Binghamton-Johnson City
JOINT SEWAGE BOARD

September 4th, 2025

Martin Meaney, Mayor
Village of Johnson City
60 Lester Avenue
Johnson City, NY 13790

RE: In support of the Village of Johnson City Downtown Stormwater Infrastructure Upgrade

Dear Mayor Meaney,

I am writing to express support from the Binghamton-Johnson City Wastewater Treatment Plant for Johnson City's plan to design and implement the improvements detailed in the downtown Stormwater Infrastructure Study. The Joint Treatment Plant and the many communities that the Plant serves will benefit from the proposed upgrades to the sewer system in one of Johnson City's most developed areas.

The completed preliminary engineering report is an excellent start to determining a feasible project for implementation. Separation of the storm and sanitary systems is crucial to this project and the new larger diameter service lines will allow Johnson City to locally manage stormwater more effectively, so as to not overload the Joint Treatment Plant.

At the Binghamton Johnson City Wastewater Treatment Plant our mission is to protect natural resources such as the Susquehanna River by ensuring water is properly treated before being discharged back into the aquifer. These stormwater retrofits have the possibility to reduce number of pollutants that are released into the environment from combined sewer overflows caused when our system is overloaded. By completing this project, the Treatment Plant believes Johnson City can further demonstrate their commitment to protecting water quality and our regions natural resources.

Sincerely,

George Kolba, Jr.
Chairman of the Joint Sewage Board

Chris Papastrat-Vice-Chairman

Bruce King-Board Member

Ronald Lake-Board Member

Stephen Andrew-Board Member

John Paddock-Board Member

Binghamton-Johnson City Joint Sewage Treatment Facilities
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HUNT ENGINEERS | ARCHITECTS | SURVEYORS

PRELIMINARY ENGINEERING REPORT

for

STORMWATER INFRASTRUCTURE STUDY

VILLAGE OF JOHNSON CITY, BROOME COUNTY, NY

May 2024

(Revised April 2025)

HUNT 3561-001

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Preliminary Engineering Report

For

Stormwater Infrastructure Study
VILLAGE OF JOHNSON CITY

HUNT 3561-001
May 2024

TABLE OF CONTENTS

TABLES

APPENDICES

I. EXECUTIVE SUMMARY

The Village of Johnson City (Village) seeks to improve the poor stormwater drainage that is currently provided in the Corliss Avenue area of the Village. The Village retained Hunt Engineers, Architects, Land Surveyors & Landscape Architects, DPC (HUNT) to develop a Preliminary Engineering Report (PER) to review the feasibility of replacing and/or upgrading the stormwater infrastructure within this area of the Village. Additionally, there are areas where the sewer and stormwater are interconnected, and the Village would like to separate them in order to reduce the load on the existing sewer treatment plant. The sewage flows will continue to be conveyed to the existing treatment system, and the stormwater flows will continue to discharge to the outfall in the Susquehanna River. The major difference being that it will flow out during periods of high rainfall without backing up into the streets and causing flooding and ponding within the Village.

Additionally, in January of 2012 the Binghamton-Johnson City Joint Sewer Treatment Facility (STF) issued a Flow Management Plan with the goal of proactively managing wet-weather wastewater flow so that the flows and loadings at the STF remain below the design and treatment capacity the Joint Sewage Treatment Plant and the City's and Village's combined sewer overflows (SCOs). This plan requires and incentives the disconnection of storm and sanitary flows within the operational limits of the STF.

Presently, the existing residences and businesses are experiencing difficulties with the poor drainage of the stormwater runoff incurring costs and spatial issues as a result of erosion and flooding. Most of the soils within the study area are rated as well drained for the use of infiltration however, the conveyance of the stormwater through the existing system to the river is the most efficient method of eliminating excess stormwater. Typically, the amount of stormwater that can be removed via infiltration ponds and subsurface infiltration practices is negligible in a high flow storm event. The Village's leaders aim to maintain residential and commercial developments in this area and the lack of adequate drainage is a deterrent to retaining existing commercial and residential users.

The total project cost for all proposed recommended improvement items as outlined in this report ranges up to $14,283,324 for storm piping improvements, sanitary sewer disconnection, and replacement based on the lifecycle costing analysis and depending on the alternatives selected.

II. PROJECT BACKGROUND AND HISTORY

A. Background and Purpose

This Preliminary Engineering Report is being prepared to investigate the existing stormwater infrastructure system (within the Corliss Avenue area of the Village of Johnson City), identify any resulting environmental concerns arising because of the interconnected sanitary and stormwater lines, describe the need for improvements, evaluate various alternative solutions, provide a recommended solution, and explore economic impacts to

the Village. The information provided in this study is also intended to support an application for project funding.

The purpose of this PER is summarized as follows:

- Identify the boundaries of the drainage area being collected to the Corliss Avenue Storm System and establish projected Stormwater flows for existing and future uses within the area.
- Research past and present environmental conditions within the area and determine their impacts on the project area.
- Identify various alternatives for stormwater collection and conveyance. Develop cost estimates for each alternative and establish non-monetary factors for consideration.
- Provide a recommendation of the selected project.

