June 2022
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Engineering Report

Town of Glenville

Water System Improvements

Delaware Engineering, D.P.C.
Civil and Environmental Engineering
Albany • Oneonta • Red Hook • Monticello • Goshen

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1.0 EXECUTIVE SUMMARY

The Town of Glenville owns and operates the Glenville Water Treatment Plant and Water District which supplies potable water to the people within the Town and its surrounding communities. The water treatment plant (WTP) is permitted for 5.3 mgd and consists of four drilled wells and disinfection prior to being pumped into the distribution system. The water treatment plant has an average daily flow of 2 mgd with a peak day of 5.4 mgd in the summer of 2020.

The Town of Glenville's WTP was constructed in 1965 and upgraded with an addition in 2005. The original WTP that was constructed in 1965 and there are critical components that are failing. Additionally, majority of the equipment is approximately 55 years old and in need of replacement.

The engineering report considers nine options for upgrades to the Town's water infrastructure. The potential alternatives considered includes No Action, New Well #5, Upgrading the WTP, rehabilitation of the water tanks, Church Road Tank replacement with new water tank at Sanders Preserve, Church Road Tank replacement with new elevated tank, new intermunicipal connection to the City of Schenectady, and water distribution upgrades.

The recommended alternatives are Alternative B and I which includes upgrading the WTP and upgrades to the water distribution system. These alternatives address the critical components of the water infrastructure to continue providing a safe and reliable water source.

The preliminary project cost estimate is $22,716,093.75.

2.0 PROJECT BACKGROUND AND HISTORY

2.1 Site Information

2.1.1 Location

The Town of Glenville is located in Schenectady County, New York and currently owns, operates, and maintains a Water Treatment Plant (WTP) off of Route 5 and Van Buren Lane intersection. See **Figure 1** for location map.

2.1.2 Geological Conditions

According to the USDA NRCS Custom Resource Soil Report, the water treatment plant is located within an area that is mostly silt loam and fill. See map below.

Soil	Hydrologic Soil Group	Slope	Depth to Bedrock	Depth to Water Table	Drainage	Hydric Soils	Farmland
Cut and Fill Land	A	0-15%	>80 inches	36-72 inches	Excessively Drained	No	N/A
Hamlin Silt Loam	B	0-3%	>80 inches	36-72 inches	Well Drained	No	N/A

Upgrades to the distribution system will also be required to replace existing watermains and provide additional connections to loop the water system. Soil borings will be required along watermain installation to determine the geological conditions. Soil boring will typically be place intervals depending on the site conditions.

2.1.3 Environmental Resources

2.1.3.1 Waterbodies

The WTP is located along the Mohawk River, a NYSDEC Class B and designed Inland Waterway. The Mohawk River is considered a Priority Waterbody (PWL ID 1201-009) by the NYSDEC. It is in the Mohawk River Basin. Aquatic Life and Recreation are suspected to be Stressed in the River.

Mohawk River/NYS Barge Canal, Main Stem (1201-0090) **MinorImpacts**

Waterbody Location Information Revised: 02/11/2010

Water Index No:	H-240 (portion 9)			**Drain Basin:**	Mohawk River
Hydro Unit Code:	02020004/	**Str Class:**	B		Mohawk River
Waterbody Type:	River (High Flow)			**Reg/County:**	4/Montgomery Co. (29)
Waterbody Size:	30.9 Miles			**Quad Map:**	RANDALL (J-23-1)
Seg Description:	from Fonda/Fultonville to below Little Falls				

2.1.3.2 Aquifers

The Town of Glenville's WTP is in the Great Flats Aquifer, also known as the Schenectady Aquifer. The Town of Glenville water supply is taken from the Great Flats Aquifer through four drilled wells approximately 50 feet deep.

2.1.3.3 Endangered Species

The NYSDEC EAF Mapper indicates that there are rare animals, plants and/or significant natural communities in the vicinity of the WTP. These are defined as animals or plants listed by New York State as endangered, threatened, rare or of special concern. The NYSDEC Natural Heritage Program will be contacted with a request for an official

determination of any known occurrences of endangered or threatened species, species of special concern, or significant natural communities in the vicinity of the site. The U.S. Fish and Wildlife Service (USFWS) will also be contacted with a request for an official determination of any known occurrences of endangered or threatened species and critical habitats in the vicinity of the project site. The Town will work closely with USFWS to ensure that these species are protected throughout the life of the project.

2.1.4 Environmental Justice Areas

Environmental Justice is the fair treatment and meaningful involvement of all the people regardless of race, color, national origin or income, with respects to the development and implementation and enforcement of environmental laws, regulation and policies. The Town of Glenville is not shown as a potential environmental justice area. Even though the Town does not show any potential of environmental justice areas, the long term improvements to the water treatment plant and the distribution system will have positive impacts for the residents in the Town and all the surrounding areas that purchase water from the Town.

2.1.5 Floodplain

The Town of Glenville's WTP is located near the vicinity of the 100 year floodplain of the Mohawk River. The majority of the critical infrastructure is above the 100 year flood elevation of 241.2 feet. In 2018, the Town of Glenville raised the wellheads for Wells 3 and 4 with new wellhouses to bring the wells above the 100 year floodplain.

2.2 Ownership and Service Area

The Town of Glenville owns and maintains the water treatment plant and water distribution system which serves approximately 16,000 people and businesses through 6,284 service connections within the Town.

2.2.1 Water System Management

The Town of Glenville's WTP was constructed in 1965 and upgraded in 2005. The WTP is operated by the Town's Chief Operator David Ferris and has a NYS Class 1B-GW or SW with Filtration Avoidance Plant, D-Distribution System. License No. NY0035338.

2.2.2 Water District Boundaries

Some areas within the Town of Glenville receives its water from the Village of Scotia water supply. Property tax assessment records show, for example, that over 75% of buildings were constructed before 1960 and are likely to contain lead in their water services. These areas also experience lower pressures compared to the Town's water supply since the Village of Scotia's hydraulic grade line is less than the Town's due to elevation and location of the Village's water storage tank. Due to limited water pressure and lead water services in these areas, improvements are needed. The water districts that are being supplied by Village water will also need to be consolidated.

2.2.3 Outside Users

The Town's of Glenville supplies water to several outside users. The Town of Charlton, Town of Ballston, and the Town of Clifton Park, and the Village of Scotia all purchase water from the Town of Glenville.

2.2.4 Industrial Users

The Town's water system is connected to parts of the Glenville Industrial Park. Although the connections to the industrial park are limited, the Town is considering expanding within the industrial park to provide water to more users since the Village of Scotia's water pressure is limited within the industrial park. Due to the limited pressures, businesses are required to invest additional capital to provide fire protection to their facilities in the industrial park. With a connection to the Town's water supply, the pressures are approximately 100 psi and can provide the required pressures and flows to meet the fire flow requirements for the user at the industrial park.

2.2.5 Population Trends and Growth

In 2000, the total population of the Town of Glenville (including the Village of Scotia) was 28,183 people (20,226 outside village + 7,957 village). Since then, the population has had a slight increase with the population in 2020 with a total of 29,326 people (22,054 outside village + 7,272 village). Based on this trend, the Town is not expected to see a substantial change in its population in the foreseeable future. The following population trends and growth were obtained from census.gov.

Year	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Pop.	28,183	28,803	29,480	29,403	29,326	29,749	30,177	30,612	31,053	31,501	31,954
% Chg.	-	2.15%	4.40%	-0.26%	-0.53%	1.44%	1.44%	1.44%	1.44%	1.44%	1.44%

Although the population has been relatively stable, the Town of Glenville does provide water to the surrounding communities and industrial users.

2.2.6 Water Use Data

In 2021, the total amount of water produced was 748,947,000 gallons. The average daily flow was 2.02 mgd (million gallons per day) with the peak daily flow of 4.33 mgd in May of 2021. There was approximately 150+ million gallons difference between the water metered from the WTP and amount of water metered from the customers. This difference accounts for water used for firefighting, hydrant and system flushing, leaks within the system, and watermain breaks. See table below for annual average water demand.

Annual Average Water Demand

Year	Annual Average (mgd)	Peak Day (mgd)
2017	1.75	3.02
2018	2.04	4.46
2019	2.12	4.47
2020	2.22	5.42
2021	2.02	4.33

2.2.7 Nearby Water Systems

The nearby water systems are the same as the outside users which includes the Town of Charlton, Town of Ballston, and the Town of Clifton Park, and the Village of Scotia.

2.3 Existing Facilities

2.3.1 Water Treatment Plant

The Town of Glenville's WTP was constructed in 1965 and upgraded in 2005. Both the existing WTP and the new addition include underground clearwells, high lift pumps, and

disinfection systems. The piping from the four wells are configured such that all four wells can pump to either clearwell with their dedicated high lift pumps. The facility has the ability to isolate either the existing 1965 side of the WTP or the 2005 upgrades for maintenance and still maintain operations. The WTP has an average daily flow of 2 mgd with a peak day of 5.4 mgd in the summer of 2020. The Town of Glenville WTP is permitted for 5.3 mgd. See **Figure 2** for existing process flow schematic.

