



2024 Water System Improvements

December 4, 2023

Purpose of the Water Facilities Reports

- ▶ Address the Towns goals and future development of the comprehensive plan
 - ▶ Allow for daily demand and contingencies such as fire fighting
 - ▶ Determine existing and future needs to adequately deliver water to users
 - ▶ Plan for the existing Town proper and annexation areas
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- ▶ The 2008 Report already accounted for the growth of commercial/industrial areas of Cannery Village, Heritage Creek, Route 16, and south-end of Milton; and, residential areas to include apartment and senior citizen complexes, Wagamons West Shores, Preserve on the Broadkill, Cannery Village, Heritage Creek, Riverwalk on the Broadkill



2008 Water Facilities Master Plan: Water Supply and Treatment

- ▶ Abandon Well #5; and install new well prior to 2010
- ▶ Establish location for a well field for multiple wells and a single treatment plant (at the time of the report, project estimated at \$900,000 for the first two wells, and single treatment)
- ▶ Complete Stage 2 monitoring plan by October 1, 2013
- ▶ Install a central control panel and SCADA system to monitor and control the existing and future supply, storage, and treatment equipment (at the time of the report, project estimated at \$100,000)
- ▶ Develop source water protection maps and ordinances



2008 Water Facilities Master Plan: Water Storage

- ▶ Continue contracting tank maintenance services
- ▶ Construct a new storage tank to meet Town's current needs and large enough for at least next five years; recommendation is 500,000 gallons, finished size of 725,000 gallons (at the time of the report, project estimated at \$1,500,000)
- ▶ Another tank in 2015-2016 will be necessary with high growth rates; recommendation is another 500,000 gallons. (at the time of the report, project estimated at \$1,750,000)

*Storage capacity should be equivalent to daily consumption. The 10 States Standards guideline for fire demand is reflective of combining daily domestic demand plus 1,500gpm for 2 hours, in reserve storage. In 2008, the daily demand and fire demand calculated storage was 464,000 gallons.



2008 Water Facilities Master Plan: Water Distribution System

- ▶ Upgrade weak areas in the water system to improve service and fire protection
- ▶ Expand large diameter water main loop within Town limits and into the annexation area as of the 2003 Town Comprehensive Plan
- ▶ Identify aging water mains, and replace concrete and cast iron pipes
- ▶ Replace any remaining lead goose neck service connections
- ▶ Adjust, repair, or replace defective fire hydrants
- ▶ Determine location for 500,000 storage tank; install 12" water main on Sam Lucas to Cave Neck Road, then Cave Neck Road to new water main planned on Atlantic Street or Front Street; and, install a 10" water main between Wagamons West Shores and Federal Street. Continue to expand water mains naturally as Town grows.
- ▶ At the time of the report, project Engineer's estimate \$2,560,000



2012 Town Referendum

- ▶ Proposal to borrow \$3.45million
 - ▶ Based on the Facilities Study
 - ▶ Projects: water main loop, land, water tower, two wells, treatment plant
 - ▶ Existing conditions: town had about half recommended water storage capacity for drinking and fire protection (225,000 available vs. 509,000 need); one treatment plant; daily consumption varied between 350,000 and 600,000 per day.

- ▶ FAILED 260 - 124



2012 Water Facilities Planning Study

- ▶ Continue to comply with Stage I and II environmental Monitoring and Reporting as recommended in 2008
- ▶ Increase water allocation permit to 750,000 gallons per day
- ▶ Upgrade existing well pumps, backup generators, supply lines and control systems to increase pumping capacity to 750,000 gallons per day
- ▶ Test and reactivate Well #5 OR establish a new well and backup generator as a backup source and assist during emergencies
- ▶ Extend water mains to connect to dead-end mains and replace older/problematic mains. Priority given to 10" main installation to connect Wagamons West Shores to Chestnut Street, and Atlantic Ave main upgrades
- ▶ Develop a CIP to set aside funding to adequately maintain the system and replace poorly performing components; perform a rate study and impact fee study
- ▶ Map the existing distribution system
- ▶ Model the water system to evaluate performance



2013 Town Referendum

- ▶ Proposal to borrow \$1.725million
 - ▶ Reduced scope of work
 - ▶ Based on past engineering reports, population and water consumption data
 - ▶ Projects: Rehab Well #5, construct water main loop from Wagamons West Shores to Federal and Chestnut Street connectors, control system integration, and repair Shipbuilders Tower foundation.
- ▶ FAILED 151 - 141