B. Site Information and Location

The Village of Johnson City is in Broome County, spanning on both sides of Interstate 86 in between Endicott and Binghamton. Johnson City is a well-developed Village for its size and serves as a hub for the neighboring rural areas. The Corliss Avenue area of the Village is comprised of commercial, industrial, and residential parcels, many of which are highly developed with more than 50% lot coverage. For the purposes of this report only the areas in the vicinity of Corliss Avenue are being studied. See site location map found in Appendix A.

C. Topography & Subsurface Conditions

The Village of Johnson City is in a valley, and has ground elevations ranging from 850 to 900 feet sloping upwards to the northwest and bounded to the south by the Susquehanna River as shown on the contoured location map provided in Appendix A.

The Village of Johnson City is primarily comprised of Volusia Channery Silt Loam (20.5%) and Cut and Fill lands Gravelly and Silty (18.0% and 13.6% respectively) as shown in the Natural Resources Conservation Service (NRCS) soils mapping. Volusia Channery silt loam are poorly drained soils having a hydrologic group classification of D; however, they are located almost exclusively in the northern portion of the Village outside of the area of study for this project. The majority of the study area falls within the Cut and fill lands with slopes within 0 to 3%. Cut and fill lands are well drained soils with a hydrologic group classification of A which are viable for use with infiltration. See NRCS Soil Maps found in Appendix B.

Groundwater elevations within the Village of Johnson City are mapped by use of the NRCS Web Soil Survey and can be found within Appendix B. All of the areas within the main study area of the Village experience a soil rating of <137 cm (~ 54 inches) below the ground surface and decreasing in depth as you move south and southwest towards the river. High groundwater has not been a significant issue in the past and will be considered negligible for the purpose of this study.

D. Environmental Resources

1. Residential / Commercial Districts

The majority of the study area for stormwater collection system upgrades for the Village of Johnson City falls within residential or commercial districts. The most significant impact on these types of districts with system upgrades would be increased congestion and inconvenience during construction. All upgrades are intended to be done within existing right-of-way areas or inside existing easements.

Refer to Appendix A for district zoning map.

2. Agricultural Districts

There are not any Agricultural areas within the bounds of this study.

3. Waterbodies

According to the New York State Department of environmental Conservation (NYSDEC) Waterbody Inventory, there is one (1) river in the vicinity of the study area. This river is the main branch of the Susquehanna River, Lower, Main Stem from Ross Corners to Binghamton (PWL ID 0603-0002). This waterbody is considered a Class A River/Stream and has an assessment of impaired for fishing and source water supply. These impairments are due to high levels of mercury and iron respectively. There is also one (1) stream in the vicinity of the study area. This stream is considered to be a part of Little Choconut Creek and minor tributaries (PWL ID 0603-0017). This waterbody is considered a Class C stream and has an assessment of impaired for fishing due to high levels of pH. It discharges into the Susquehanna in the vicinity of the stormwater outfall. These impairments for both the stream and the river are as of December 2021, when the classification sheets were last updated.

Priority Waterbodies List (PWL) fact sheets can be found in Appendix C.

The project boundary lies within the Clinton Street-Ballpark Valley Sole Source Aquifer designated area as such by the Environmental Protection Agency (EPA) due to its susceptible pollution.

4. Wetlands

Review of the NYSDEC Resource Mapper identified no wetlands under NYS jurisdiction within the project area. Additionally, review of the National Wetland mapping database documented no federally protected wetlands. See Appendix C for mapping of State and Nationally delineated wetlands.

5. Endangered Species

The Information for Planning and Consultation (IPaC), U.S. Fish and Wildlife Service, identified four endangered, threatened, or potentially threatened species in the region. The Northern Long-eared Bat, the Tricolored Bat, the Green Floater Clam, and the

Monarch Butterfly can be potentially affected by development within the Village of Johnson City. However, there are no critical habitat(s) within the study area. The US Fish and Wildlife Service's (USFWS) had no listings on the Endangered Species of Fish & Wildlife listing.

6. **Archeological Sensitivity**
   The project site is located within an archaeologically sensitive area established by the Office of Parks, Recreation & Historic Preservation (OPRHP) and the National Register of Historic Places. Please refer to Appendix C for an Archaeologically Sensitive Areas Map. A no impact letter from OPRHP is required and will be obtained prior to any future improvements. See Appendix C for mapping of from the OPRHP.

7. **Critical Environmental Area**
   No critical environmental areas have been identified within or near the study area within the Village of Johnson City. Refer to Appendix C for Critical Environmental Area mapping.

8. **Floodplain Considerations**
   According to the Federal Emergency Management Agency (FEMA) flood insurance rate maps (FIRM) for the Project area, a significant portion of the study area falls within the 100-year flood hazard area. The impact of flooding will be considered when designing the stormwater system upgrades. Please refer to Appendix D for exhibits showing the FEMA Floodplain limits in the region.