2.3.1.1 Well Pumps, Softeners, and Clearwell (1965 Water Treatment Plant, Older Side)

The Town of Glenville WTP was built in 1965 which consisted of three drill wells approximately 50 feet deep, a 43,000-gallon Clearwell #1, water softener system, and disinfection prior to being pumped to the distribution system. Well #4 was installed in 1983. The well pump capacities are shown on the table below.

Well Pump Capacities

Well	Pump Capacity
Well #1	700 gpm
Well #2	1,400 gpm
Well #3	1,800 gpm
Well #4	2,030 gpm

The water is pumped from the wells to Clearwell #1, which is then chlorinated for disinfection and pumped via the high lift pumps to the distribution system. The existing water softener system has been offline and abandoned for some time due to operational issues and high O&M costs.

Clearwell #1 is in a deteriorated state. The elevated slab at one side of the foundation wall has separated which has caused a depression in a section of the elevated slab. This clearwell is also losing water due to leaks in the concrete walls. The leaking clearwell and the elevated slab will need to be addressed since they are both essential to maintain operations and to meet the demands.

2.3.1.2 Disinfection and Flow Metering (1965 Water Treatment Plant, Older Side)

The Town of Glenville WTP, older side, uses chlorine gas for disinfection and to provide chlorine residual in the distribution system. The chlorine gas is mixed with water within

the chemical feed system and then injected into the discharge piping of the well pumps as the water enters the clearwell. The water is also metered as it's pumped to the distribution system.

The disinfection system is currently in satisfactory condition.

2.3.1.3 High Lift Pumps (1965 Water Treatment Plant, Older Side)

The older side of the WTP consists of three vertical line shaft high lift pumps. High lift pumps #1 and #2 have a maximum capacity of 1,500 gpm at 400 feet. High lift pump #3 pump has a maximum capacity of 3,000 gpm at 450 feet. All the pumps are on/off based on the Lolik Lane Water Tanks.

All three of the high lift pumps are nearing the end of their useful life. Due to the size, high lift pump #3 is rarely used. New high lift pumps that are capable of running on variable frequency drives (VFD's) are recommended to be able to flow pace based on demand. VFD's also offers energy savings by matching energy consumed to the hydraulic loads required.

2.3.1.4 Electrical System and Backup Power (1965 Water Treatment Plant, Older Side)

The existing electrical is in deteriorated state due to an electrical fire in one of the power panels. The existing motor control center (MCC) will need to be replaced with VFD's for the new high lift and well pumps along with other miscellaneous electrical improvements. The existing generator will need to be evaluated depending on the power requirements of the new pumps.

2.3.1.5 Existing Building (1965 Water Treatment Plant, Older Side)

The existing building houses all the electrical and process equipment for the older side. The building is in relatively satisfactory condition but will require upgrades such as roof replacement and HVAC upgrades. The existing softener system has not been used since the 1990's and abandoned in place. The existing system should be removed to utilize that space for additional storage.

2.3.1.6 2005 Addition (Clearwell #2, High Lift Pumps, Electrical, Flow Metering and Disinfection)

The Town of Glenville WTP was upgraded in 2005 and an addition was constructed and connected to the existing building. The upgrades included a new 49,000-gallon clearwell (Clearwell #2), liquid sodium hypochlorite disinfection system, three high lift pumps, and new electrical room. The 2005 addition gave the Town the ability to isolate and shutdown either the existing 1965 side of the WTP or the 2005 addition and maintain operations.

The water is pumped from Well #3 and #4 to the Clearwell #2, which is then chlorinated for disinfection, metered, and pumped via the high lift pumps to the distribution system. The 2005 upgrades consisted of three vertical line shaft high lift pumps. All three pumps are on VFD's and have a maximum capacity of 1,400 gpm at 400 feet.

The electrical system, ancillary equipment, and majority of the components are in satisfactory condition and minor upgrades are recommended. These minor upgrades include bringing in chlorine from the older side to the 2005 addition since the facility has had operational issues with the liquid sodium hypochlorite chemical system.

2.3.1.7 SCADA System

The WTP is controlled with two local redundant control panels, one panel on the older side and the other panel within the 2005 addition. The high lift pumps turn on/off based on a preset water level in the Lolik Lane Tanks. The communication line from the Lolik Lane Tank is an old dedicated data line that was installed in 1965. The WTP does not receive any levels or alarms from the Church Road Tank or the two booster stations in the system (Van Voast and Closson Road). Tank levels for the Church Road Tank are monitored locally at the Van Voast booster station, which feed the water tank.

A SCADA system is recommended for the WTP so all the major components for the water system can be monitored. Communications and data lines should be upgraded to broadband to be able to include the Church Road Tank and booster stations.

2.3.2 Distribution System and Water Tanks

Water treated at the Town of Glenville WTP is pumped through 16-inch and 24-inch transmission lines to the distribution system. The distribution piping consists of a combination of 16, 12, 10, and 8-inch ductile iron and cast iron pipes. The Town also owns three water storage tanks located on two sites, Lolik Lane and Church Road. The Lolik Lane Tanks are filled from the high lift pumps at the WTP and the Church Road Tank is fill from the Van Voast booster station. Due to the elevations surrounding the Church Road Tank, the tank needs to be filled at the highest level at all times to provide minimal pressures. The Closson Road booster station also feeds the surrounding areas near Church Road and is only used to help maintain the pressure. Since the pressures in the surrounding area is limited, the Closson Road booster station is always running.

Town of Glenville Storage Tank Capacities and Hydraulic Grade Line

Storage	Capacity (MG)	H.G.L (FT)
Lolik Tank #1	2.0	520-560
Lolik Tank #2	0.8	520-560
Church Road	2	773-828
Total	**4.8**	

Lolik Lane Tank #1 was constructed in 1965 when the WTP was built and the outside of the tank was painted with an overcoat in the mid 1990's. Lolik Lane Tank #2 was constructed in the 1980's and the tanks are interconnected to maintain the same water level in both tanks. Both tanks at Lolik Lane are deficient in OSHA Standards for fall protection along with other safety concerns. Due to the age, paint in some areas has started delaminating which can accelerate the corrosion process and deteriorate the steel.

The Church Road Tank was constructed in 1995 and is in a deteriorated state. Due to the location, the tank needs to be filled to the highest level at all times to provide adequate pressures for the surrounding areas. Keeping the tank filled provides low turnover. As a result, the interior painting system has severely delaminated due to icing in the winter.

The existing water storage tanks were inspected in 2019 and based on the lack of safety and condition of the painting system, all the tanks will need to be replaced or rehabilitated. See attached **Exhibit A** for Inspection Reports.

A hazardous material survey was also performed and Lolik Tank #1 contains lead paint on the outside and asbestos containing material in the caulking. Lolik Lane Tank #2 and the Church Road Tank do not contain any hazardous materials. See attached **Exhibit B** for Hazardous Material Survey.

2.4 Need For Project

2.4.1 WTP and Water Storage Tanks

The WTP and Lolik Lane Tank #1 were built in 1965 and additional water tanks were built in the 1980's and 1990's. Upgrades to the WTP in 2005 included an addition which doubled the pumping capacity to the distribution system and gave the Town the ability to maintain operations if the older side needed to be shut down for maintenance. The upgrades in 2005 did not include any upgrades to the older infrastructure at that time. Due to the age on the older side of the WTP and the failing critical components, upgrades are needed to provide a safe and reliable source of high quality drinking water.

2.4.2 Proposed Well #5

The Town of Glenville also provides water to the surrounding communities. These communities include the Town of Clifton Park, Town of Ballston, Town of Charlton, and the Village of Scotia. See table below for annual average and peak daily flow since 2017.

Annual Average Water Demand

Year	Annual Average (mgd)	Peak Day (mgd)
2017	1.75	3.02
2018	2.04	4.46
2019	2.12	4.47
2020	2.22	5.42
2021	2.02	4.33

In recent years, the well levels at the WTP have dropped which has limited production. As a result, the suction piping for the Well #2 Pump had to be extended 10 feet into the well in July 2020. Due to increasing demand and recent issues with water levels in the wells, an additional well, Well #5, is being proposed at a stand alone location.

Since Well #5 is being proposed in a different location, the Town of Glenville will be able to provide water to its residents if there was a catastrophic event at the WTP.

2.4.3 Intermunicipal Connection to the City of Schenectady and Distribution Upgrades

The proposed intermunicipal connection to the City of Schenectady will provide the Town of Glenville with a backup water supply in case of an emergency. A new watermain will extend from an existing connection on Freeman Bridge Road and connect to the existing watermain on Erie Boulevard within the City of Schenectady.

