

Village of Clayton Water & Sewer Infrastructure

Summary of Accomplishments

BACKGROUND

Much of the Village of Clayton's water and sewer collection and distribution infrastructure dates back to the early 1900s, with treatment facilities being constructed 40-50 years ago. For many years, the Village's infrastructure was largely ignored unless there was a failure. There was no inventory or mapping of the Village's water and sewer assets, no inventory that listed all the assets with age and condition, and few periodic inspections to assess the condition and prioritize critical repairs and improvements that are necessary to maintain service. Without a functioning and well maintained water and sewer system, the Village would not be in a position to support current and potential new customers. Safe public water and adequate sanitary sewer facilities are critical to economic development and the vitality of the Clayton community.

To address these issues the Village has undertaken numerous projects over the last decade to improve the condition of its water and sewer systems. The following list highlights some of the initiatives the Village has undertaken. Much of these initiatives have been done with substantial grant funding and subsidized low interest or no interest loans to minimize the impact of these projects on ratepayers.

At the same time, the Village has been successful in spurring economic development with redevelopment of the Frink property and the construction of the 1000 Islands Harbor Hotel and the opening of several new businesses downtown.

PROJECTS

- Neighbors Against Sewer Aromas (NASA) – The Village undertook a project to identify the cause of and address sewer odors that were significant enough in the Village that community members formed a group to highlight the issue. Through a study the Village determined the cause of the odors and implemented corrective actions within the collection and treatment system that addressed the problem. With the issue being satisfactorily addressed, the community group dis banned.
- Development of an Asset Management Plan in 2009. The Asset Management Plan includes a comprehensive inventory of all of the Village owned water and sewer assets including valves, hydrants, manholes, pumps, motors, generators, treatment plant equipment, etc. This inventory also includes the age of the equipment, condition, asset life and projected time that the assets will need to be replaced. This is a critical planning document that the Village has used to prioritize much needed replacements. Asset management plans are recommended by funding agencies that award grants to municipalities for water and sewer

projects. Funding agencies like to see AMPs because that helps ensure that the municipality is planning for eventual replacement of critical assets that they are helping to fund. Asset management planning is about responsible management of critical assets. The Village has a significant amount of infrastructure it is responsible for managing including 25 miles of sewer main, 17 miles of water main, 316 water mainline valves, 301 manholes, 14 sewer lift stations, three water storage tanks, a low lift water pump station, water treatment plant, and a wastewater treatment plant.

- Completed Geographic Information System (GIS) Mapping of the Village's water and sewer water and sewer system in 2011. Prior to the completion of the GIS mapping, the Village did not have mapping for much of its infrastructure. The Village had to rely on operator knowledge and notes to locate valves prior to completion of the GIS because centralized records didn't exist. Today, the Village's GIS mapping is publically available on the Internet for Village employees and the public to access. Without mapping of a community's assets, it's difficult for decision makers to understand what they have and how to properly maintain it.
- The Village worked with the Clayton Harbor Hotel developer to construct a sewer forcemain and sewer pump station in 2014 to receive wastewater from the new hotel. This was critically important to the developer as the Village's existing sewer collection system was inadequate to be able to accept any new wastewater from the hotel. This project also redirected some of the existing residential sewer from Riverside Drive into the new system, thereby minimizing the amount of untreated wastewater that could potentially overflow from Riverside Drive.
- The Village completed a roof replacement project in 2015 to replace the roofs at the Water Treatment and Wastewater Treatment Plant. The Wastewater Treatment Plant Roof had experienced several leaks previously that caused damaged to the interior of the facility. New roofs were provided with a 20-year warranty.
- The Village replaced the Blowers at the Wastewater Treatment Plant in 2016 which are needed to provide air to the Sequencing Batch Reactors (SBRs). The blowers had reached the end of their useful life. Replacing the blowers with new more efficient equipment not only improved the reliability of the treatment plant, but also significantly reduced electricity costs.
- The Village installed a new HDPE chlorine feed line in 2016, which is needed to provide disinfection of WWTP effluent in accordance with the Village's discharge permit. Due to the corrosive nature of chlorine the original fed line was in poor condition and in need of replacement before failure. The new HDPE line does not deteriorate when subjected to chlorine and will provide a useful life of over 30 years.