9. **Environmental Justice Areas**
   The NYS DEC has identified several Potential Environmental Justice Areas (PEJA) within the Study Area. As established in DEC Commissioner Policy 29 on Environmental Justice and Permitting, PEJA areas are identified as areas with higher-than-average populations of minority groups or higher-than-average household incomes which are below the federal poverty level. PEJA's have been identified based on data from the 2014-2018 5-year American Community Survey (ACS), conducted by the US Census Bureau. Environmental justice efforts focus on improving the environment in communities, specifically minority and low-income communities, and addressing disproportionate adverse environmental impacts that may exist in those communities. The data was collected by the US Census Bureau as part of the American Community Survey. Reported income and race/ethnicity data were analyzed by OEJ to determine the presence of Potential Environmental Justice Areas. The designated areas are then considered for additional outreach within the permitting process, for grant eligibility, and for targeted enforcement of Environmental Conservation Law violations.

   Please refer to Appendix E for Environmental Justice area mapping and further information.

E. Ownership and Service Area

1. Outside Users

There are no users or drainage areas within the study that fall outside of the Village of Johnson City limits.

2. Population Trends and Growth

Per US Census data, the population in the Village of Johnson City has been stable since the 2000s, as seen in Table 1.

Table 1: Village Census Populations

Year	Population	% Change
1980	17,126	-
1990	16,890	-1.4%
2000	15,535	-8.0%
2010	15,174	-2.3%
2020	15,343	+1.1%

The Cornell Program on Applied Demographics anticipates that the population of Broome County will decrease, and this appears to be the case with a slight decrease in population each census since the 80's with the exception of the most current one. It can be anticipated that the population will remain fairly constant in the Village, however changes in population are not anticipated to impact the amount of runoff or stormwater generated due to the fact that most of the area within in the study is completely built out and is as impervious at the present time as it is ever anticipated to be.

III. EXISTING FACILITIES

A. General Description and History

The existing study area is currently being served by a stormwater collection system that generally collects in the Corliss Avenue area and goes under the railroad tracks where it makes it way to the Susquehanna River. The sanitary sewer collection system is a portion of the Binghamton-Johnson City Joint Sewage Treatment area that feeds to the existing treatment plan on the West side of the Susquehanna River. A copy of the Main Trunk Sewers and Critical Infrastructure Map from the Flow Management Plan is included in Appendix F.

B. Current or Future Projects at Site

There are no current or future known projects that will affect this project.

C. Permit Conditions and Effluent Discharge Limits

Currently, the Village has a SPDES Permit for its two CSO facilities NY-0023981. The Village is in the process of eliminating that SPDES permit and combining it with the City of Binghamton and BJC STP under the permit number NY-0024414. The Village is also part of the Broome-Tioga Stormwater Coalition and has separate SPDES numbers for itself and

that coalition. The Village's SPDES ID for the MS4 is NYR20A101. The BTSC SPDES ID for the MS4 coalition is NYR20C002.

D. Compliance Issues

There only main compliance issues associated with the Village is the interconnection of the Storm and Sewer collection systems. The stormwater portion itself does not pose compliance issues to the Village with regard to the DEC, however the repairs and upgrades to the system are necessary due to the reoccurring damage and inconvenience occurring from regular flooding.

E. Site Layout

While there is no specific "site layout" under investigation for the Existing Facilities study area, the area is comprised of residential and business dwellings. See Appendix A for mapping of the study areas under investigation. Flow from these systems will be collected and conveyed to the existing river discharge and treatment plan via separate sanitary and sewer systems.

Review of the topography within the Village of Johnson City reveals that the majority of the study area falls in elevation mostly from the northeast to southwest along Corliss Avenue and towards the Susquehanna River from the side roads, which makes it very favorable for a collection system to capture and convey stormwater and sewage to the southwest.

F. History of Damage due to Storm or Flood Impacts

The largest and most recent major flood event was in 2011 where the flooding backed well up into the study area. See Appendix A for a map showing the extents of the flooding.

G. Description of Existing Systems Being Evaluated

1. **Existing capacity, age, conveyance, etc.**
   The records of the existing public stormwater system in the areas of study were largely destroyed by flooding in the records storage area in 2011. A major part of the investigation portion of this study includes a detailed limited field survey of the existing conditions of the system. Detailed Mapping of the existing conditions can be found in Appendix H.

2. **Ability to meet technical standards for Sanitary and Stormwater Conveyance**
   All improvements will meet the most current design guidelines and technical standards; including but not limited to 10 States Standards and TR-16.

3. **Planned, current, or future improvements outside the project scope**
   There are no other planned projects outside this PER recommendation.

IV. NEED FOR THE PROJECT (Definition of the Problem)

A. Replacing Undersized Lines

As the Village of Johnson City has grown and more and more areas have been developed within the collection system, the main lines have been taking on more and more flows and have come to the point where they are no longer sufficient to convey the stormwater volumes that are being directed to them. This has resulted in stormwater backing up during large and even medium rain events. This problem will only be exacerbated with the separation of the sanitary and storm flows, in that the flows to the sanitary system will be reduced, but the newly separated storm flows will be directed to the already strained and undersized stormwater system. Backed up stormwater results in damage to property, streets, and parking lots, as well as creates a safety hazard when stormwater encroaches into the roadways.

