pollutants are entering the Plant at levels less than the maximum allowable headworks load and are readily treatable by the Plant when Plant processes are fully operational. No immediate action is needed for those parameters other than continued monitoring and analysis.

6.2 Parameters Requiring Action

Some of the parameters require action for various reasons. Management strategies to reduce the loading or improve treatment of these parameters are recommended. The parameters requiring action are:

- Total nitrogen
- Chromium
- Mercury
- Nickel

6.2.1 Total Nitrogen

The TN SPDES permit level is 6 mg/L and the treatment plant is having difficulty meeting this level on a consistent basis. As can be seen from the TN graph in Appendix A, TN effluent levels decreased and then started to stabilize, but there is not enough data during the time after June 2009 when the BAF-DN filters were functional (i.e., full flow and methanol feed) to have any conclusive results.

Ammonia levels are well below permit discharge levels, indicating that the nitrification (conversion of ammonia to nitrate) process is working properly.

There are known problems with the methanol feed of the BAF-DN system. Once these problems are fully resolved, it is recommended that the Plant operators examine the denitrification process further to evaluate its effectiveness. One measure could be to sample the nitrate levels before and after the BAF-DN filters to evaluate the denitrification efficiency.

6.2.2 Chromium

Chromium is over-allocated because the permitted industrial load (29.1 lbs/d) is approximately 8 lbs/d greater than the maximum allowable headworks load (21 lbs/d). The permitted industrial load is also approximately 2 lbs/d greater than the maximum load (27 lbs/d), which is the maximum allowable headworks load prior to reduction by the reserve of 6 lbs/d. A mitigation measure for over-allocation of chromium is to modify local limits. Many industrial users have a chromium limit of 2.77 mg/L; others have limits of 4 mg/L, which is the current local limit. One industry (Industrial Electroplaters) has a limit of 2.46 mg/L. It is recommended to the Board to consider revising the chromium local limit.

6.2.3 Mercury

Mercury levels at the treatment plant headworks do not appear to be of concern; however, when evaluating the *"Collection System Flow Characteristics Sampling Study,"* it was found that several sampling locations had high levels of mercury. Further evaluation into the sources of this mercury should be done along with possible identification of industries which may require permitting.

6.2.4 Nickel

Nickel, similar to chromium, is over-allocated with respect to the maximum allowable headworks load. However, the permitted industrial load is approximately 2 lbs/d less than the maximum load of 22 lbs/d prior to the reduction by the reserve percentage. Similar to chromium, a specific mitigation measure for



over-allocation is to modify the local limits for nickel (currently 1.5 mg/L) or use the reserve as a safety factor.

7 Treatment Management Strategies

This Treatment Management Plan is intended to be used as a management tool by the Board in guiding it when making decisions about controlling and/or treating flows and pollutant loads reaching the treatment plant, with the goals of protecting the treatment plant processes and equipment and meeting effluent limits. The purpose is to provide possible treatment management strategies for controlling and/or treating flows and pollutant loads.

The Treatment Management Plan includes the following three steps:

1. Tracking influent and effluent trigger events.
2. Conducting study
3. Implementing a management strategy

7.1 Tracking Influent and Effluent Trigger Events

A key component of this Treatment Management Plan is communication between the Board and the operators at the Plant. This is currently done through the Plant Superintendent's Report to the Board at the regularly scheduled monthly Board meeting. As part of the Plant Superintendent's Report, the Superintendent should provide parameter graphs similar to the graphs in Appendix A that show a historical relationship between the actual measured loads and concentrations to the maximum allowable headworks loads and concentrations and SPDES effluent limits or effluent permit limits with reserve. Using this information, the Board can make informed and proactive decisions about possible treatment management approaches for controlling and/or treating flows and pollutant loads. Specific to the Industrial Wastewater Pretreatment Program, in addition to tracking actual measured loads and concentrations, a headworks analysis should be completed at least every five years to ensure that actual and permitted pollutant loadings to the treatment plant are within the its capability to treat.

As presented in Sections 3 and 4 of this Plan, reserves have been accounted for when establishing maximum allowable headworks loads and effluent limits. This is so that the Board can use these loads and/or limits as proactive "trigger events" to begin planning for a treatment management strategy before damage occurs to the treatment plant or non-compliance issues arise. Triggers events are occurrences that could jeopardize the treatment plant processes and equipment and cause the Plant to exceed effluent limits. In addition to tracking influent and effluent pollutant loads, there are other trigger events, which require further consideration and implementation of a treatment management strategy. The Board should track the following trigger events:

1. Influent load/concentration consistently greater than maximum allowable headworks load/concentration.
2. Effluent load/concentration consistently exceeding effluent permit limits reduced by a 10 percent safety factor.
3. SPDES permit modification or regulatory change.
4. Treatment plant process modifications.



5. Evaluating new industrial wastewater permittees.
6. Industrial permitted load greater than permitted maximum allowable headworks load.