- Negotiated Intermunicipal Municipal Agreement with the Town to form Bartlett Point Water District in 2016. This agreement and planned capital project addressed multiple historical water customers that built their own water distribution lines that did not conform to New York State Department of Health requirements.
- The Village replaced the diffusers and cleaned any debris or sludge on the bottom of all three SBR's in 2018. This cleaning should take place at least every 10 years. While the SBRs are out of service for cleaning, it allows operators to identify equipment that may need to be repaired and inspect the tank for damage.
- Undertook a multi-year water meter replacement project that was finished in 2017 and included upgrading over 1000 residential and commercial water meters to provide more accurate water consumption data and to improve labor efficiencies through automatic water meter reading.
- In 2017, the Village began a major \$7.4 million water treatment plant and distribution upgrade that was completed in November 2020. These upgrades replaced most of the original equipment that was installed at the water treatment plant and low lift pumping station in the 1980s or earlier. Water main replacement and standpipe painting was also included in this project. The Department of Health required that the Bartlett Point Pump Station that was directly adjacent to the low lift pump station be relocated as part of the project. This new equipment has been assigned preventative maintenance tasks and inspections as needed to ensure that it stays in good operating condition for the full life of each asset.
- In 2021, the Village purchased cellular read water meter technology that will allow Village Staff and residents to monitor water consumption in real time. This technology will allow for earlier leak detection and reduce the number of man hours required to complete a billing cycle.
- The Village of Clayton has had three Combined Sewer Overflows (CSOs) which allow untreated wastewater to be discharged into the St. Lawrence River when the collection system reaches capacity. Federal and State legislation required municipalities to take actions to assess the impacts of these CSOs on water quality and to take actions to improve water quality by reducing or eliminating CSO events. The Village was required to take several actions to comply with this legislation including:
 - Developing and maintaining a Long Term Control Plan to address CSOs. This document was approved by the NYSDEC in 2013 and an update of the plan has recently been submitted for regulatory approval.

- Developing and maintaining an Offset Control Plan, which required that for every new connection to the Village's system 2 gallons of stormwater are removed for every 1 gallon of sanitary sewer added. This document was approved in 2013.
- The Village completed a \$4.1M Sewer and Pump Station Rehabilitation Project in 2014. This project completed point repairs in broken old clay tile sewer mains and lined approximately 19,000 lineal feet of sewers; thereby extending the life of these sewer mains another 50+ years. This project also resulted in improvements to three of the Village's pump stations. The Village has a total of 14 pump stations, significantly more than other communities of similar size due to the topography of the Village and extensive amount of rock, which makes sewer line installation shallow in many areas.
- The Village closed the three CSOs and implemented a Wet Weather Operating Plan in 2015 to minimize the frequency and duration of overflow events in the Village.
- The Village completed smoke testing of its collection system in 2016 to identify the source of infiltration and inflow to the Riverside Drive pump station. This pump station has experienced the most significant number of overflow events. By minimizing groundwater and rainwater from entering the sanitary system, the number and magnitude of untreated sewer overflow events can be reduced. The smoke testing was successful in identify 79 issues that are contributing to overflows. To date, 42 of these issues have been corrected.
- The Village applied for and received a \$100,000 grant in 2018 to complete a \$120,000 infiltration and inflow study that will expand upon the results of the smoke testing and go further to identifying additional work needed in the collection system that will minimize groundwater and stormwater from entering the sewer system; thereby reducing unnecessary costs for the Village to pump and treat clean groundwater and rainwater. This preliminary engineering report identifying necessary improvements was completed and approved the NYSDEC in April of 2021.
- The Village applied for and received grants totaling \$500,000 to replace old clay tile sanitary sewer laterals in the Historic District area of the Village as part of a betterment that were be completed by the NYS Department of Transportation in 2020.
- In 2021, the Village began construction on the \$11.3M Wastewater Collection & Treatment Improvements Project that has been underdevelopment since 2018. These upgrades will increase flow and treatment capacities of the collection and treatment system, eliminate the discharge of untreated wastewater to the River, and allow the treatment plant to comply with modified permit limits imposed by the NYS DEC.

- In the last decade the Village of Clayton has applied for and been awarded over \$10 million dollars in grant funds to improve the Village's water and sewer infrastructure. Maintaining water and sewer infrastructures is critical to support existing business and provide capacity for growth in the community.