B. Separation of Sewer and Storm

The proposed stormwater and sanitary sewer system upgrades will create a reliable and safe measure for the conveyance to serve the residents and businesses of the study area. Additionally, the separation of the Storm and Sanitary flows is required by the Treatment Plant Flow Management Plan and the NYSDEC.

C. Aging Infrastructure

What appears to be original and deteriorating sanitary and stormwater manholes and lines are suspected in some areas, and observed in others, to be both failing and/or undersized. This proposed project will eliminate this potential adverse environmental condition and create a better environment for the community.

D. Infiltration and Inflow

Infiltration nor inflow have not been measured as a part of this report, but it is certainly an issue due to the old and poorly maintained manhole lids, direct connections from the basements, roof drains, and sumps, etc. and storm drains toed directly to the sanitary lines.

E. Storm and Flood Resiliency

As demonstrated by the mapping provided in Appendix D, 100-year floodwaters do inundate portions of the Village within the study area. Properly sized storm lines will still be affected by flooding, but will be designed so as to prevent additional strain on the system during times of flooding.

F. Compliance with Accepted Standards

All proposed work for sanitary and storm design will follow the latest editions of TR-16 and Ten States Standards or other applicable design guidance documents and will meet NYSDEC requirements as well as the requirements laid out in the Flow Management Plan.

V. ALTERNATIVES ANALYSIS

In order to provide a tiered level of solutions, HUNT has analyzed various alternatives for collection and transmission system upgrades options. The system options include conventional gravity sewer system, pump systems, and infiltration systems. These alternatives have been evaluated below, along with a "Do Nothing or No Action Alternative." However, there are several common items across the alternatives that are discussed prior to the in-depth collection and alternative investigations as outlined below:

A. Common Items across Alternatives

The following items are provided to address all proposed alternatives outlined below.

1. Site Layout/Sewer Mapping

Proposed draft layouts and mapping of the existing areas currently served by undersized lines were developed and are included in Appendix G.

2. Land Requirements

As the bulk of the collection systems infrastructure is anticipated to be in roadway rights-of-way or Village property, we do not expect there to be significant land acquisition requirements.

3. Green Infrastructure

This would be mostly existing system upgrades. Stormwater flows are intended to be disconnected from sanitary and uses of Green Infrastructure practices will be considered for the project during design to meet current standards.

4. Impact on Adjacent Properties

There would be some impact on all current properties along the pipe routes while stormwater conveyance systems are upgraded, and sewers are disconnected.

5. Environmental Impacts and Mitigation Measures

The proposed design will be developed to avoid adverse environmental impacts, a complete SEQR evaluation will be conducted during the design phase.

The Village acting as Lead Agency will complete a full environmental review following NYS State Environmental Quality Review (SEQR) guidelines. As identified in Section III Environmental Resources Present, the design and review process will consider agricultural lands, crossing of streams, the presence of aquifers, flood zones, natural communities near the location, and archaeological sensitive areas. Prior to completion of design, a Phase I/IA survey will be completed, however, it is not anticipated that any environmental impacts will result from the proposed alternatives.

There will be no impact on Environmental Justice areas. If anything, improving sewer and stormwater capacity will improve the surrounding areas for all residents.

6. **Constructability and Schedule**
   As the collection system upgrades are installed, it is expected that there will be coordination issues of various items such as traffic flow, potential utility crossings/interferences, road/driveway repairs, lawn repairs, DOT road crossing (as needed), abandonment requirements.

B. Stormwater Collection System Alternatives

1. **Do Nothing/No Action**
   Taking no action will only hamper the ability to maintain the commercial and residential communities within the study area and compound an already observable failing stormwater system, potentially causing further damages and resulting in the risk of public health problems, environmental issues such as additional unacceptable combined sewer overflows, and strain on the Sanitary Sewer Treatment Plant. Public health and safety would still be a concern and would most likely increase, as well as resulting in increased maintenance costs as the system continues to age. This is not a recommended alternative.

2. **Replace The Entirety of the Collection System**
   a. **Description**
   This alternate is referred to as Alternate 4. Alternate 4 consists of combining Alternate 1 Phase 1 and Phase 2, Alternate 2 and Alternate 3. Alternate 4 would include the removal and reconstruction of the entire conventional gravity stormwater system to convey water from the individual streets within their respective areas to the river outfall. Existing lines would be infilled and abandoned in place or fully removed. New larger diameter service pipes, manholes, and catch basins would be provided to collect the stormwater and convey it efficiently away from the roadways. Railroad crossings would require horizontally directional drilling or jack and bore. All construction would require restoration of surface to a condition equal to, or better than, the original condition.