2015 - 2016 DWSRF Planning Grant

- ▶ Complete mapping and modeling of the water system
- ▶ Focus on the distribution elements of fire flow availability and system resilience along with system pressure and the size/condition of water mains
- ▶ Develop summary report and recommendations for improvements
 - ▶ Fire flow capacity
 - ▶ System resiliency
 - ▶ Ability to operate during and after a large storm or emergency event
 - ▶ Water quality and capacity
 - ▶ Lead removal in project areas



2017 Grant Report Recommendations

- ▶ Install Wagamons Water Main Extension (Loop)
- ▶ Install new well and construct a treatment facility
- ▶ Build new storage facility with 500,000 gallon capacity on the southern side of the Broadkill River
- ▶ Replace failing water mains:
 - ▶ Atlantic Avenue
 - ▶ Bay Avenue (from Palmer to Sussex Street)
 - ▶ Chestnut Street
 - ▶ Atlantic Street
 - ▶ Route 16 (Mulberry Street to Bayport Business Park), Orchard Street to connect at Union St Ext
- ▶ Improve low flow hydrants - ongoing with improvement projects

2018 Referendum

- ▶ Proposal to borrow \$895,000
 - ▶ Based on 2008, 2012, and 2017 Reports
 - ▶ Projects: Shipbuilders Well & Treatment Plant; and Wagamons West Shores to Federal Street water main loop
- ▶ PASSED 493 - 38
- ▶ DWSRF; 20 year, 2% term
- ▶ Adopted the \$8.50 debt service fee on all utility accounts, except irrigation accounts



2021 Referendum

- ▶ Proposal to borrow \$1.670million
 - ▶ Based on 2008, 2012, and 2017 Reports
 - ▶ Projects: Replace water main on Atlantic Ave, Chestnut Street (from Front Street to Coulter Street, and a portion of Atlantic Street
- ▶ PASSED 341 - 4
- ▶ DWSRF; 20 years, 2% term
 - ▶ 100% principally forgiven at completion
 - ▶ No added debt service fee



2017 Report Progress

- ▶ ~~Install Wagamons Water Main Extension (Loop)~~ **Completed**
- ▶ ~~Install New Well and Construct Treatment Facility~~ **Completed**
- ▶ Build New Storage Facility with 500,000 gallon capacity on the southern side of the Broadkill River
- ▶ Replace failing water mains:
 - ▶ ~~Atlantic Avenue~~ **Completed**
 - ▶ Bay Avenue (from Palmer to Sussex Street)
 - ▶ ~~Chestnut Street~~ **Completed**
 - ▶ ~~Atlantic Street~~ **Completed**, Route 16 (Mulberry Street to Bayport Business Park), Orchard Street to connect at Union St Ext
- ▶ Improve low flow hydrants - ongoing with improvement projects



Additional Progress

- ▶ New foundation at Shipbuilders Tower
- ▶ Adopted Source Water (well head) Protection maps and ordinance
- ▶ Purchase of Federal Street property for water infrastructure
 - ▶ Potable well contract authorized November 2024
 - ▶ Treatment plant design will be finalized once well is installed
- ▶ Completed water main replacement on Reed Street
- ▶ Contracted with 120Water to meet October 2024 EPA deadline of a Lead and Copper inventory
- ▶ Adopted Cross Connection Control ordinance; Contracted with National Water Specialties Company to enact the CCCP to meet the February 2024 EPA deadline



2024 Referendum Projects

- Water main replacement under Carey Street, Walnut Street, Magnolia Street, Mill Street, and Bay Avenue; Chandler Street Treatment Facility improvements; and Federal Street water tower
 - Improve water system distribution and hydraulic conditions
 - Increase fire flow capacity
 - Upgrade dimensions of existing water mains
 - Replace of services within the water main replacement area will remove lead corporations from active service
 - Improve functions of the treatment plant and upgrade controls above the 100year flood plain



Water System Capital Projects



Three Potential Projects

- ▶ Water Main Replacement
- ▶ Chandler Street Water Treatment Plant Upgrades
- ▶ Water Tower Construction

Funding Sources

- ▶ Delaware Drinking Water State Revolving Fund (DWSRF)
- ▶ Federal Funds through Build America, Buy America (BABA)



Water Main Replacement



- ▶ Carey Street
- ▶ Walnut Street
- ▶ Magnolia Street
- ▶ Mill Street
- ▶ Bay Avenue (Yew to Sussex)



Water Main Replacement



- ▶ Carey Street
- ▶ Walnut Street
- ▶ Mill Street
- ▶ Magnolia Street
- ▶ Bay Avenue

Why Replace?

