



BEACON HILL WATER TOWER IMPROVEMENT PROJECT – FACT SHEET

OVERVIEW

The Port Washington Water District is preparing to upgrade the existing Beacon Hill water tank (constructed in the 1930's) to ensure customers continue to receive an uninterrupted supply of the highest quality water possible. After comprehensive studies of the tank's condition were completed, it was determined that, due to the tanks outdated design and construction, it requires an assessment of options to address the deficiencies facing this vital piece of aging infrastructure.

QUICK FACTS

- Serves approximately six square miles
- 9,350 households and businesses
- Current tank is near end of its useful life
- Tank requires major rehabilitation
- Several options to be considered
- Costs vary by project type

PWWD'S COMMITMENT TO THE COMMUNITY

- We are extremely committed to being a good neighbor
- Added landscaping to the tank's site after original land purchase to improve aesthetics
- Committed to planting additional new trees and shrubbery to soften the tank's presence and beautify the property
- A point person will be assigned for this project in order to provide a continuous line of communication with the community before, during and after the project's completed
- Please feel free to reach out to us with any questions or concerns

CURRENT BEACON HILL WATER TANK

SERVES

- Approximately half of the District's six square miles of North Hempstead, including Port Washington and the villages of Port Washington North, Manorhaven, Baxter Estates, Flower Hill and Plandome Manor
- 9,350 households—approximately 30,000 residents

HISTORY

- Built in the 1930's and reaching the end of its useful life
- Riveted, steel, multi-leg style tank. This is no longer a recommended style and is being phased out for a newer, more efficient and resilient design (see Suggested New Tank Design and Technology Improvements on back page)

- Capacity of 250,000 gallons
- Height = 102 feet above grade, total elevation of 367 feet

CONDITION EVALUATION

- Conducted by H2M Architects and Engineers
- Exterior rust and deterioration were discovered throughout
- Exterior coatings are failing to provide adequate protection from corrosion
- Moderate degree of pitting and surface corrosion was noted where the tank's coating was compromised
- Requires a major rehabilitation project to address deficiencies identified during inspection

REPLACEMENT VS. REHABILITATION

Conducted by D&B Engineers and Architects (D&B)

REPLACEMENT

- Capacity of 250,000 gallons
- Design keeps pressure in system longer which benefits firefighting operations
- Requires less maintenance
- Designed to meet new hurricane wind and seismic load safety standards
- Estimated capital cost is \$5.1 million
- Has a lower overall life-cycle cost
- Estimated annual cost over 45 years is \$585,419

REHABILITATION

- Capacity of 250,000 gallons
- Adds approximately 15 years to tanks useful life
- Full tank replacement would then likely be required
- Existing design does not meet new hurricane wind and seismic load safety standards
- Estimated capital cost is \$3.2 million
- Has a higher overall life-cycle cost
- Estimated annual cost over 45 years is \$669,154 (includes tank replacement in 15 years)

RECOMMENDED NEW TANK DESIGN AND TECHNOLOGY IMPROVEMENTS

RECOMMENDED NEW TANK DESIGN

- Elevated pedestal spheroid tank
- Has limited connection points, as well as sharp and exposed edges, making it less susceptible to rust and discoloration
- Less expensive to repair and maintain
- Smaller overall foot print – only one support post
- Larger interior diameter and greater surface area allow pressure to be maintained for longer
- Tested through hydraulic modeling proving it is capable of providing adequate flows (including fire flow demand), pressures and storage
- Tank meets requirements of 10 state standards which are the standards recommended by the New York State Department of Health Sanitary Code

- Will meet stringent building code requirements for hurricane wind and seismic load conditions

EXISTING TANK DESIGN

- Riveted, steel, multi-legged tank
- Abundance of connection points, sharp and exposed edges make it susceptible to rust and discoloration
- More expensive to repair and maintain
- Smaller interior diameter and less surface area allows pressure levels to drop more rapidly
- Larger overall footprint – multiple support legs
- Constructed prior to the implementation of the current hurricane wind and seismic load requirements and does not satisfy them

IMPORTANCE OF ELEVATED WATER TANKS AND UTILIZING THE EXISTING LOCATION

- Elevation is vital for maintaining pressure levels in the supply system
- Elevated tanks hold water above the main distribution system, which allows pressure to remain in the system as long as water is in the tank
- Current site's natural elevation alleviates the need for a taller tank or booster pumping station in an alternative location
- Ground level storage tanks rely on electric pumps to create pressure
- Elevated storage tanks can maintain pressure without the use of pumps
- This means pressure is kept during power outages
- Ensures fire hydrants have pressure during emergencies
- Extremely difficult to obtain new land because the supply area is fully developed
- Will not require any changes to existing distribution system
- Minimizes the impact on the community compared to building at a new location
- The District has invested in the current property to ease operations and maintenance