2.5 Capacity Development

The Town of Glenville water system has adequate technical, managerial, and financial capabilities to provide safe drinking water to all its customers. See Appendix A for the Capacity Development Program Evaluation Form.

3.0 ALTERNATIVE ANALYSIS

3.1 Alternate A – No Action

Alternate A is the No Action Alternative. The need to upgrade the WTP and the other critical components of the water system are evident due to the deteriorated conditions. The original 1965 elevated slab has separated, which supports all the pumping and chlorine gas disinfection equipment for the older side of the WTP. Given the age of the WTP and the conditions of the water tanks, the No Action Alternative is not feasible as increased action is required to continually repair and maintain the existing aged equipment.

Although there are no immediate capital costs associated with Alternate A, the overall O&M budget will increase as the aging equipment requires replacement. Due to the age of the equipment, the availability of spare parts may become very limited. Furthermore,

this alternative would not mitigate the risk of failure, improve the safety of the facilities, or address the difficulty with operations and maintenance for the operational staff.

3.2 Alternate B – Upgrade WTP (1965 WTP, Older Side)

Alternate B includes all the upgrades to the original 1965 WTP, older side. This alternative replaces the existing elevated slab, fixes the leaking clearwell, upgrades the electrical system, replaces of all the existing piping and valves and the replacement of all well and high lift pumps.

3.2.1 Well Pumps, Clearwell, and Elevated Slab

Existing Well Pump #1 and #2 will be replaced with new well pumps on variable frequency drives (VFD's). The new well pumps on VFD's can be flow paced to match the flow of the new high lift pumps to maintain a level in the existing clearwell. This type of operational control can constantly provide water during high demands without waiting for the clearwell to be filled to a sufficient level to operate the high lift pumps. The new well pumps will have the same capacities as the existing well pumps. The well pump capacities are shown on table below.

Well Pump Capacities

Well	Pump Capacity
Well #1	700 gpm
Well #2	1,400 gpm

The elevated slab will be replaced due to the separation between the foundation wall and elevated slab. Repairing options for the separation are limited because due to the nature of concrete, the separation can not be repaired, but rather supported to prevent any further failures. Since the entire concrete slab will be removed and replaced, all the original 1965 piping inside the clearwell will be replaced. The clearwell will also be coated with a waterproofing cementitious product to stop any leaks from the clearwell.

3.2.2 High Lift Pumps, Disinfection and Flow Metering

All three of the existing high lift pumps will be replaced with new pumps on VFD's. Since the capacity of the WTP is not being increased, the new high lift pumps will match

the capacity of the high lift pumps from the 2005 Upgrades with each pump rated for 1,400 gpm at 400 feet.

The older side of the WTP will continue to be metered and disinfected with chlorine gas. Due to operational issues with the liquid sodium hypochlorite system within the 2005 addition, a new chlorine chemical piping will be installed to inject the chlorine gas solution into the well pump discharge piping going to Clearwell #2.

3.2.3 Electrical System and SCADA

To provide the upgrades noted as part of this option, alterations will be required for the electrical system. The existing motor control center (MCC) will be replaced and VFD's for the new well and high lift pumps will be installed along with additional miscellaneous electrical work. The existing controls system will be upgraded to monitor all equipment which operate on local controls. All locally controlled equipment will report operating and alarm conditions to the plant SCADA. The SCADA will be utilized to automate and control the entire facility. The SCADA system will be configured to record all operating conditions and output alarm conditions to the facility operator in the event of an alarm condition.

3.2.4 Existing Building Upgrades (1965 Water Treatment Plant, Older Side)

The existing building will require some architectural upgrades. The roof is leaking and will be replaced. All of the existing HVAC equipment will also be replaced. The existing fuel oil tank for the HVAC equipment will be removed along with the abandoned softener system.

3.2.5 Alternate B Preliminary Cost Estimate

The Preliminary Project 2024 Cost Estimate for Alternate B is $5,509,218.75.

Alternate B - WTP Upgrades Preliminary Budget Estimate

WTP Upgrades	Quantity	Units	Price / Unit	Total Price
Elevated Slab Replacement (Includes Demo)	1	LS	$370,000.00	$370,000.00
Pipe Replacement for Clearwell	1	LS	$330,000.00	$330,000.00
Arch. And Roof Replacement	1	LS	$250,000.00	$250,000.00
Well and High Lift Pumps (5 total pumps)	1	LS	$2,000,000.00	$2,000,000.00
SCADA System	1	LS	$275,000.00	$275,000.00

HVAC	1	LS	$60,000.00	$60,000.00
Electrical	1	LS	$325,000.00	$325,000.00
Demo	1	LS	$40,000.00	$40,000.00
General Conditions (5%)				$182,500.00
Construction Contingency (25%)				$958,125.00
Construction Total				$4,790,625.00
Engineering and Construction Admin (15%)				$718,593.75
WTP Upgrades Total Cost Estimate				**$5,509,218.75**

3.3 Alternate C – New Well #5

Due to the increasing demand for water in recent years, Alternate C includes the installation of Well #5 located on a separate site from the WTP. The proposed site is in the vicinity of Sacandaga Road and Spring Road intersection. This alternative provides a stand alone water source that will connect directly to the 24 inch watermain going to the distribution system.

3.3.1 New Well #5

New Well #5 will be drilled into the Great Flats Aquifer at a proposed location in the vicinity of Sacandaga Road and Spring Road intersection. See Figure 1. A separate stand alone location is being proposed so the Town of Glenville. The new Well #5 could be an additional source of water since demand has been increasing in the recent year, with the exception of 2021. The new Well #5 could provide water to its residence if there was a catastrophic event at the WTP. To drill new Well #5, the Town of Glenville would also need to increase their water withdrawal permit.

Well #5 will include a new electrical service to a new building that will house all the equipment and chemicals for disinfection. The new well pump will pump into a clearwell where it will be disinfected and then pumped into the distribution system. New Well #5 will also have emergency backup power and will be equipped with an automatic standby generator. All the equipment will be monitored and alarms sent to the WTP SCADA system.

3.3.2 Alternate C Preliminary Cost Estimate

The Preliminary Project 2024 Cost Estimate for Alternate C is $5,056,406.25.

Alternate C - Well #5 Preliminary Budget Estimate

Well #5	Quantity	Units	Price / Unit	Total Price
New Building Architectural	1	LS	$450,000.00	$450,000.00
Structural Concrete	1	LS	$1,200,000.00	$1,200,000.00
Well and High Lift Pumps (3 total pumps)	1	LS	$1,100,000.00	$1,100,000.00
Chemical System	1	LS	$50,000.00	$50,000.00
SCADA System	1	LS	$100,000.00	$100,000.00
HVAC	1	LS	$50,000.00	$50,000.00
Electrical	1	LS	$400,000.00	$400,000.00
General Conditions (5%)				$167,500.00
Construction Contingency (25%)				$879,375.00
Construction Total				$4,396,875.00
Engineering and Construction Admin (15%)				$659,531.25
Well #5 Total Cost Estimate				**$5,056,406.25**

3.4 Alternate D – Lolik Lane Tanks #1 and #2 Rehabilitation

Alternate D includes the rehabilitation of the water tanks located at Lolik Lane.

3.4.1 Lolik Lane Tanks #1 and #2

Lolik Lane Tanks #1 and #2 are structurally in good condition. Due to the age, the painting system has started delaminating. A new coating system along with a cathodic protection will extend the life of both Lolik Lane Tank #1 and #2. Safety and fall protection will also need to be installed to meet all OSHA requirements and to provide a safe working environment during maintenance.

3.4.2 Alternate D Preliminary Cost Estimate

The Preliminary Project 2024 Cost Estimate for Alternate D is $8,301,562.50.

Alternate D - Lolik Lane Tank #1 and #2 Rehabilitation Preliminary Budget Estimate

Water Tank Rehabilitation	Quantity	Units	Price / Unit	Total Price
Lolik Lane #1 (800,000 gal)	1	LS	$2,000,000.00	$2,000,000.00
Lolik Lane #2 (2 MG)	1	LS	$3,500,000.00	$3,500,000.00
General Conditions (5%)				$275,000.00
Construction Contingency (25%)				$1,443,750.00
Construction Total				$7,218,750.00
Engineering and Construction Admin (15%)				$1,082,812.50
Water Tank Rehabilitation Total Cost Estimate				**$8,301,562.50**

3.5 Alternate E – Church Road Tank Rehabilitation

Alternate E includes the rehabilitation of the water tank located at Church Road.

3.5.1 Church Road Tank

The Church Road Tank is in a deteriorated state and will need to be recoated to protect the exposed steel. Due to the low turnover to maintain minimal pressures in the area, icing occurs during the winter which scrapes and removes the coating system from the tank as the water level fluctuates. A mixer will need to be installed to increase the turnover to reduce the icing. Safety and fall protection will also need to be installed to meet all OSHA requirements and to provide a safe working environment during maintenance.