7.2 Conducting Study

The trigger events include occasions when, for example, the influent load is greater than the maximum allowable headworks load or the effluent consistently exceeds the permit limit reduced by a 10 percent safety factor. Once a trigger is acknowledged, an investigation into the source or a study is warranted. A study could include increased sampling and monitoring, data analysis, alternative analysis, and reporting; and would ultimately result in a recommendation of the most appropriate management strategy to control the parameter that caused the trigger event. In most cases, a study could be performed by the treatment plant operators, but outside consultation may also be warranted in some instances.

The study would not “design” the enhanced treatment or “write” the new Plant Law provisions, but simply consider possible management strategies and recommend the most appropriate strategy. The development and implementation of the strategy would then be completed in the next step.

7.3 Implementing a Treatment Management Strategy

If investigation into the source discloses that an illicit discharge caused the trigger to be exceeded, appropriate steps would be taken under the Board's Enforcement Response Plan. If investigation discloses a new industrial user which had not applied for an Industrial Wastewater Discharge Permit, appropriate steps to require an application, issue a permit, and regulate the discharger would be pursued. Otherwise, the three most prevalent treatment management strategies would be to enhance treatment at the treatment plant, amend the Plant Law—pertaining to the use of the treatment plant, or modify the industrial pretreatment program.

For example, if a new effluent limit was imposed by the NYSDEC for total phosphorus and the current effluent total phosphorus levels exceeded the limit, this would represent a trigger event and an engineering study would be conducted. In this example, the engineering study would likely recommend enhanced treatment at the treatment plant. This management strategy would then be endorsed by the Board, who would seek engineering services to plan, design and construct the enhanced treatment at the treatment plant.

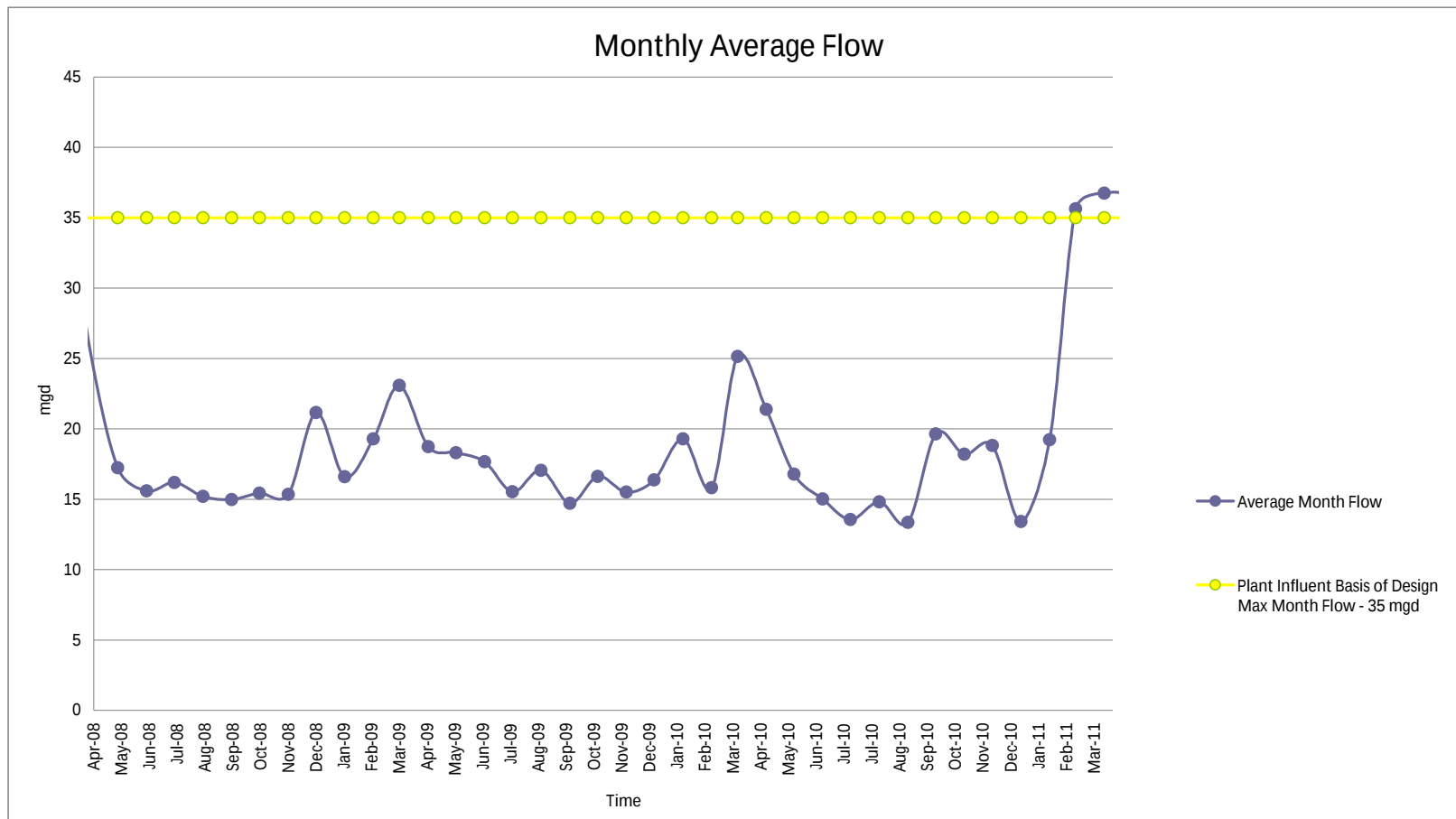
Copper is another example. If copper were found to be greater than the maximum allowable headworks loading, an engineering study would be conducted. The study may find that the source of the copper is from both residential plumbing modifications and vehicle service facilities (where auto brake pads are worked on). In this example, the engineering study might recommend an amendment to the Plant Law that requires plumbers and residents to control copper discharges, as well as changes to the industrial pretreatment program to include and regulate vehicle service facilities.