- ▶ Existing water mains have been in place over 25 years
- ▶ Existing water mains are 4-inch diameter
- ▶ Existing water mains have experienced breaks
- ▶ Improve flow capacity and emergency fire flow levels.
- ▶ New fire hydrants and valves
- ▶ Elimination of lead service lines



Chandler Street WTP



► Chandler Street WTP

- Handles Wells 2, 4, 5, and 7
- Treats Over 80% of Milton's Water Supply
- Plant equipment dates back to 1970-80s
- Original building was constructed before 1950

► Scope or Work

- New Chemical Storage and Feed Systems
- Pressure Monitoring
- Supervisory Control and Data Acquisition (SCADA) for Remote Operations Monitoring
- New Piping
- Electrical System Improvements
- Standby Emergency Generator



Federal Street Water Tower



► Why a 500,000 Gallon Elevated Tank

- Current daily demand exceeds available operational and emergency storage volume of 225,000 gallons.
- Storage on the south side of the Town in case of issues with river crossings

- The proposed tank location is at the location of the proposed well and water treatment facility identified in capital planning.
- Tank will be direct storage for water produced from the proposed well.
- Improved pressure control and emergency fire flow capacity.
- Allows for other tanks to be taken out of service for maintenance.

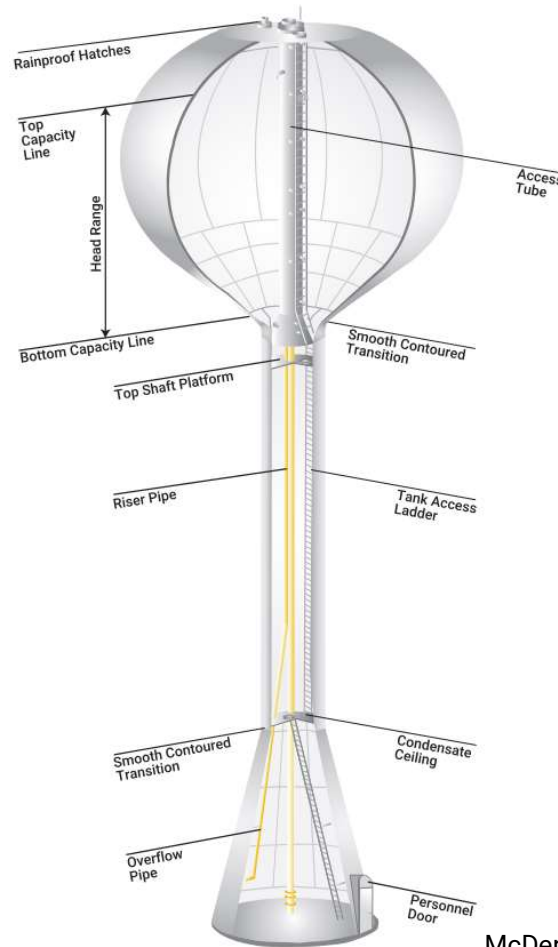


AWWA and 10 States Standards used by Delaware Office of Drinking Water recommend a minimum storage volume equal to daily demand and emergency water storage.

Federal Street Water Tower



- ▶ Proposed tank will be a watersphere similar to the existing tanks.
- ▶ Top elevation of the tank will be similar to the existing tanks with matching overflow elevation at 142.5'.
- ▶ 130' Tank Height
- ▶ 56'+/- Tank Bowl Diameter
- ▶ 30'+/- Foundation Diameter
- ▶ 37'-6" Head Range



McDermont/CB&I Waterspheroid™ Tank Image

Cost Estimates and Affordability

- ▶ Water System Improvements
 - ▶ Estimated cost, including contingency: \$6,214,000
 - ▶ Watermain Replacements \$1,785,000
 - ▶ Chandler Street Treatment Facility Upgrades \$579,000
 - ▶ Federal Street Water Tower \$3,850,000
- ▶ DWSRF Loan Approval was granted October 2023
 - ▶ Term 2% interest, 20-year
 - ▶ Grant/principal forgiveness ineligible as Milton is deemed financially affordable and not classified as a disadvantaged community
 - ▶ Estimated debt service fee for all three projects \$48 per unit/quarter, as follows:
 - ▶ Watermain Replacements \$13 per unit/quarter
 - ▶ Chandler Street Treatment Facility Upgrades \$5 per unit/quarter
 - ▶ Federal Street Water Tower \$30 per unit/quarter



Town Charter Section 33

- ▶ Referendum required due to borrowing project funds
- ▶ November 6 passed Resolution 2023-024 to schedule a public hearing on the borrowing of \$6,214,000
- ▶ Public hearing legal notice published on the Town website beginning November 17, and in the Cape Gazette November 21
- ▶ December 4 Public hearing
- ▶ December 4 vote on Resolution 2023-022 to schedule the referendum
 - ▶ Referendum must occur between 30 and 60 days from the public hearing; date proposed is January 27, 2024