3.5.2 Alternate E Preliminary Cost Estimate

The Preliminary Project 2024 Cost Estimate for Alternate E is $5,388,468.75.

Alternate E - Church Road Tank Rehabilitation Preliminary Budget Estimate

Water Tank Rehabilitation	Quantity	Units	Price / Unit	Total Price
Church Rd (2 MG)	1	LS	$3,500,000.00	$3,500,000.00
Tank Mixer	1	LS	$50,000.00	$50,000.00
Electrical	1	LS	$20,000.00	$20,000.00
General Conditions (5%)				$178,500.00
Construction Contingency (25%)				$937,125.00
Construction Total				$4,685,625.00
Engineering and Construction Admin (15%)				$702,843.75
Water Tank Rehabilitation Total Cost Estimate				**$5,388,468.75**

This alternate does not include temp tank/booster pumps needed for construction to maintain system pressure.

3.6 Alternate F – Church Road Tank Demolition and New Sanders Preserve Water Tank

Alternate F includes the removal of the Church Road Tank for a new water tank at a different location. A new tank is being proposed at Sanders Preserve which is owned by the Town of Glenville.

3.6.1 New Sanders Preserve Water Tank and Van Voast Booster Station Upgrades

Due to the limited pressures in the surrounding areas of the Church Road Tank, the Town of Glenville is proposing to put a new water tank in Sanders Preserve. Sanders Preserve is in within the Church Road Tank area but at a much higher elevation. See table below for the Church Road Tank and the Proposed Sanders Preserve site elevations.

Tank Site Elevations

Site	Elevation (FT)
Church Road Tank	773
Proposed Sanders Preserve Location	900

The higher elevation for the new water tank will provide adequate pressures for the surrounding area such that the Closson Booster Station would no longer be needed since the booster station is solely used to maintain pressures in the area. Since the new Sanders Preserve water tank will be at a higher elevation, upgrades will be required to the existing Van Voast Booster Station. New pumps are required to provide the pumping capacities at the increased head pressures at the new tank location. Van Voast does not have any emergency standby power. The upgrades to the lift station will also include backup power to provide the surrounding area with water in the event of a power failure along with any required electrical, mechanical, and building upgrades required.

New watermains will need to be extended to feed the new water tank at Sanders Preserve. This will require the installation of approximately 7,200 linear feet of watermain from the Church Road and Sanders Road intersection to the proposed water tank location.

3.6.2 Church Road Tank and Closson Road Booster Station Removal

Once the new Sanders Preserve water tank has been constructed and placed on-line, the Church Road Tank will be demolished along with the Closson Road Booster Station. The booster station will no longer be required since the new Sanders Preserve water tank will provide adequate pressures in the area.

3.6.3 Alternate F Preliminary Cost Estimate

The Preliminary Project 2024 Cost Estimate for Alternate F is $12,799,500.00.

Alternate F - New Tank at Sanders Preserve Preliminary Budget Estimate

Water Tank at Sanders Preserve	Quantity	Units	Price / Unit	Total Price
New Sanders Preserve Tank (2 MG)	1	LS	$3,500,000.00	$3,500,000.00
Sanders Preserve Tank Site Work and Piping	1	LS	$500,000.00	$500,000.00
12" Watermain Extension	7,200	LF	$400.00	$2,800,000.00
Van Voast Lift Station Upgrades	1	LS	$1,000,000.00	$1,000,000.00
Demo/Removal of Closson Rd Station and Church Tank	1	LS	$250,000.00	$250,000.00
Electrical	1	LS	$250,000.00	$250,000.00
SCADA	1	LS	$100,000.00	$100,000.00
General Conditions (5%)				$424,000.00
Construction Contingency (25%)				$2,226,000.00
Construction Total				$11,130,000.00
Engineering and Construction Admin (15%)				$1,669,500.00
Water Tank at Sanders Preserve Total Cost Estimate				**$12,799,500.00**

3.7 Alternate G – Church Road Tank Replacement with New Elevated Water Tank

Alternate G includes the replacement of the Church Road Tank for a new elevated water tank at a same location.

3.7.1 New Elevated Water Tank and Van Voast Booster Station Upgrades

Due to the limited pressures in the surrounding areas of the Church Road Tank, the Town of Glenville is proposing to replace the existing tank with a new elevated water tank. The new elevated water tank will provide adequate pressures for the surrounding area such that the Closson Booster Station would no longer be needed since the booster station is solely used to maintain pressures in the area.

The new elevated water tank will require upgrades to the existing Van Voast Booster Station. New pumps are required to provide the pumping capacities at the increased head

pressures at the new elevated tank. Van Voast does not have any emergency standby power. The upgrades to the booster station will also include backup power to provide the surrounding area with water in the event of a power failure along with any required electrical, mechanical, and building upgrades required.

3.7.2 Church Road Tank and Closson Road Booster Station Removal

Once the new elevated water tank has been constructed and placed on-line, the existing Church Road Tank will be demolished along with the Closson Road Booster Station. The booster station will no longer be required since the new elevated water tank will provide adequate pressures in the area.

3.7.3 Alternate G Preliminary Cost Estimate

The Preliminary Project 2024 Cost Estimate for Alternate G is $8,150,625.00.

Alternate G – New Elevated Tank Preliminary Budget Estimate

New Elevated Water Tank	Quantity	Units	Price / Unit	Total Price
New Elevated Water Tank (2 MG)	1	LS	$3,500,000.00	$3,500,000.00
Sanders Preserve Tank Site Work and Piping	1	LS	$300,000.00	$300,000.00
Van Voast Lift Station Upgrades	1	LS	$1,000,000.00	$1,000,000.00
Demo/Removal of Closson Rd Station and Church Tank	1	LS	$250,000.00	$250,000.00
Electrical	1	LS	$250,000.00	$250,000.00
SCADA	1	LS	$100,000.00	$100,000.00
General Conditions (5%)				$270,000.00
Construction Contingency (25%)				$1,417,500.00
Construction Total				$7,087,500.00
Engineering and Construction Admin (15%)				$1,063,125.00
New Elevated Water Tank Total Cost Estimate				**$8,150,625.00**

3.8 Alternate H – Intermunicipal Connection with the City of Schenectady

Alternate H includes an extension of the distribution system which connects to the City of Schenectady. The new intermunicipal connection will provide an emergency backup water supply to the Town of Glenville.

3.8.1 Intermunicipal Connection

The proposed intermunicipal connection to the City of Schenectady will provide the Town of Glenville with a backup water supply in case of an emergency. A new watermain will extend from an existing connection on Freeman Bridge Road and connect

to the existing watermain on Erie Boulevard within the City of Schenectady. This will consist of installing approximately 2,000 LF of 12 inch watermain which includes directional drilling under the Mohawk River.

3.8.2 Interconnection Building, Control Valves, Pumps, and Controls

The proposed interconnection building will be located on Freemans Bridge Road before the Mohawk. The new interconnection will house all the pumps, piping, valves, controls, and chemical feed systems.

The interconnection system will be equipped with automated controls and data acquisition which will be compatible with the Town's existing controls. The interconnection system controls will monitor flow metering, limit downstream pressures, flow pacing of the chemical pumps to match various conditions, automatic restart of all equipment in the event of a utility power failure, automatic restart of backup equipment in the event of the duty equipment failure, and alarm callouts in the event of a failure. The interconnection system will also be equipped with an emergency generator and automatic transfer switch which will automatically transfer the power to backup power in the event of a utility power disruption.

3.8.3 Alternate H Preliminary Cost Estimate

The Preliminary Project 2024 Cost Estimate for Alternate H is $3,999,843.75.

Alternate H – Intermunicipal Connection Preliminary Budget Estimate

Intermunicipal Connection	Quantity	Units	Price / Unit	Total Price
12" Watermain with Valves and Hydrants	2,000	LF	$400.00	$800,000.00
New Booster Station	1	LS	$1,500,000.00	$1,500,000.00
Booster Station Electrical	1	LS	$350,000.00	$350,000.00
General Conditions (5%)				$132,500.00
Construction Contingency (25%)				$695,625.00
Construction Total				$3,478,125.00
Engineering and Construction Admin (15%)				$521,718.75
Intermunicipal Total Cost Estimate				**$3,999,843.75**

3.9 Alternate I – Water Distribution Upgrades

Alternate I include upgrades to the distribution system. Due to the age of the existing watermains, the Town of Glenville is proposing to replace the older portions of the

existing watermains, specifically the areas where the Town residents are being provided water from the Village supply. Some of these areas experience low pressures compared to the other Town residents on Town supplied water. The Town residence that are being provided Village water are older houses built before the 1960's – likely 75% of structures, according to property tax assessment data – and likely contain lead in the water services. The Town of Glenville is proposing to upgrade the water distribution system in older areas to provide higher pressure, replace lead containing services, and replace older infrastructure reduce O&M cost.