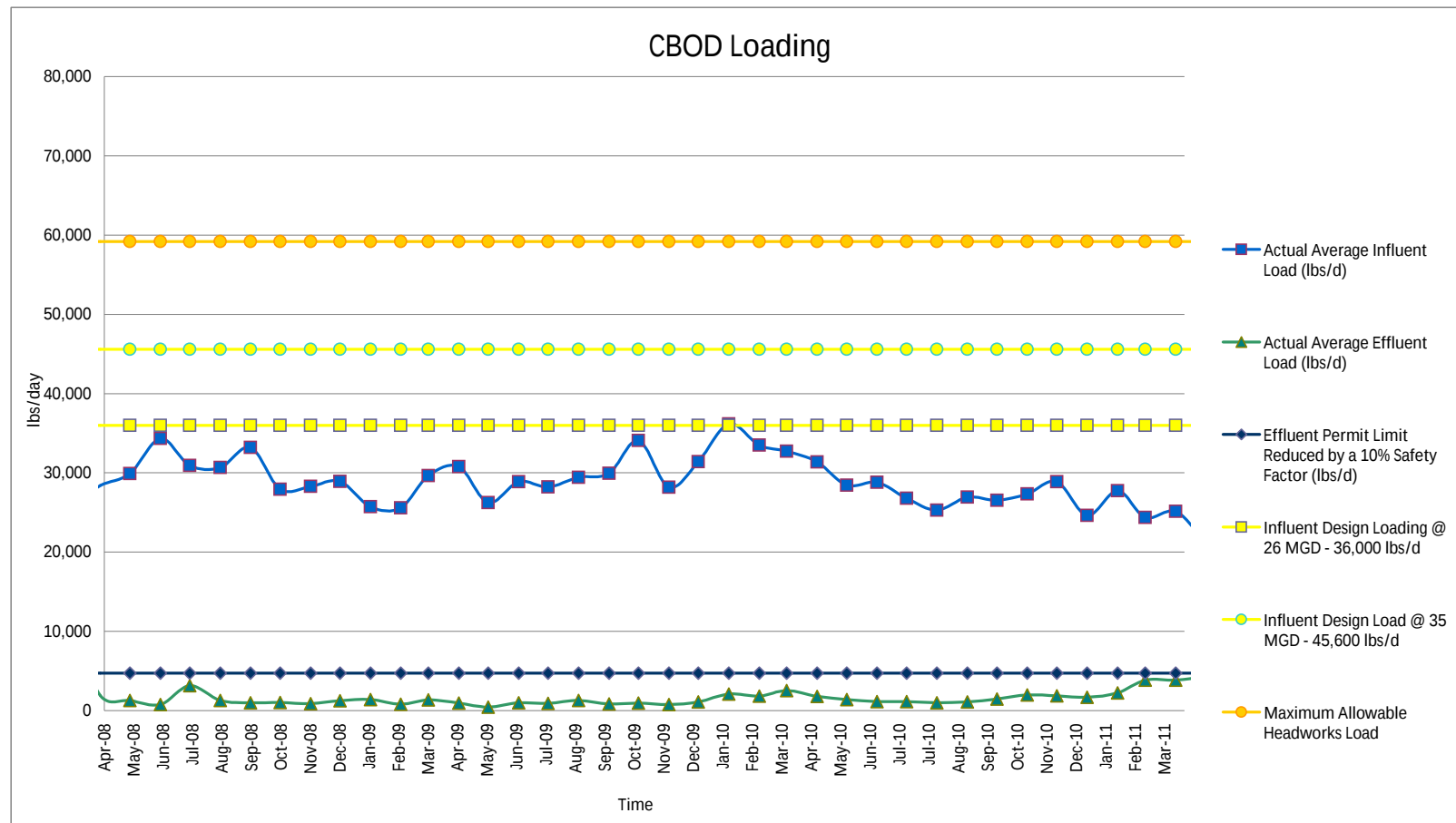
This Treatment Management Plan identifies trigger events, and also outlines a recommended course of action for implementing a treatment management strategy if a trigger occurs. The Board should adopt this Treatment Management Plan as a management tool for making decisions about controlling and/or treating flows and pollutant loads reaching the treatment plant, with the goals of protecting the treatment plant processes and equipment and meeting effluent limits.