   A conceptual layout of a conventional gravity system has been completed for the study area, see Appendix H. An engineers estimate of probable cost was derived from the conceptual layout. See Appendix I for the detailed cost estimates. A summary cost table is provided in Section VI.

   b. **Detailed Improvements**
   For the replace the entirety of the system alternative, see the detailed storm sewer utility drawings located in Appendix H. This alternative will require a full system stormwater model performed by a professional engineer in order to determine the proper sizes and slopes required to adequately convey stormwater to the discharge point.

c. **Operation and Maintenance Considerations**
The operation and maintenance include routinely scheduled maintenance of the manholes and catch basins, cleaning / pumping of the catch basin sumps, and replacement/repair of components as required.

Electrical costs shall be minimal for the Village as this option proposes gravity flow only, and there is no planned pumping. Cost estimates along with anticipated operation and maintenance costs are also included in the comparison table in Section VI.

d. **Non-Monetary Considerations**
The following advantages and disadvantages of a full collection system replacement have been identified:

Advantages:

- All new lines in the collection system will be designed of the same or compatible types, qualities, and anticipated life span.
- All direct connections to residential and commercial properties will be identified and recorded.
- Replacement of all older lines that are prone to clogging and failure.
- Identification and disconnection of all sanitary and stormwater connections.
- Proper sizing of Storm System for current climate conditions.

Disadvantages

- Highest cost.
- May replace lines that are not necessary.
- More concern/costs for dewatering during construction due to more open trenches.
- Requires at least one costly railroad crossing.

3. **Selective Replacement of the Collection System**
   a. **Description**
   The alternatives listed below would include the removal and replacement of only selected pipes or larger portions of the conventional gravity stormwater system to convey water from the individual streets within the study area to the river outfall. Selected pipes would be infilled and abandoned in place or fully removed. New larger diameter pipes, manholes, and catch basins would be provided to collect the stormwater and convey it efficiently away from the roadways. All construction would require restoration of surface to a condition equal to, or better than, the original condition.

   A conceptual layout for selective replacement of the conventional gravity system has been completed for the study area, see Appendix H. An engineers estimate of

probable cost was derived from the conceptual layout. See Appendix I for the detailed cost estimates. A summary cost table is provided in Section VI.

b. Detailed Improvements

For the selective replacement of the collection system, see the detailed storm sewer utility drawings located in Appendix H. This alternative will require a full system stormwater model performed by a professional engineer to determine pipe sizes and slopes required to adequately convey stormwater to the discharge point. Based on the observations during the limited field survey the following are items that are recommended for immediate improvement.

1. Alternate 1 Phase 1:
   Replace all 30" RCP from Corliss STMH-34 to the Susquehanna River outlet structure. Increasing the diameter of this storm sewer main from 30" to 48" would increase the overall flow capacity of this section of storm sewer main. This work would include minimal street resurfacing on Riverside Drive and replacing all manholes in this storm sewer run. It is necessary to increase the overall diameter of the pipe in order to decrease the amount of surcharging that the system upstream of Corliss STMH-34 faces during a large storm event.

2. Alternate 1 Phase 2:
   Replace all 30" RCP from Corliss STMH-29 to Corliss STMH-33. Increasing the diameter of this storm sewer main from 30" to 48" would increase the overall flow capacity of this section of storm sewer main. This work would include complete street resurfacing on Corliss Avenue and replacing all manholes in this storm sewer run. It is necessary to increase the overall diameter of the pipe in order to decrease the amount of surcharging that the system upstream of Corliss STMH-29 faces during a large storm event. Additionally, this will allow greater flow capacity for the new storm network on Baker Street, Sergeant Street and Sturtevant Street. This work shall be performed in conjunction with the work listed under Alternate 1 Phase 2 in the Selective Replacement of the Collection System Lines.

3. Alternate 2:
   Replace all 30" RCP from Corliss STMH-10 to Corliss STMH-29, eliminating Corliss STMH-9. Increasing the diameter of this storm sewer main from 30" to 48" would increase the overall flow capacity of this section of storm sewer main. This work would include complete street resurfacing on Corliss Avenue and replacing all manholes in this storm sewer run. It is necessary to increase the overall diameter of the pipe in order to decrease the amount of surcharging that the system upstream of Corliss STMH-29 faces during a large storm event.

4. Alternate 3:
   Reverse the direction of flow from Baldwin STMH-13 to Baldwin STMH-17 and construct a new storm main which runs along the railroad tracks to Corliss STMH-33. This would disconnect the storm sewer flow from Baldwin Street south of Corliss Avenue, Arch Street, Faatz Alley, Willow Street, Grand Avenue and Century Sunrise Residences from the storm sewer main on Corliss Avenue. Increasing the diameter of this storm sewer main from 30" to 48" would increase the overall flow capacity of this section of storm sewer main. This work would include complete street resurfacing on Baldwin Street south of Corliss Avenue and the intersection of Baldwin Street and Faatz Alley. Avenue and replacing all manholes in this storm sewer run. It is necessary to increase the overall diameter of the pipe in order to decrease the amount of surcharging that the system currently faces at the intersection of Baldwin Street and Faatz Alley during a large storm event.

c. Operation and Maintenance Considerations

The operation and maintenance include routinely scheduled maintenance of the manholes and catch basins, external cleaning / pumping of the catch basin sumps, and replacement/repair of components as required.