3.9.1 West Glen Area (Water District #2)

The West Glen Area is being served by the Village of Scotia water supply. Due to the age of the infrastructure, houses in the West Glen area have water services that most likely contain lead. The upgrades to this area will replace the lead services and disconnect the customers in the Town from the Village supplied water. Being on Town supplied water is also beneficial to the residence in the West Glen area because of the increase in pressure, as the Town's water supply is at a higher hydraulic grade line compared to the Village of Scotia's water supply.

To provide the Town customers with Town supplied water in the West Glen service area, the 12" watermain on Route 5 will need to be extended to the West Glen area. This extension would connect to the existing watermains in the area since the infrastructure is owned and maintained by the Town. The construction would consist of approx. 6,000 linear feet of 12 inch and 6 inch ductile iron watermain to be installed to provide the Town residence with Town supplied water. In some locations, this will involve new waterlines; in others, replacement of existing waterlines. Connections to the Village system will be completely severed and replaced with separate facilities that are looped within the Town and Village boundaries. The Village residence in the area will still be provided water by the Village, while the Town residence will be on the Town's water supply.

3.9.2 Glen Oaks and Heritage Parkway (Water District #8 and 12)

The Glen Oaks and Heritage Parkway are also areas where the Town residence are being served by the Village of Scotia water supply. Due to the age of the infrastructure, houses in the Glen Oaks and Heritage Parkway areas have water services that may contain lead. The upgrades to this area will replace the lead services and disconnect customers in the Town from the Village supplied water. Being on Town supplied water is also beneficial to the residence in the area because of the increase in pressure, as the Town's water supply is at a higher hydraulic grade line compared to the Village of Scotia's water supply.

To provide the Town customers with Town supplied water for the Glen Oaks and Heritage Parkway, a connection switch over from the Town and Village is required since the Town's watermain is next to the Village supplied watermain. The construction would consist of approximately 5,300 linear feet of 12 inch ductile iron watermain to be installed to provide the Town residence with Town supplied water. The new watermain will be looped within Glen Oaks and Heritage Parkway which will then connect back to the Town's watermain. This will completely remove the Town residence from the Village supply in the area while maintaining service and keeping both systems separate.

3.9.3 Water District #3 Area

The Town residence in Water District #3 are being served by the Village of Scotia water supply. Due to the age of the infrastructure, houses within Water District #3 have water services that most likely contain lead. The upgrades to this area will replace the lead services and disconnect customers in the Town from the Village supplied water. Being on Town supplied water is also beneficial to the residence in the area because of the increase in pressure, as the Town's water supply is at a higher hydraulic grade line compared to the Village of Scotia's water supply.

To provide the Town customers with Town supplied water in Water District #3, a new 12 inch watermain on Vley Road will need to be extended into the Village of Scotia and looped around Scacandaga Road. The construction would consist of approximately 15,200 linear feet of 12 inch and 8 inch ductile iron piping to be installed to provide the

Town's residence with Town supplied water. In some locations, this will involve new waterline; in others, replacement of existing. This will completely remove the Town residence from the Village supply in the area while maintaining service and keeping both systems separate.

3.9.4 Alternate I Preliminary Cost Estimate

Alternate I – Water Distribution Upgrades Preliminary Budget Estimate

Water Distribution Upgrades	Quantity	Units	Price / Unit	Total Price
12" Watermain with Valves and Hydrants	27,000	LF	$400.00	$10,800,000.00
Final Connections	1	LS	$600,000.00	$600,000.00
General Conditions (5%)				$570,000.00
Construction Contingency (25%)				$2,992,500.00
Construction Total				$14,962,500.00
Engineering and Construction Admin (15%)				$2,244,375.00
Water Distribution Total Cost Estimate				**$17,206,875.00**

The preliminary cost estimates for Alternate I is $17,206,875.00

3.9 Permitting Requirements

The proposed project will require multiple permits and approvals. Involved agencies may include the Town of Glenville, Schenectady County Health Department (SCDOH), NYS Department of Health (NYSDOH), NYS Department of Environmental Conservation (NYSDEC), NYS Environmental Facilities Corporation (NYSEFC), and the Army Corp of Engineers (USACOE). The following table summarizes the preliminary list of permits and approval requirements for the project.

Permits and Approvals

AGENCY	PERMIT/APPROVAL
Town of Glenville	Bond Resolution
Town of Glenville	Building Permit
NYSDEC/NYSDOH	Permit Modification
NYSDEC/SCDOH/NYSDOH	Design Approval
USACOE	Wetland Buffer/Stream Crossing
NYSEFC	Funding Approval/Design Approval

4.0 NON-MONETARY FACTORS

The improvements to the water system and infrastructure will help maintain a safe and reliable water source for the Town of Glenville and its surrounding communities. Improvements to the infrastructure helps promote growth and development in communities.

5.0 SUMMARY AND COMPARISON OF ALTERNATIVES

A capital improvement project is required to ensure reliable safe treatment and to extend the useful life of the major components of the water treatment plant and the distribution system. Upgrading the existing WTP, the existing water tanks and the distribution system are recommended. These alternatives generally replace or upgrade existing equipment in kind and do not increase the operation and maintenance costs.

Alternative Analysis

Alternative	Pros and Cons	Capital Cost
A. No Action Alternative	Pros: Lowest implementation costs; No increase in user costs as a result of construction Cons: Resiliency and safety are not increased; Emergency fixes and repairs can be costly and will only increase over time until replaced	No Construction/ Implementation Costs
B. WTP Upgrades	Pros: Improved WTP operations; Improved water quality; Reduced O&M costs; Reduces likelihood of WTP failure Cons: Larger construction/implementation costs; Increase in user costs; Requires outside funding in the form of grants and loans	$5,509,218.75
C. New Well #5	Pros: Additional water source; Redundant source if failure at WTP Cons: Larger construction/implementation costs; Increase in user costs; Requires outside funding in the form of grants and loans	$5,056,406.25
D. Lolik #1 and #2 Tank Rehabilitation	Pros: Reduced O&M costs by extending the life of the water tank; Upgrading safety to meet OSHA standards Cons: Larger construction/implementation costs; Increase in user costs; Requires outside funding in the form of grants and loans	$8,301,562.50

E. Church Road Tank Rehabilitation	Pros: Reduced O&M costs by extending the life of the water tank; Upgrading safety to meet OSHA standards Cons: Larger construction/implementation costs; Increase in user costs; Requires outside funding in the form of grants and loans	$5,388,468.75
F. New Tank at Sanders Preserve (Replace Church Road Tank)	Pros: Reduced O&M costs with a new water tank at different location; Eliminates existing booster station to maintain pressure due to higher elevation at new location Cons: Larger construction/implementation costs; Increase in user costs; Requires outside funding in the form of grants and loans	$12,799,500.00
G. New Elevated Tank at Church Road	Pros: Reduced O&M costs with a new water tank at same location; Eliminates existing booster station to maintain pressure due to higher elevation at same location Cons: Larger construction/implementation costs; Increase in user costs; Requires outside funding in the form of grants and loans	$8,150,625.00
H. Interconnection	Pros: Provides emergency backup connection Cons: Larger construction/implementation costs; Increase in user costs; Requires outside funding in the form of grants and loans	$3,999,843.75
I. Water Distribution Upgrades	Pros: Improve overall water quality and hydraulics; Reduces O&M costs with new watermains Cons: Larger construction/implementation costs; Increase in user costs; Requires outside funding in the form of grants and loans	$17,206,875.00

5.1 Life Cycle Analysis

A life cycle cost analysis has been performed for Alternatives E and G as these Alternatives would either rehab/replace the existing Church Road tank. The other alternates repairs/replaces equipment in-kind. Alternative F (new tank at Sanders Preserve) is not being considered since Alternative G (new elevated tank at Church Road) serves the same purpose at a lower cost. Alternative E, Church Road Tank, is a rehabilitation which applies a coating system for protection. It is assumed that O&M costs along with staff and labor costs will not change for this Alternative. For Alternate G (new elevated tank at Church), it will also be assumed that the O&M costs along with staff and labor will be relatively neutral because Alternate G eliminates the Clossen Road booster station but will require upgrades to the Van Voast booster station since new

pumps will need to be installed. Salvage costs are negligible and are not evaluated further.

The life expectancy for a rehabilitated tanks with new protective coatings have various ranges depending on the coating system, but the typical life expectancy is about 20 years. For newly constructed tanks, the typical life expectancy also varies depending on the materials the tanks are constructed from, but new water tanks typically have a life expectancy of 30+ years. Assuming the new tank will be made from steel, similar to the existing water tank which requires rehabilitation every 20 years, the following are the life cycle costs.

Year	Rehab Church Rd Tank	New Elevated Tank at Church
2024	$5,388,469	$8,150,625
2043	$5,388,469	$0
Net Present Worth Costs	$10,776,938	$8,150,625

*Assumed no increased in price for rehab

This analysis shows that in 20 years, it is more economically advantageous to upgrade the Church Road Tank to an elevated tank versus rehabilitation. This is mainly due to the requirements to recoat steel tanks approximately every 20 years.