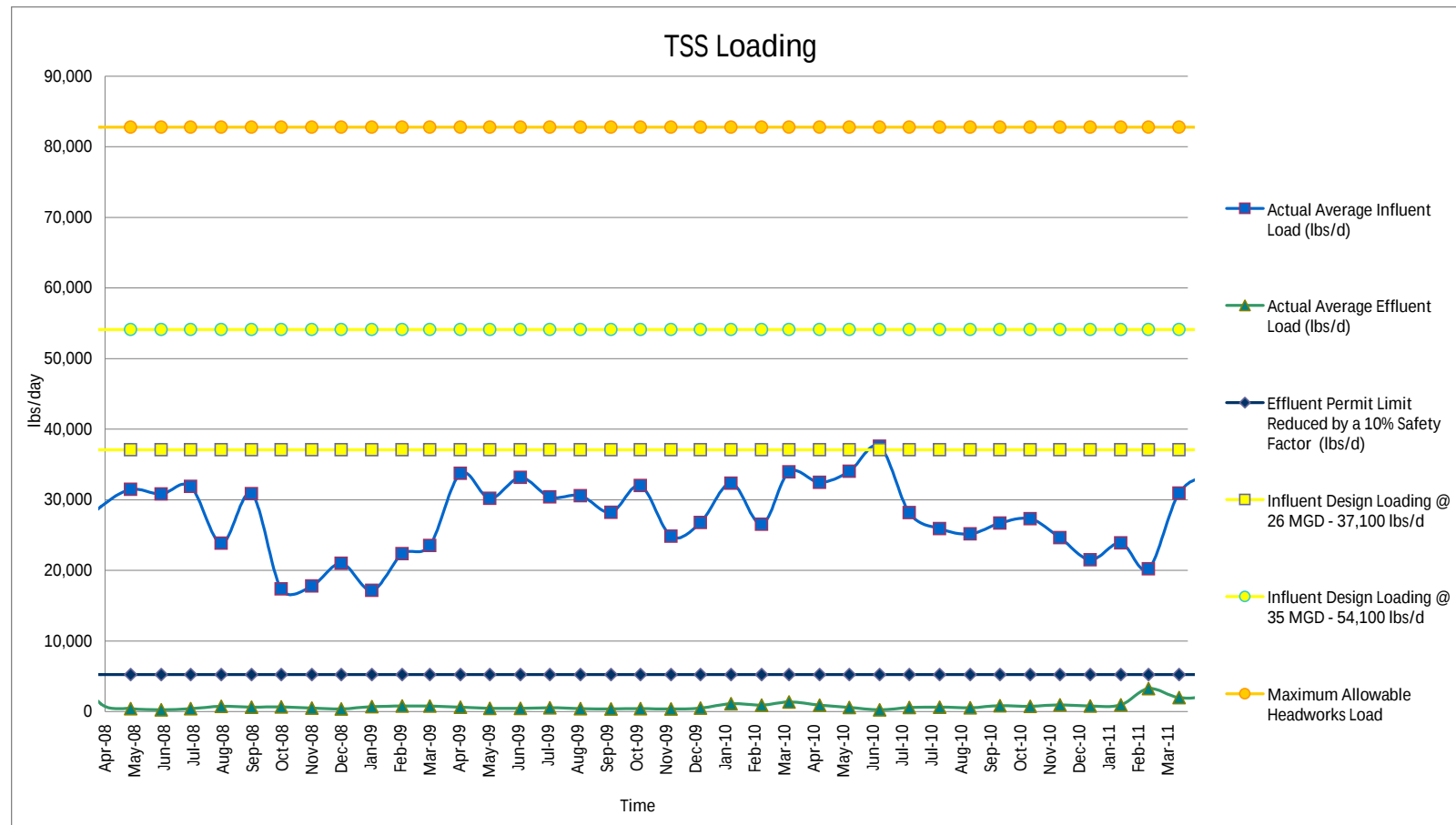


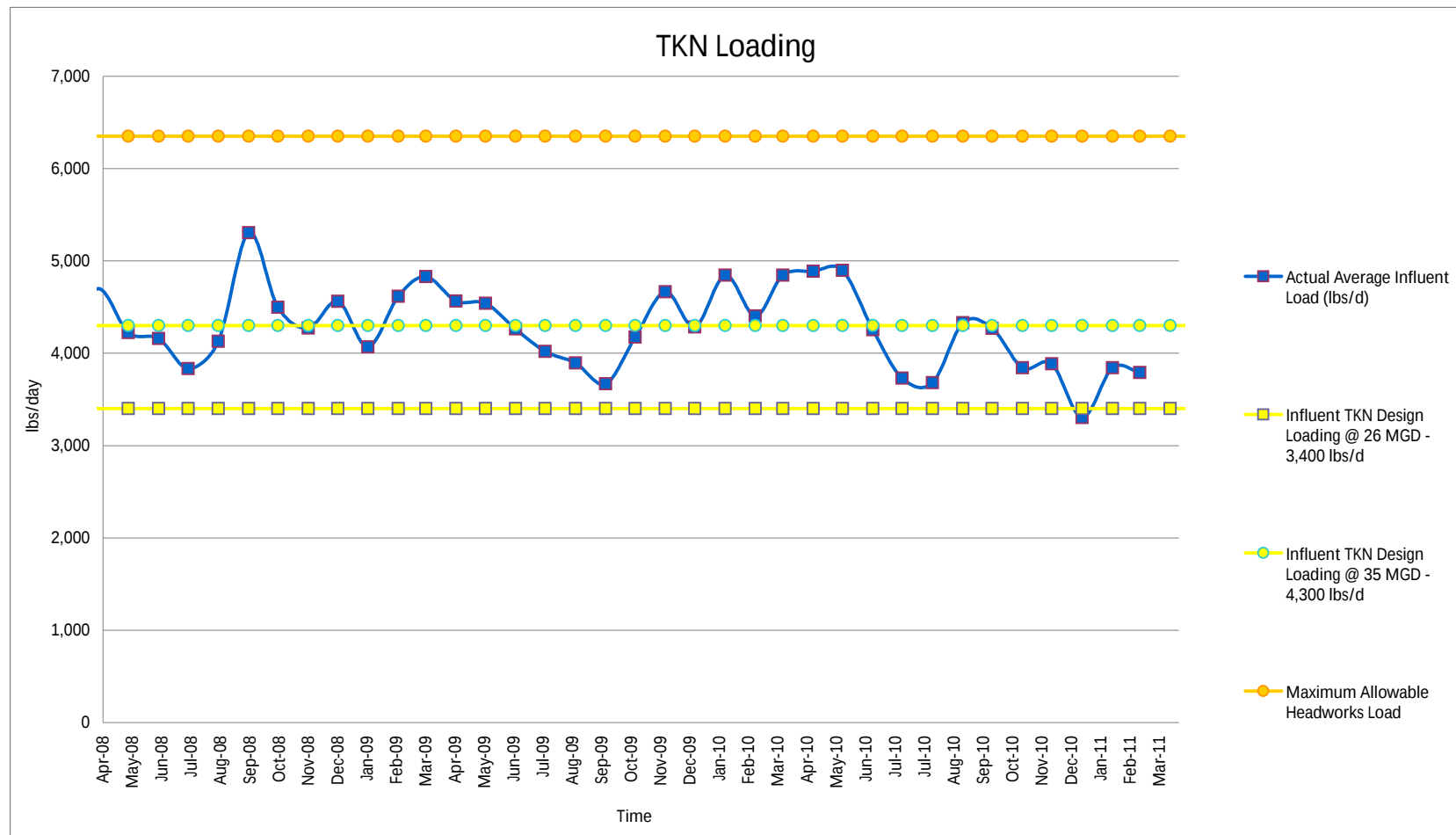
Appendix A

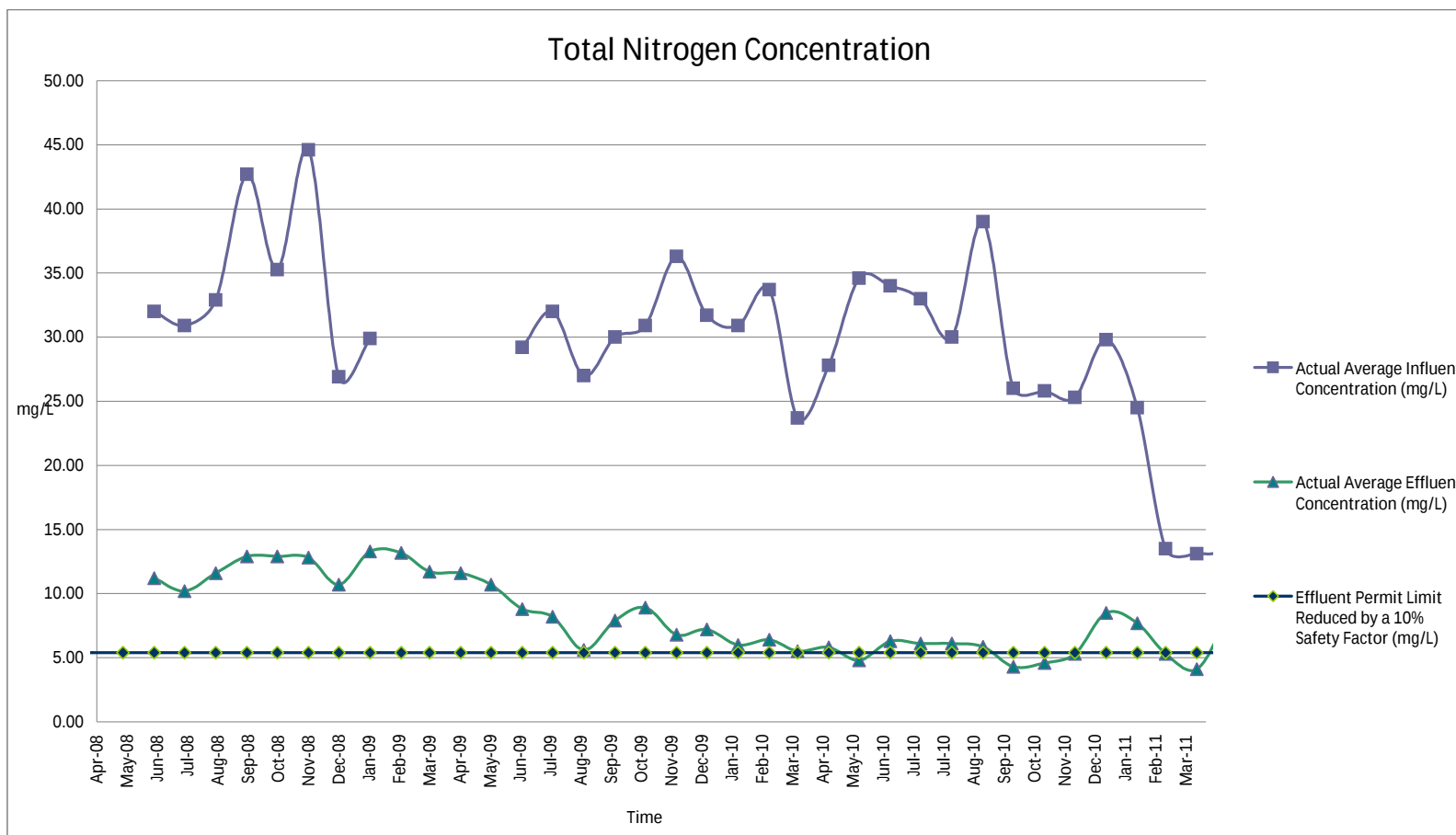
Parameter Graphs

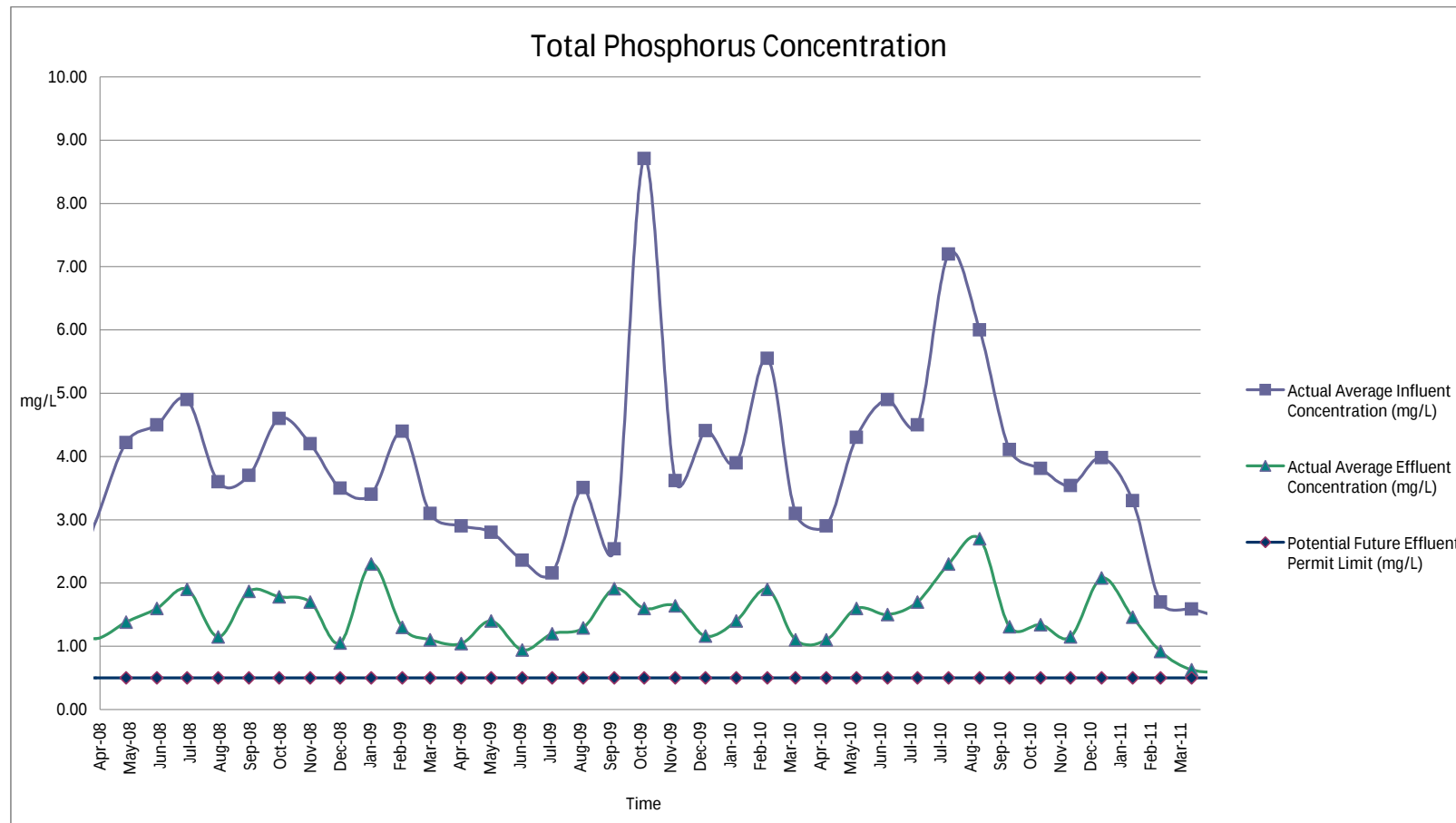


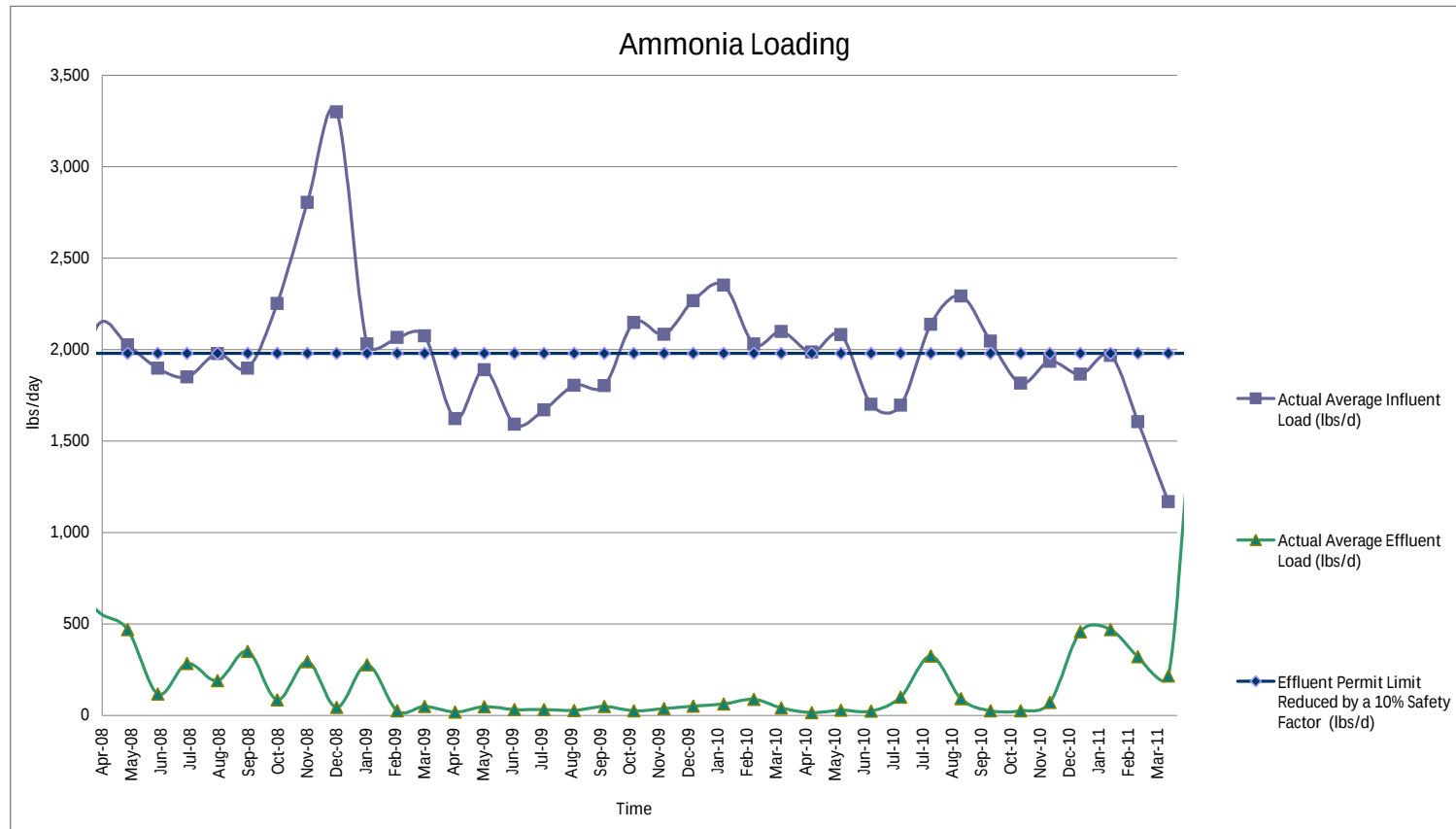














Appendix K



Memorandum

January 9, 2012

To Binghamton Johnson City Joint Sewage Board

Copy to

From	John J. LaGorga	Tel	1 315 679 5776
Subject	Identification of Possible Funding/Grant Sources For Sewer Rehabilitation	Job no.	86/14711

The purpose of this memorandum is to identify possible funding/grant sources for sewer rehabilitation. This memorandum includes nine possible funding/grant sources for sewer rehabilitation. The funding/grant sources identified in this memorandum are current sources as of January 2012, but possible funding/grant sources for sewer rehabilitation will change over time. This should not be considered an exhaustive list of funding/grant sources; other sources likely exist. This memorandum provides a brief summary of the possible sources and internet links for the user to seek further information.

