

MEMORANDUM

TO: Hon. Mayor David McFadden, Village of Tuxedo Park

FROM: Joseph Zongol, PE, NICET III

DATE: June 12, 2023

SUBJECT: Capital & Infrastructure Project Status Update

Dear Mayor McFadden and Board of Trustees,

Weston & Sampson has prepared this summary memo to provide a status update for the end of FY 2022/2023, on the capital and infrastructure projects which Weston & Sampson has provided support to the Village.

The Village is currently working on or has completed a number of projects over the past few years. Serving as the Village engineer, beginning in the early 2000's, we understand the challenges of maintaining a consistent approach to infrastructure. Even with the transition of Village leadership over the past few years, the process has been seamless. The Village has successfully maintained regulatory compliance with its water and wastewater operations. In addition, the Village has shifted to a more proactive approach to infrastructure while leveraging alternative funding sources, such as, grants and low interest New York State Environmental Facilities Corporation (NYSEFC) loans, as described in the summaries below.

The following projects have been completed since our prior summary:

- **Trunk Sewer Investigation:** An investigation of trunk sanitary sewers that surround the lakes was completed in 2022. The investigation focused on sections that were shown to be constructed with vitrified clay pipe, which is susceptible to infiltration. While not required by the NYSDEC, the Village elected to investigate these critical sewers, in a proactive approach. We are pleased to report that the investigation was completed well under the contract budget of \$91,600, with an invoiced total of approximately \$49,520. The defects identified from the investigation have been repaired as part of the Sanitary Sewer Evaluation Survey (SSES) construction project described in the next bullet.
- **Sanitary Sewer Evaluation Survey (SSES) Project, Sub-basins 2 & 10:** The NYSDEC required sewer rehabilitation work within the vicinity of Continental Road, Clubhouse Road, Stable Road, Circuit Road, Serpentine Road (referred to as Sub-Basin 2), and Turtle Point Road (referred to as Sub-Basin 10), has been completed. The project was funded by an EFC grant, providing 25% reimbursement, and EFC financing. The project finished under budget and the remaining funds were used for additional sewer repairs on the trunk sewer on the west side of Pond 3, between the Pond and West Lake Stable Road, which were a result of the Trunk Sewer Investigation conducted in 2022. This work was able to be included within the grant funding as well. This work was added to address defects within the sewer and proactively protect the lake. With the inclusion of the Pond 3 work, the overall construction contract will still finish approximately \$50,000 under budget. The work has been substantially completed, with final warranty inspections to verify the repairs are still in working order, scheduled for the fall.

- **Dam Safety Inspections:** Dam safety inspections were completed for the Tuxedo Lake, Pond 3, and Wee-Wah Dams. The results of the inspections were compiled within summary reports issued to the Village in October of 2022. The dams were generally in sound condition; however, some operational deficiencies were identified within the Wee-Wah Dam. The Village has implemented temporary measures to address these issues and is consulting with the engineer-of-record for the dam upgrades that were conducted in 2019 for long term repairs.
- **Town of Tuxedo Water System Pressure Monitoring:** Weston & Sampson supported the Village in selecting a pressure gauge that records pressures at the Town of Tuxedo pressure reducing valve station. This gauge records data and reports real-time information back to the Village to aid in determining if pressure spikes are the cause of water main breaks experienced within the Town of Tuxedo portion of the water system. The system has been successfully operating since installation, providing valuable, real-time, information to Village Staff.

The following projects are underway:

Wastewater System

- **SSES Phase 2, Sub-basins 5, 8, 16, & 17 Investigations:** Per NYSDEC requirements, Weston & Sampson is conducting an assessment of the public sewer collection system within Sub-Basins 5, 8, & 16. During the Pond 3 Trunk Sewer rehabilitation, it was discovered that sub-basin 17 is contributing a significant amount of infiltration and inflow (groundwater and surface water) which increases treatment costs and impacts collection system capacity. In a proactive approach, the Village has elected to investigate sub-basin 17 while the other sub-basins are being evaluated, to provide efficiency and cost savings. Investigations for Sub-basins 5, 8, 16, & 17 are currently underway and will include manhole inspections, overnight sewer segment flow isolation, CCTV inspection, house inspections, and flooded dye tests. Upon conclusion of the investigations, a summary report will be developed and will recommend collection system rehabilitation within the public sewers.