Electrical costs shall be minimal for the Village as this option proposes gravity flow only, and there is no planned pumping. Anticipated operation and maintenance costs have been included in the comparison table in Section VI.

d. Non-Monetary Considerations

The following advantages and disadvantages of a full collection system replacement have been identified:

Advantages:

- Only areas of the collection system deemed necessary will be upgraded limiting disruption.
- Lower cost.
- Replacement of the majority of older lines that are undersized and prone to clogging and failure.
- Disconnection of all sanitary and stormwater lines in areas of work.
- Proper sizing of Storm System for pipes that are replaced.

Disadvantages

- All direct connections to residential and commercial properties may not be identified and recorded.
- Requires costly railroad crossings.
- Parts of the system with aging infrastructure will remain in place.

C. Storm and Wastewater Disconnection Alternatives

1. No Action

Taking no action will only continue the mixing of the stormwater and the sanitary flows causing additional strain on the wastewater plant. Public health and safety would still be a concern and would most likely increase. This is not a recommended alternative. This option is not allowed by the NYSDEP if any work is being done in the street or on the storm system.

2. Disconnection of Stormwater and Wastewater

This alternative proposes the direct disconnection of the sanitary lines from the stormwater lines. The direct disconnection of storm and sanitary lines is the only way to guarantee that the stormwater will not be able to combine with the sanitary flows.

3. Detailed Improvements

For the disconnection of storm sewer system components from the existing sanitary sewer system, see the detailed storm sewer utility drawings located in Appendix H. Based on the observations during the limited field survey the following are items that are recommended for immediate improvement.

a. Alternate 1 Phase 2:

1. Disconnect Baker CB-5 and CB-6 from the existing sanitary sewer system. Provide a new 18" storm sewer main, originating at Baker STMH-5, which runs parallel the sanitary sewer main on Baker Street, flowing south to Corliss Avenue, connecting to a new manhole, Baker STMH-6, at the intersection of Corliss and Baker, which then travels east to Corliss STMH-30.

2. Disconnect Sergeant CB-1, CB-2, CB-3, and CB-4 from the sanitary sewer system. Provide a new 18" storm sewer main, originating at Sturtevant STMH-2, which runs parallel the sanitary sewer main on Sergeant Street, flowing south to Corliss Avenue, connecting to a new manhole, Sergeant STMH-2, at the intersection of Corliss and Sergeant, which then travels east to the new Baker STMH-6 at the intersection of Corliss and Baker, ultimately connecting to Corliss STMH-30.

3. It is assumed that West CB-1 and West CB-2 also connect to the existing sanitary sewer system. Completely replace West CB-1 and West CB-2 and connect them to a new 18" storm sewer main, originating at Sturtevant STMH-1, which runs down the centerline of Sturtevant Street, flowing west to Sergeant Street, connecting to a new manhole, Sturtevant STMH-2, at the intersection of Sturtevant and Sergeant, ultimately connecting to Corliss STMH-30. This work shall be performed in conjunction with the work listed under Alternate 1 Phase 2 in the Selective Replacement of the Collection System Lines.

VI. COMPARISON OF ALTERNATIVES

A. Summary Table of Feasible Alternatives

Two stormwater collection systems were evaluated to ascertain practical solutions to provide the Village with a functional stormwater conveyance system. The table below summarizes the collection systems and processes reviewed with their respective capital and O&M costs for each alternative.

Table 2: Total Collection System Project Cost Summary

Parameter	ALT. NO. 1 PHASE 1 Selective Replacement (Sewer Separation)	ALT. NO. 1 PHASE 2 Selective Replacement (Sewer Separation)	ALT. NO. 2 Selective Replacement (Storm Sewer)
Est. Design Cost Installation Cost	$ 302,267 $ 2,619,648	$ 423,403 $ 3,669,494	$ 416,770 $ 3,612,007
Expected Useful Life: Collection System/Concrete	50-100 years	50-100 years (new) 2-8 years (existing)	50-100 years (new) 2-8 years (existing)
Est. Annual Operating Cost	N/A	N/A	N/A
Expected Annualized Maintenance & Replacement Cost (25% of major items)	$52,393	$73,390	$72,240

Parameter	ALT. NO. 3 Selective Replacement (Storm Sewer)	ALT. NO. 4 Entire Replacement (Storm Sewer and Sewer Separation)
Est. Design Cost Installation Cost	$ 335,145 $ 2,904,590	$ 1,477,585 $ 12,805,739
Expected Useful Life: Collection System/Concrete	50-100 years (new) 2-8 years (existing)	50-100 years (new)
Est. Annual Operating Cost	N/A	N/A
Expected Annualized Maintenance & Replacement Cost (25% of major items)	$58,092	$256,115

VII. RECOMMENDED ALTERNATIVE

A. Basis of Selection

This Village of Johnson City Stormwater System Study seeks to improve the functionality and safety of the community by improving the stormwater collection system for all properties within the study area limits.