1) Clean Water State Revolving Fund (CWSRF)

Eligibility:

- Municipalities
- Public financing authorities
- Non-profit organization

Funding Type:

- Long-term, reduced interest rate financing
- Short-term, zero interest financing
- New Guarantee financing

Administered by:

NYS Environmental Facilities Corp. & NYS Dept. of Environmental Conservation
(www.nysefc.org)



Memorandum

2) Rural Utilities Programs, Water and Waste Disposal Loan and Grant Program

Eligibility:

Most cities, towns and villages with populations under 50,000

Most counties with populations under 200,000

Governments generally, serving low- to moderate-income populations (at or below 80% of median).

Funding Type:

Public Facilities Category: Grants up to \$400,000 for cities, towns and villages; \$600,000 for counties and joint inter-municipal applications; 51% (or greater) of the people being served must be low- to moderate-income

Housing Category: Sewer/Water Lateral connections, grants up to \$400,000; only low- to moderate-income households may be assisted

Economic Development Category: Grants between \$100,000 and \$750,000; grants are linked to job creation or job retention where 51% (minimum) of jobs are available to or held by low- to moderate-income people

Administered by:

NYS Office for Small Cities

(www.npcnys.org/Public/Local/locSmallCities.htm)

3) Community Development Block Grant Program

Eligibility:

Most cities, towns and villages with populations under 50,000

Most counties with populations under 200,000

Governments generally, serving low- to moderate-income populations (at or below 80% of median).

Funding Type:

Impact on health, welfare or safety concerns (as attested by third parties -- e.g. DOH or NYSDEC violations)

Compliance orders where relevant or impact on other public agencies' purposes and goals)

Impact on reducing project debt per household

Administered by:

NYS Office for Small Cities

(<http://nysdhcr.gov/AboutUs/Offices/CommunityRenewal/>)



Memorandum

4) Water Quality Improvement Project Program

Eligibility:

- Municipalities
- Public financing authorities
- Non-profit organization

Funding Type:

Depending on the type of project, reimbursement is available for up to 85% of the total cost of the project. Types of projects include:

- Municipal Wastewater Treatment
- Municipal Separate Storm Sewer Systems (MS4s)
- Nonagricultural Nonpoint Source Abatement and Control
- Aquatic Habitat Restoration
- Water Quality Management

Administered by:

- NYS Dept. of Environmental Conservation
- (www.dec.ny.gov/pubs/4774.html)

5) Appalachian Regional Commission Area Development Program

Eligibility:

- Municipalities in Appalachian New York
- Public infrastructure projects where there is an economic development benefit (job creation/retention) or health and safety threat

Funding Type:

- Grants

Administered by:

- NYS Dept. of State
- (<http://www.arc.gov/>)



Memorandum

6) NYS Energy Research and Development Authority

Eligibility:

Public and Private

Funding Type:

Flexible Technical Assistance (FlexTech) and Technical Assistance Programs: Provide cost-shared funding to hire independent engineering firms to evaluate energy-related equipment and processes and recommend more efficient options (up to \$50,000 NYSERDA funds per project).

Enhanced Commercial Industrial Performance Program (ECIPP): Provides capital incentives for the purchase and installation of energy-efficient equipment and processes (up to \$1 Million).

DG-to-Electricity Program: Provides capital incentives for the purchase and installation of biogas-fueled electric generating equipment; and for electricity produced from the system (up to \$1 Million).

Technology Development and Demonstration Program (competitive selection process): Provides cost-shared funding for research, development, demonstration, and deployment of underutilized or innovative technologies for municipal water and wastewater treatment plants (up to \$400,000 per project).

"Focus on Water and Wastewater": Provides proactive training, outreach and technical resources.

Administered by:

NYS Energy Research and Development Authority

(<http://www.nyserda.ny.gov>)

7) Environmental Protection and Spill Compensation Fund (Oil Spill Fund)

Eligibility:

Public and Private owners of property and infrastructure

Funding Type:

Pays damage claims to parties injured by a spill

Partners with municipalities to protect the environment and revitalize communities

Administered by:

Office of the State Comptroller

(<http://www.osc.state.ny.us/oilspill/index.htm>)



Memorandum

8) Rural Utilities Programs, Water and Waste Disposal Loan and Grant Program

Eligibility:

Public entities and non-profit corporations with service area populations of less than 10,000

Funding Type:

Loans; Grants available if needed to make user fee affordable

Administered by:

USDA Rural Development

(http://www.rurdev.usda.gov/RD_Grants.html)

9) Smart Growth Network

Eligibility:

Public and Private

Funding Type:

Grants

Administered by:

Smart Growth Network (sponsored by US EPA)

(<http://www.smartgrowth.org/>)