



TOWN OF NORTH CASTLE

WATER & SEWER DEPARTMENT

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Member
American Water Works Association
N.Y. Rural Water Association
N.Y. Water Environment Association
Westchester Water Works Conference

MEMORANDUM

To: Supervisor Schiliro & Town Board Members

From: Sal Misiti

Date: December 4, 2019

Cc: Kevin Hay, Town Administrator

Re: North Castle Water District No.1 (NWP)
GHD Hydraulic Modeling Report

As you are aware, parts of the distribution system have reached the 90 year mark in WD #1 and there are many issues that we continue to experience. With this in mind based upon my recommendation, the Board authorized a hydraulic modeling study to evaluate the reliability and integrity of the WD1 infrastructure. GHD has provided the attached study for us.

The modeling method considers all known components of the distribution system, length and size of pipe, pipe material, valve isolation nodes, storage, static pressure, pumping records, flow volume from the hydrants at various locations, and much more. I provided GHD with this information, and data was plugged into a computer program where various scenarios were run to determine the existing conditions and vulnerabilities of the system. GHD findings indicate that they were unable to calibrate the model. The flow data of the system vary as reported by the Insurance Services Office, Inc. (ISO) and also, our own flow data as it relates to pipe coefficients cause discrepancies in the computer model. GHD would like additional flow data in order to calibrate the model. Although the model does not calibrate, information in the report is useful for future rehabilitation efforts.

Our biggest concern at this time is the ability to isolate an area should a problem arise. You will recall earlier this year that I had an expenditure on Reservoir Road for excavation and installation of an insertion valve should the water main that crosses the expressway entrance on North Broadway break. We would have no way to isolate that section without shutting down water service to the Stop & Shop complex.

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The safeguard is now in place. These are things I am currently working on in between the everyday operations, particularly the known valves in the system and insuring we are able to access them should the need arise.

In my opinion I don't believe an entire distribution system replacement is necessary, I believe we can replace/upgrade sections which will help the system dramatically. I have asked GHD for a design proposal and estimate for the replacement of one of our problem areas in WD1. The General Heath, McDougal Drive, and Smallwood Place area where we have continual water breaks. The area is susceptible to the breaks due to the thin wall cast iron that was used when it was constructed and also the method in which it was installed.

North White Plains is loaded with rock in the roadbeds. When the mains were built, the rock was chipped out and put back on top of the water lines (this could never be done by today's standards). As a result water from breaks usually doesn't surface as the flow follows the rock and ends up in the sewer system.

The other area I have added to the proposal is the Palmer Avenue main which was never extended into Reservoir Road, and Castle Heights Place which should be interconnected with Palmer Avenue. This will definitely help with flow and pressure tolerances within the distribution system. Additionally, key valve areas that may need to be upgraded or replaced. The cost estimate I receive from GHD will be a guide on how we move forward with a capital improvement program for the system.

Over the past eight years, besides repairs and maintenance, several capital improvements have been made in Water District No.1 which all contribute to the systems compliance, reliability, and overall serviceability.

- Both water storage tanks Custis Avenue (320,000 gallons) and Overlook Road (600,000 gallons) have been completely rehabilitated and brought into regulatory compliance. Project cost \$ 1,349,739.
- The Valhalla Well was rehabilitated in 2012, in an effort to increase its yield which would decrease our reliability on the NYC Kensico supply. The yield increased slightly, additional work can be done to improve the dependability of the source. (\$ 25,000)



- Another regulatory requirement by Consent Order was the upgrade of the North Broadway pumping facility where we had to incorporate Ultraviolet Disinfection into our process. Overall cost including engineering was \$1,261,600. We did receive a grant for this project and up to \$840,000 of grant funds were allocated to the overall completed construction cost. Our portion that was financed is \$535,000.

Over the next couple of years the outstanding capital debt in WD1 will be paid off, so a capital improvement plan should be acceptable to the district as the new debt will take its place. We will know more once we have some numbers to work with.

If you should have any questions and would like to discuss this with me please let me know.

Attachment