Alternate 1 Phase 1 and Phase 2 must be completed as a single project at a minimum for the separation of combined sewers. Alternate 1 would only provide very minimal improvements to the overall storm sewer system.

Alternate 2 or Alternate 3 may be performed in conjunction with Alternate 1 Phase 1 and Phase 2. The addition of either Alternate 2 or Alternate 3 would provide a moderate improvement to the overall storm sewer system. Utilizing Alternate 2 would increase the overall flow capacity of the storm sewer main on Corliss Avenue, utilizing Alternate 3 would divert excess flow from the storm sewer main on Corliss Avenue.

Alternate 4, would both increase the overall flow capacity of the storm sewer main on Corliss Avenue and divert excess flow away from the system, minimizing the potential of surcharging the overall system.

The Recommended Alternative is a selective replacement of the system components based on the lifecycle costing analysis, utilizing Alternate 1 Phase 1 and Phase 2 in conjunction with Alternate 2.

B. Project Schedule (Tentative)

A potential project schedule is included as follows:

- Submit Preliminary Engineering Report to NYS DEC – May 2024/November 2024
- NYSDEC WQIP Application – July 2024
- SHPO No Effect Finding – July 2024
- SEQR Neg Declaration –July 2024
- NYSEFC WIIA Grant & CWSRF Application – June 2025
- Engineering Plans, Specifications–December 2025 – March 2026
- Regulatory comments/responses – May 2026
- Advertising of Bids – June 2026
- Begin Construction – June 2026
- Complete Construction – July 2027
- Funding Close Out & Operation – September 2027

C. Next Steps

The community will continue to discuss the project and funding procurement with the public at regular board meetings and continue to gain local public and private support. SEQR review will occur during the planning for design phase.

Anticipated procurement methods and plan of contracts (e.g., design/bid/build, energy performance contract, Project Labor Agreement, Wicks, design/build, etc.)

D. Funding Sources

Securing funding from the potential sources identified below can help achieve an actionable project. The following information identifies funding opportunities that have been offered by State and Federal sources in the recent past. The status of the funding programs and application periods is discussed below.

1. **NYSDEC Water Quality Improvement Program (WQIP)**

   $75 Million is available statewide for various sanitary and stormwater projects designed to improve water quality. The Village sewer system must comply with the Joint Sewage Treatment Plant Flow Management Plan and remove inflow and infiltration from the sanitary sewer. Furthermore, this project seeks to reduce localized flooding. As a result, this project is eligible for the WQIP program. To maximize scoring potential, SEQR should be completed, engineering agreements should be in place, and climate smart community resolutions should be considered for adoption by the Village.

2. **NYSEFC Clean Water Infrastructure Improvement Act**

   NYSEFC provides grant funding to assist municipalities in funding water quality infrastructure. A clean water project may be eligible for a WIIA grant of up to the lesser of 25% of total eligible costs after deducting other grant funds awarded for the project, or $25 million. To enable application for the WIIA grant the SEQR process must be complete, SHPO determination complete, bond financing resolution be complete, and resolution approving application and authorization to execute the contract be complete. The grant application period typically closes in September each year.

3. **NYSEFC Clean Water State Revolving Fund Loan**

   The Clean Water State Revolving fund provides interest-free or low-interest rate financing for wastewater and water quality improvement projects to municipalities throughout New York State. EFC provides both short and long-term financing at zero or low interest. Applications are received on a continuous basis; however, the annual allocation of funds is driven by the presence of the project on the Intended Use Plan (IUP). It is recommended that the submittal of the project be made for publication in the 2024 IUP. The ranking on the IUP will demonstrate eligibility for hardship or subsidized financing.

4. **Economic Development (Apalachin Regional Commission)**

   The localized flooding as well as reduced sanitary sewer capacity restricts development opportunities. As such, if any development is contemplated in the area, this development should be leveraged to pursue economic development funding through the Department of State or the Apalachin Regional Commission (ARC). These grants should be pursued after WQIP and/or WIIA grants are secured.

VIII. Conclusion:

In summary, the project is well positioned to secure grant funds and favorable no, or low, interest loan rates. The Village will need to be pro-active to secure maximum funding by maintaining positive communication with involved agencies, adopting a bond resolution, securing necessary permits and approvals, and initiating design.