Public portions of sub-basins 5, 8, 16 & 17 are located in the general vicinity of the following streets:

- (Sub-basin 5) Tuxedo Road, East Lake Road, Ridge Road, Pepperidge Road, Pine Road, Pine Hill Road;
 - (Sub-basin 8) Cliff Road, Ridge Road;
 - (Sub-basin 16) West Lake Road, Summit Road, East Summit Road;
 - (Sub-basin 17) Ontio Road, Summit Road
- **SSES Flow Evaluation Study:** Per NYSDEC requirements, Weston & Sampson is conducting an assessment of wastewater treatment plant flows to assess the effectiveness of the sewer collection system work conducted to-date.

Water System

- **Tuxedo Lake Water Main Replacement:** The design of a replacement water main that crosses Tuxedo Lake is nearly complete and is expected to go to the Orange County Department of Health for Permitting. Once permitted, the project documents will be ready for construction once funding becomes available or in the event an emergency replacement is warranted. Due to the complicated nature of the replacement of this nearly 80-year-old section of critical infrastructure, which provides water to the southwestern side of the Village, this project was a proactive effort put forward by the BOT to reduce potential repair costs in the event that this pipe were to fail.

- **Mountain Road Water Main Replacement:** The design scope includes replacement of the water mains within the Mountain Road, Schoolhouse Road, Schoolhouse Lane, Circle Drive, Spartan Place neighborhood. Topographic survey, underground utility location, and geotechnical evaluations have been completed, with design currently in progress, and permitting to follow.

The purpose of this project is to replace the asbestos concrete pipes which are prone to failure and to establish a new, more accessible connection to the water system. The current connection to the Route 17 main traverses through easements within private properties and some sections of water main are underneath existing structures. The new alignment will provide the ability for DPW to maintain the system in a faster and less invasive manner.

- **Water Treatment Plant DOH Coordination:** We have provided a response letter, on behalf of the Village, to the Orange County Department of Health's comment letter that resulted from their site visit in 2020. The response letter included proposed modifications to the water treatment plant's clearwell and a de-rating of the capacity of the plant to match its current physical water production capacity to address administrative issues noted. We are awaiting the DOH's acceptance of the response letter to implement the necessary modifications. If accepted by the DOH, this should save the Village significant upgrade costs.

Also, Weston & Sampson is working with Village staff to address structural issues identified within the Water Treatment Plant building. We will be developing sketches and guidance for DPW to address the issues in-house.

- **District Area Water Metering:** Weston & Sampson has been assisting the Village in trying to identify areas within the Village's water distribution system contributing to water loss. The concept is to separate the water system into smaller sub-areas and meter the water used vs. water billed. This approach allows for the Village to cost-effectively, self-perform a water loss assessment while being able to focus on specific areas of the water distribution system. The first area that is currently under analysis is within the Mountain Farm Road, Camp Comfort Road, and Ivy Road sub-area.
- **Residential Water Meters:** The Village is discussing evaluation and potential replacement of residential water meters. Current water meters were installed in the mid-1990's. The Village currently spends a considerable amount of time and manpower to read the existing meters. The use of new meters with an Automatic Meter Reading system is being considered to reduce Village costs and homeowner inconvenience while providing more accurate water usage readings. We will be coordinating with our in-house expert to facilitate and provide guidance to Village staff on the most economical path moving forward.

General Infrastructure – Stormwater, Dams, and Retaining Walls

- **Stormwater Infrastructure Asset Mapping:** The Village maintains comprehensive GIS mapping for the water distribution system and sanitary sewer collection system. Detailed mapping is not available for the stormwater system, which drains to the Village's lakes. Weston & Sampson will be working with the Village DPW to locate and map the Village's stormwater system. This mapping can then be used to aid in the implementation of stormwater treatment and green infrastructure technologies for stormwater runoff that enters the lakes.
- **Summit Road Retaining Wall:** Weston & Sampson has been retained to evaluate and design the repairs of an approximately 200-foot section of stone masonry retaining wall along Summit Road. This wall has partially collapsed in one area due to a downed tree and shows signs of movement along the base of the wall, presumably from groundwater induced hydraulic pressure. The geotechnical field evaluation has been completed and a topographic survey will be conducted shortly. Once the survey is completed, the project will be designed, set for bid, and constructed.