6.0 RECOMMENDATION AND SELECTED ALTERNATES

The recommended alternatives are Alternates B and I which includes the upgrades to the WTP and upgrades to the water distribution system. The water tanks were recently cleaned and due to the costs, the Town has decided to upgrade the distribution system and replace lead containing water services. The interconnection to Schenectady was also considered, but it would only be used for emergencies. Since the Town of Glenville also has other intermunicipal connections, the Town can receive water through other means in an emergency situation. These selected alternates address the critical components that need improvements to the Town of Glenville water infrastructure.

The preliminary project cost estimate is $22,716,093.75.

7.0 PROJECT SCHEDULE

The timeline below summarizes and identifies key dates for submittal and approval of required permits, design, bidding and construction.

- SEQR & SHPO Review — Fall 2022
- Smart Growth Assessment Application — Fall 2022
- Bond Resolution — Fall 2022
- Closing on Short Term Financing — Winter/Spring 2023
- Design, Permitting, Regulatory Review — Spring 2023 through Spring 2024
- Bidding/Award of Construction Contracts — Fall 2024
- Construction — Fall 2024 through Fall 2025

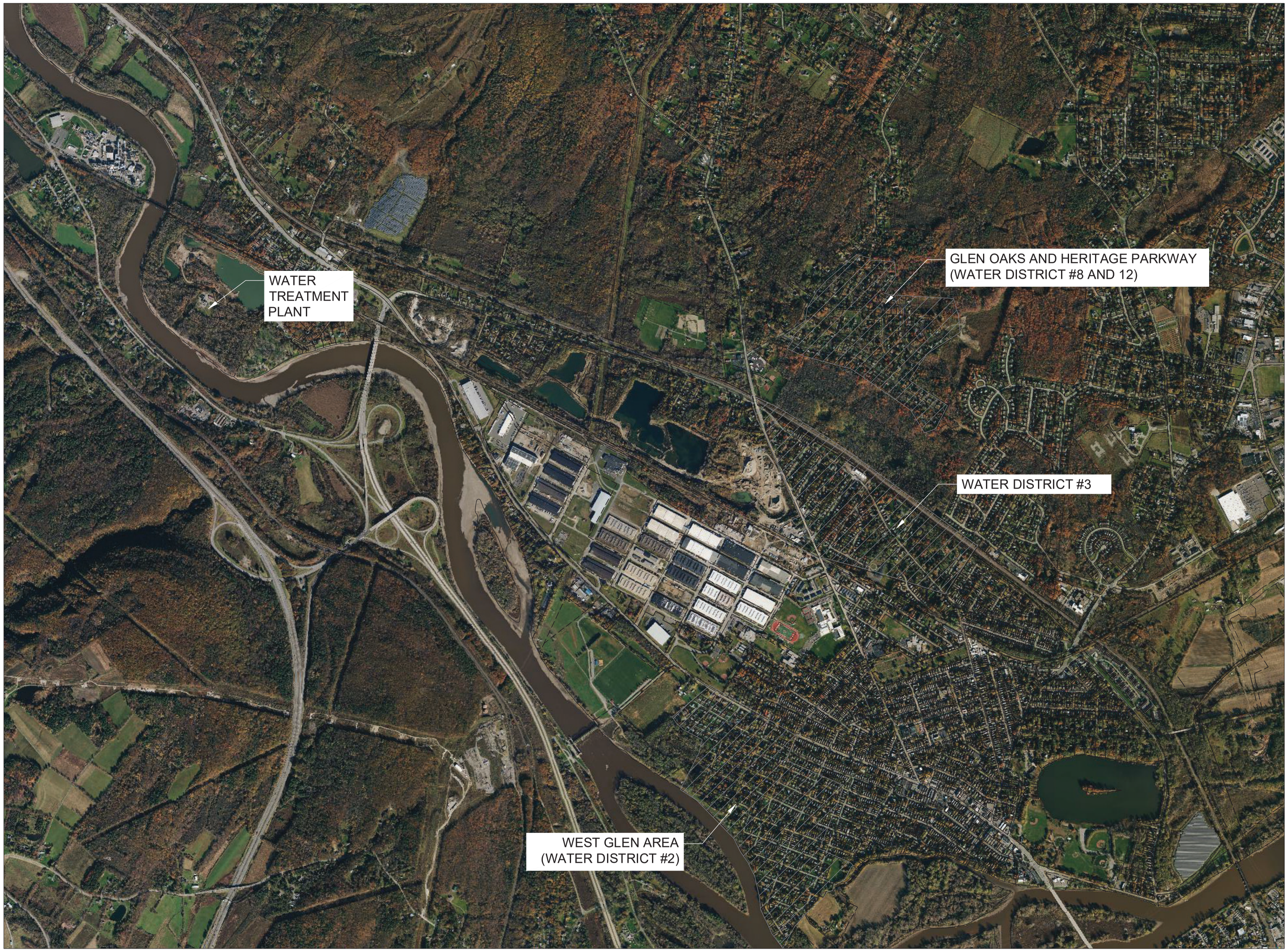
8.0 ENGINEERING REPORT CERTIFICATION

The engineering seal and signature on the cover of this report certifies that it has been prepared in compliance with the outline for NYS Assisted Drinking Water Infrastructure Projects by the NYS Department of Health and Environmental Facilities Corporation.

9.0 SMART GROWTH

A Smart Growth Development Form is included in Appendix B.

MAPS AND FIGURES



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DATE: 08/2022
DRAWN BY:
SCALE:
REVIEWED BY: JMF
PROJECT NO.: - - - -
FILE:

DELAWARE ENGINEERING, D.P.C.
CIVIL AND ENVIRONMENTAL ENGINEERING
28 MADISON AVENUE EXTENSION, ALBANY, NY 12203 - 518.452.1290
8-12 DIETZ STREET, SUITE 303, ONEONTA, NY 13820 - 607.432.8073

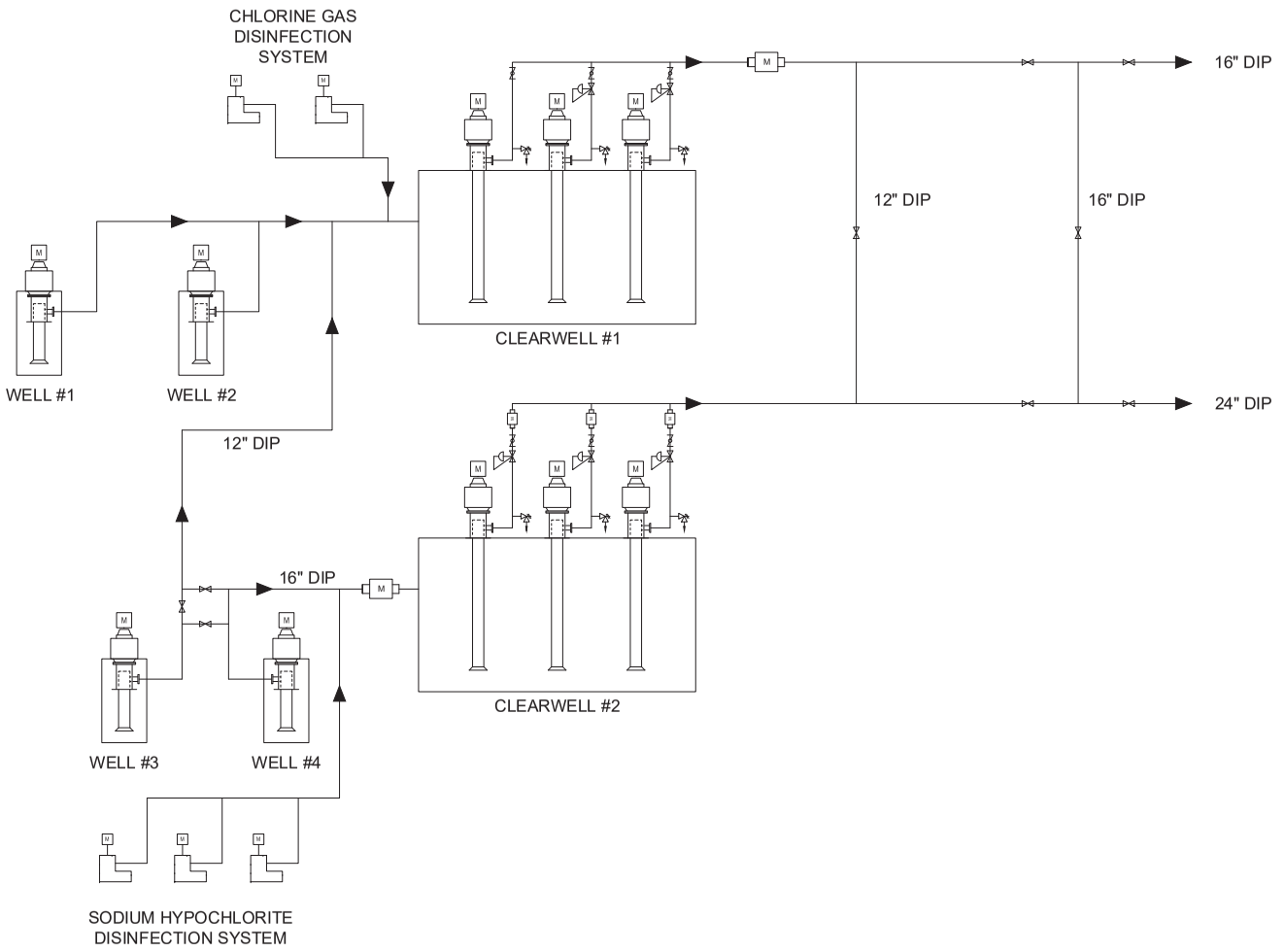
REVISIONS

NO.	DATE	DESCRIPTION

TOWN OF GLENVILLE
SCHENECTADY COUNTY, NY

LOCATION MAP

SHEET:
FIG. 1



DATE: 07/2020
DRAWN BY:
SCALE:
REVIEWED BY: JMF
PROJECT NO.: 20--1950
FILE:

DELAWARE ENGINEERING, D.P.C.
CIVIL AND ENVIRONMENTAL ENGINEERING
28 MADISON AVENUE EXTENSION, ALBANY, NY 12203 - 518.452.1290
55 SOUTH MAIN STREET, OWEGO, NY 13827 - 607.687.8272
16 EAST MARKET STREET, RED HOOK, NY 12571 - 518.452.1290

REVISIONS

NO.	DATE	DESCRIPTION

TOWN OF GLENVILLE
SCHENECTADY
COUNTY, NY

EXISTING
PROCESS
SCHEMATIC

SHEET:
FIG. 2

APPENDICES

CAPACITY DEVELOPMENT PROGRAM

TECHNICAL, MANAGERIAL, AND FINANCIAL EVALUATION CRITERIA FOR: COMMUNITY PUBLIC WATER SYSTEMS

SYSTEM NAME: Town of Glenville

COUNTY: Schenectady County **PWSID #:** _____

COMPLETED BY: Town of Glenville **DATE:** 6/14/22

Technical Capacity

A. System Infrastructure

1. Does the system have as-built plans, drawings, or maps of its facilities including source, treatment, storage, and distribution?

   [x] Yes [ ] No [ ] Not Applicable

   If the system lacks certain plans, please specify:

   _____

   _____

2. Does the system have exact location measurements of all main valves and service shut-offs?

   [x] Yes [ ] No [ ] Not Applicable

3. Can the system's pumping, storage and distribution facilities meet current normal and peak demands and required distribution pressures?

   [x] Yes [ ] No [ ] Not Applicable

4. Does the system have a water conservation plan?

   [ ] Yes [x] No [ ] Not Applicable

5. Are all customers on the water system metered?

   [x] Yes [ ] No [ ] Not Applicable

6. Is the system equipped with "master" meters that measure the amount of water the system produces or purchases for each source of water?

   [x] Yes [ ] No [ ] Not Applicable

B. Source Water Evaluation

1. Does the system have a copy of its Source Water Assessment?

   [X] Yes [ ] No [ ] Not Applicable

2. Has a yield analysis been done for the system's source?

   [X] Yes [ ] No [ ] Not Applicable

3. Does the system have a description of the existing source-pumping capacity and the system's raw and finished water storage capacity?

   [X] Yes [ ] No [ ] Not Applicable

4. For groundwater systems, does your system have a wellhead protection program in place?

   [X] Yes [ ] No [ ] Not Applicable

C. Technical Knowledge

1. Has an evaluation of the water system facilities been conducted with respect to its ability to reliably meet current and proposed State and Federal drinking water regulations?

   [X] Yes [ ] No [ ] Not Applicable

   If system can't meet regulations, please specify:

   _____

   _____

2. Does the system have monthly water production records or treatment records that show daily and monthly water production for each source used by the system?

   [X] Yes [ ] No [ ] Not Applicable

3. Has an evaluation been conducted to document the condition and remaining service life of existing facilities?

   [X] Yes [ ] No [ ] Not Applicable

4. Has the system been cited within the past two years for failing to sample and report test results?

   [ ] Yes [X] No [ ] Not Applicable

5. Has the system been cited within the past two years for operating deficiencies as a result of a sanitary survey or other inspection conducted by the DOH?

   [ ] Yes [X] No [ ] Not Applicable

6. If you answered *"Yes"* to Questions 4 or 5, has corrective action been taken to correct all deficiencies?

☐ Yes ☐ No ☒ Not Applicable

D. Certified Operators

1. Does the water system have a certified water operator(s) and designated an operator in responsible charge?

☒ Yes ☐ No

2. If the water system does not have a state-certified water treatment operator, or lacks the necessary number of operators to safely and reliably operate the system, does the system have a plan to acquire the services of a (additional) state-certified operator?

☐ Yes ☐ No ☒ Not Applicable

Managerial Capacity

A. Staffing and Organization

1. What type of training/continuing education did system personnel attend within the last two years (please specify)?

The water treatment operators attend training and continuing education credits to maintain their certifications

2. Who is responsible for policy and operational decisions for the water system *(name and title)*?

Town Supervisor - Chris Koetzle

3. Who is responsible for ensuring compliance with state regulatory requirements *(name and title)*?

Town Supervisor - Chris Koetzle

4. Who is responsible for approving expenditures *(name and title)*?

Town Supervisor - Chris Koetzle

5. *For systems that contract for system operation or management*: Does the system have a valid (signed) contract that summarizes the duties and responsibilities the contractor must provide to the system?

☐ Yes ☐ No ☒ Not Applicable

B. Ownership

1. *If the system is under temporary ownership*, has a future owner been found for the water system?

   ☐ Yes ☐ No ☒ Not Applicable

   If "*Yes*", who will the future owner be?

   _____

2. *For systems that use, but do not own, land or facilities that are essential to water system operation:* Is there a valid long-term contract (i.e., lease) between the water system and the owner of the land or facilities essential to the operation of the system?

   ☐ Yes ☐ No ☒ Not Applicable

3. *For systems with a single proprietor:* Does the system have a contingency plan for continuing system operation in the event the owner becomes incapable of carrying out his/her responsibilities?

   ☒ Yes ☐ No ☐ Not Applicable

C. Consolidation/Restructuring

1. Has the system examined the feasibility of:
   a) Incorporating with an existing water system in the immediate proximity?

   ☒ Yes ☐ No ☐ Not Applicable

   b) Selling ownership to an existing water system?

   ☐ Yes ☒ No ☐ Not Applicable

   c) Contracting for the management or operation of the system with an existing system or satellite management/operations agency?

   ☐ Yes ☒ No ☐ Not Applicable

D. Emergency/Disaster Response Plans

1. Has the system developed an Emergency Response Plan?

   ☒ Yes ☐ No ☐ Not Applicable

2. Does the Emergency Response Plan:

   a) Designate responsible personnel in the event of an emergency?

   ☒ Yes ☐ No ☐ Not Applicable

b) Provide for emergency phone and radio capabilities?

[x] Yes [ ] No [ ] Not Applicable

c) Describe public and health department notification procedures?

[x] Yes [ ] No [ ] Not Applicable

3. Does the system have any emergency contract agreements under which it operates (e.g., emergency water interconnections and alternative sources)?

[x] Yes [ ] No [ ] Not Applicable

E. Water System Policies

1. Does the system have a *written* System Operations Manual or Policy?

[x] Yes [ ] No [ ] Not Applicable

F. Record Keeping

1. Does the system keep water utility records including: financial, regulatory, facility, operations and maintenance, data quality, Annual Water Quality Reports, and correspondence with the NYS Department of Health and/or local Health Departments (and where appropriate, the NYSPSC)?

[x] Yes [ ] No [ ] Not Applicable

Financial Capacity

A. Budget Projection – Revenues and Expenses

1. Does the system have a water budget?

[x] Yes [ ] No [ ] Not Applicable

2. Are the system's annual water revenues sufficient to cover the annual water expenses as well as anticipated capital improvements?

[x] Yes [ ] No [ ] Not Applicable

3. Are the system's water rates, when combined with other revenue sources, sufficient to cover all listed expenditures for the water system?

[x] Yes [ ] No [ ] Not Applicable

4. Does the system retain budget information for at least two years?

[x] Yes [ ] No [ ] Not Applicable

B. Reserves

1. Does the system have a reserve account (or funds within a reserve account) dedicated to:

   a) Financing the emergency replacement of critical facilities in the event of their failure?

   [x] Yes [ ] No [ ] Not Applicable

   b) The maintenance of cash flow in the event of an unexpected funding shortfall?