BINGHAMTON JOHNSON CITY WWTP

CBOD 5 BENCHSHEET

Permit: NY0024414
LAB: NY1052

SM 5210 B - 2016 NELAC: 20135039

COMPOSITE DATES: 8/29/2025 TO 8/30/2025 **TIME:** 8:00 / 8:00

	Bottle #		Cl Resid	Na_2SO_3 Added?	pH 6.0 - 8.0?	pH Adj. 6.5-7.5?	Seed (mL)	Sample (mL)	GGA (mL)	I.D.O. (mg/L)	F.D.O. 5-Day (mg/L)	Depletion (mg/L)	CBOD5* (% RPD)		REPORTED	
Unseeded Blank	#1	WINK.	N	N	Y	N				8.14						
	#2	1								8.14	7.78	0.36				
	#3	2					√			8.15	8.04	0.11	I.S.C.F.		F.S.C.F.	Qual.
Seeded Blank	#1	3	N	N	Y	N	√	8		8.19	5.27	2.92	0.73	0.72		
	#2	4					√	10		8.15	4.66	3.49	0.70			
	#3	5					√	12		8.19	3.76	4.43	0.74	Avg (mg/L)		
BING INF (composite)	#1	6	N	N	Y	N	√	2	4	8.27	3.82	3.73	280	8	268	
	#2	8					√	2	6	8.06	2.20	5.14	257			
	#3	9					√	2	8	7.97	0.80	6.45	ND		Avg (mg/L)	
JC INF (composite)	#1	10	N	N	Y	N	√	2	5	8.05	4.01	3.32	199	16	181	
	#2	11					√	2	7	7.98	3.15	4.11	176			
	#3	12					√	2	9	7.93	2.19	5.02	167		Avg (mg/L)	
FINAL EFF (composite)	#1	13	Y	Y	Y	N	√	2	90	8.39	5.44	2.23	7	18	7	
	#2	14					√	2	100	8.43	5.56	2.15	6			
	#3	15					√	2	110	8.46	5.39	2.35	6			
	#4	16	Cl Resid				√	2	120	8.44	4.66	3.06	8			
	#5	94	0.09				√	2	130	8.51	5.06	2.73	6		Avg (mg/L)	
CN INF (composite)	#1	20	N	N	Y	N	√	2	12	8.17	7.26	0.19	5	0	5	
	#2	21					√	2	14	8.17	7.44	0.01	ND			
	#3	22					√	2	16	8.18	7.51	-0.05	ND		Avg (mg/L)	4
GGA STD.	#1	17	N	N	Y	N	√	3		8.17	3.22	4.23			217.7	
	#2	18					√	3	3	8.15	3.05	4.38			(167.5 - 228.5)	
	#3	19					√	3		8.15	2.97	4.46			Avg (mg/L)	

DAY 1: Set-up

Date Set Up: 8/30/2025 Time: 928 Initials: MJ

HACH Nurtients (2 PILLOWS) Lot #: A4296 Exp: 12/4/29

HACH GGA 1 Ampule Lot #: A5024 Exp: 1/24/30

Winkler Calibration: 8.14

Sodium Thiosulfate: HACH Lot #: A5077 Exp: 6/18/2027

Maganous Sulfate (1mL) HACH Lot #: A3269 Exp: 9/27/2027

A-I-A (1mL) HACH Lot #: A3233 Exp: 8/21/2027

Sulfuric Acid FISHER Lot #: 225115 Exp: -

Polyseed NX: 1 capsule + 275mL Lot #: 302410 Exp: 10/31/2026

Bottle Verification: Initials: MJ Bottle # 1 PH 6.94

Incubator Time in: 942 Initials: MJ

DAY 5 - Read

Date Read: 9/4/2025 Read By: 9/4/2025

Time Read: 940 Time ± 3 hours

Initials: GS

Bottle Verification: √ Initials: GS

Incubator Time out: 0925 Initials: GS

CALCULATIONS:

Where Depletion = Initial D.O. - Final D.O.

$CBOD_5$ (mg/L) = 300 X (Depleted Sample - Seed Factor Volume Sample ml)

Notes/ Qualifiers : Check all that apply

2: Unseeded Blank >0.2mg/L

4: Depletion <2.0 mg/L, lowest dilution used for reporting.

BINGHAMTON JOHNSON CITY WASTEWATER TREATMENT PLANT

SEED CORRECTION FACTOR (SFC) CALCULATIONS

Composite Dates 8/29/2025 to 8/30/2025

SEEDED BOTTLE NO.	I.D.O. mg/L	F.D.O. mg/L	DO USED mg/L	SEED VOL. mg/L	I.S.C.F. mg/L	F.S.C.F. mg/L
#1	8.19	5.27	2.92	8	0.73	
#2	8.15	4.66	3.49	10	0.70	0.72
#3	8.19	3.76	4.43	12	0.74	AVG.

CRITERIA MUST BE MET
1. Depletion used ≥ 2.0mg/L
2. Residual DO ≥ 1.0mg/L
3. 0.60-1.00 mg/L (Guideline)

Key:	
I.D.O.	Initial Dissolved Oxygen
F.D.O.	Final Dissolved Oxygen
DO USED	Dissolved Oxyg 5. None of the seed control samples EXAMPLE
SEED VOL.	Seed Volume
I.S.C.F.	Initial Seed Control Factor
F.S.C.F.	Final Seed Control Factor

$$I.S.C.F = \frac{[(\text{mg/ DO Used}) \quad (\text{X mls Seed Vol.})]}{\text{mLs Seed Control}}$$

MULTILAB 4010-1W METER
YSI 4100 BOD PROBE