   [x] Yes [ ] No [ ] Not Applicable

2. If the system has a reserve account, how does it determine the amount to put into the account?

   ____ Fixed Amount____Percentage of Revenues__x__Percentage of Expenses

   ____Other (please specify) _____

3. If the system has a reserve account, what type(s) of reserve account(s) does it have?

   _____Operation and Maintenance__x__Capital Projects__x__Debt Service

   _____Other (please specify)_____

C. Capital Improvement Plan

1. How do you finance operation and maintenance costs (Check all that apply)?

   __x__Rates collected from ratepayers _____Rental fees
   _____Other business revenue _____Personal capital
   _____Surcharges _____Reserve account
   _____Other (Please specify) _____

2. How did you finance your LAST major repair or improvement?

   _____Commercial bank loan __x__Bonds
   _____ DWSRF ____Other State or federal loan/grant program
   _____Surcharge ____Personal Capital
   __x__Reserve Account ____Revenue from other business
   _____Other (Please specify) _____

3. What options do you have for financing your NEXT major repair or improvement?

_____Commercial bank loan	__x__Bonds
__x__DWSRF	__x__Other State or federal loan/grant program
_____Surcharge	_____Personal Capital
__x__Reserve Account	_____Revenue from other business
_____Other (Please specify) _____	

D. Water System Rates

1. Does the water system management review user fee, user charge, or rate system at least once every two years?

[x] Yes [ ] No [ ] Not Applicable

2. What is the frequency of billing (e.g., 12, 6, or 4 times per/year)?__1__times/year

3. Where applicable, what are the system's water rates?
Flat $40 for 30,000 gal, then $2.35/1000 gallons

4. What are rates based on?

_____Capital Improvement Plan and Annual Budget
__x__Annual Budget Only
_____Cash on Hand
_____Last year's expenses
_____Not sure
_____Other (Please specify_____)

5. What was the date of the last rate increase? - 04/01/2002

END OF DOCUMENT

NEW YORK STATE OF OPPORTUNITY. | Department of Health | Environmental Facilities Corporation

Smart Growth Assessment Form

This form should be completed by an authorized representative of the applicant, preferably the project engineer or other design professional.[1]

Section 1 – General Applicant and Project Information

Applicant: Town of Glenville Project No.:

Project Name: Town of Glenville Water System Improvements

Is project construction complete? ☐ Yes, date: ☐ No

Please provide a brief project summary in plain language including the location of the area the project serves:

The preferred upgrade alternative will upgrade the existing water treatment plant to replace failing and aging equipment and upgrade the water distribution system in order to provide Town water to areas on Village water, replace lead services, and increase water pressure.

Section 2 – Screening Questions

A. Prior Approvals

1. Has the project been previously approved for Environmental Facilities Corporation (EFC) financial assistance? ☐ Yes ☑ No
2. If yes to A(1), what is the project number(s) for the prior approval(s)? Project No.:
3. If yes to A(1), is the scope of the previously-approved project substantially the same as the current project? ☐ Yes ☐ No

If your responses to A(1) and A(3) are both yes, please proceed to Section 5, Signature.

B. New or Expanded Infrastructure

1. Does the project involve the construction or reconstruction of new or expanded infrastructure? ☑ Yes ☐ No

Examples of new or expanded infrastructure include, but are not limited to:

(i) The addition of new wastewater collection/new water mains or a new wastewater treatment system/water treatment plant where none existed previously;

(ii) An increase of the State Pollutant Discharge Elimination System (SPDES) permitted flow capacity for an existing wastewater treatment system; and OR

[1] If project construction is complete and the project was not previously financed through EFC, an authorized municipal representative may complete and sign this assessment.

(iii) An increase of the permitted water withdrawal or the permitted flow capacity for the water treatment system such that a Department of Environmental Conservation (DEC) water withdrawal permit will need to be obtained or modified, or result in the Department of Health (DOH) approving an increase in the capacity of the water treatment plant.

If your response to B(1) is no, please proceed to Section 5, Signature.

Section 3 –Smart Growth Criteria

Your project must be consistent will all relevant Smart Growth criteria. For each question below please provide a response and explanation.

1. Does the project use, maintain, or improve existing infrastructure?
   ☑ Yes ☐ No

   Explain your response: The project will upgrade an existing water treatment plant and install new waterline and services in areas presently connected to Village of Scotia waterlines.

2. Is the project located in a (1) municipal center, (2) area adjacent to a municipal center, or (3) area designated as a future municipal center, as such terms are defined herein (please select one response)?

   ☐ Yes, my project is located in a municipal center, which is an area of concentrated and mixed land uses that serves as a center for various activities, including but not limited to: central business districts, main streets, downtown areas, brownfield opportunity areas (see *www.dos.ny.gov* for more information), downtown areas of local waterfront revitalization program areas (see *www.dos.ny.gov* for more information), areas of transit-oriented development, environmental justice areas (see *www.dec.ny.gov/public/899.html* for more information), and hardship areas (projects that primarily serve census tracts or block numbering areas with a poverty rate of at least twenty percent according to the latest census data).

   ☐ Yes, my project is located in an area adjacent to a municipal center which has clearly defined borders, is designated for concentrated development in the future in a municipal or regional comprehensive plan, and exhibits strong land use, transportation, infrastructure, and economic connections to an existing municipal center.

   ☐ Yes, my project is located in an area designated as a future municipal center in a municipal or comprehensive plan and is appropriately zoned in a municipal zoning ordinance

   ☑ No, my project is not located in a (1) municipal center, (2) area adjacent to a municipal center, or (3) area designated as a future municipal center.

   Explain your response and reference any applicable plans:

3. Is the project located in a developed area or an area designated for concentrated infill development in a municipally-approved comprehensive land use plan, local waterfront revitalization plan, and/or brownfield opportunity area plan?

☑Yes ☐No

Explain your response and reference any applicable plans:

The project involves upgrades to an existing water treatment plant and installation of new infrastructure in a developed area to provide Town water service to existing customers on Village water.

4. Does the project protect, preserve, and enhance the State's resources, including surface and groundwater, agricultural land, forests, air quality, recreation and open space, scenic areas, and significant historic and archaeological resources?

☑Yes ☐No

Explain your response:

The majority of the work will involve existing infrastructure and/or rights-of-way. Should it be determined during final design that work will involve disturbing areas not previously disturbed, the environmental review will be updated.

5. Does the project foster mixed land uses and compact development, downtown revitalization, brownfield redevelopment, the enhancement of beauty in public spaces, the diversity and affordability of housing in proximity to places of employment, recreation and commercial development, and the integration of all income and age groups?

☑Yes ☐No

Explain your response:

The project will implement needed upgrades and enhancements to existing developed areas, providing fundamental infrastructure to support the vitality of these areas.

6. Does the project provide mobility through transportation choices including improved public transportation and reduced automobile dependency?

☐Yes ☐No ☑N/A

Explain your response:

7. Does the project involve coordination between State and local government, intermunicipal planning, or regional planning?

☑Yes ☐No

Explain your response and reference any applicable plans:

The project has been previously submitted to EFC and has been listed on the IUP, to which this Revised Report provides an update.

8. Does the project involve community-based planning and collaboration?

   ☑Yes ☐No

   Explain your response and reference any applicable plans:

   There will be a public hearing on the proposed improvements to the water districts and will be publicized by the Town in accordance with its policies.

9. Does the project support predictability in building and land use codes?

   ☑Yes ☐No ☐N/A

   Explain your response:

   The upgrades will ensure continued water supply and enhance water supply to those areas to be newly served by Town water.

10. Does the project promote sustainability by adopting measures such as green infrastructure techniques, decentralized infrastructure techniques, or energy efficiency measures?

    ☑Yes ☐No

    Explain your response and reference any applicable plans:

    Upgrades to the water treatment plant will involve variable frequency drives which are more energy efficient than the existing high lift pumps.

11. Does the project mitigate future physical climate risk due to sea-level rise, storm surges, and/or flooding, based on available data predicting the likelihood of future extreme weather events, including hazard risk analysis data, if applicable?

    ☑Yes ☐No

    Explain your response and reference any applicable plans:

    In 2018, the Town of Glenville raised the wellheads for Wells 3 and 4 with new wellhouses to bring the wells above the 100 year floodplain. The WTP is situated outside of the 100-year floodplain.

Section 4 – Miscellaneous

1. Is the project expressly required by a court or administrative consent order? ☐ Yes ☐ No

   If yes, and you have not previously provided the applicable order to EFC/DOH, please submit it with this form.

Section 5 – Signature

By signing below, you agree that you are authorized to act on behalf of the applicant and that the information contained in this Smart Growth Assessment is true, correct and complete to the best of your knowledge and belief.

Applicant: Town of Glenville	Phone Number: 518-452-1290
Name and Title of Signatory: Jake Fogarty, Project Engineer, Delaware Engineering, DPC	
Signature:	Date: 06/14/2022