2022 Town Report
Water & Wastewater Department

The Harwich Board of Water/Wastewater Commissioners and Water Department respectfully submit our Annual Report to the Honorable Board of Selectmen and to the citizens of the Town of Harwich for the year of 2022.

Board of Water and Wastewater Commissioners

The Board of Water & Wastewater Commissioners is comprised of an elected 5-member board and responsible to the Town of Harwich for the administration, maintenance, and operation of the water and sewer system.

2022 Public Water Systems Awards

The Harwich Water Department received the 2022 Public Water Systems Award from the Massachusetts Department of Environmental Protection for Outstanding Performance and Achievement in the Medium and Large Community Water System Category. Through the hard work and dedication of department staff 2022 marks the eighth consecutive year Harwich has been selected to receive the PWS Award.

Operations

The Water Department offers a wide variety of services from seasonal water turn on/off, new and renewal water service installation, utility mark outs, final readings for property transfers, backflow inspection and much more. Below is a summary of 1,630 services performed in 2022:

2022 Service Activity

Change Meter	108	Repair/Replace Valve	16
Damaged Box/Gate	13	Service Install/Renew	70
Final Read	215	Service Call/Repair	70
Frozen Meter/Service	0	Site Visit	109
Hydrant Meter Use	0	Troubleshoot	46
Install Meter	17	Turn Off (Seasonal)	377
Leak Investigation	47	Turn Off Service	23
Mark Out Property	332	Turn On (Seasonal)	172
Remove Meter	7	Turn On Service	8

Projects & Accomplishments

The Department remained very active throughout 2022, please find some of the more notable projects & accomplishments below:

- **Oak Street Distribution System Improvements** – The Water Department installed approximately 1000 linear feet of 12” watermain between Oak Street and the Pleasant Lake Tank. Completion of this project eliminated a long standing dead end watermain on Oak Street improving water quality and system hydraulics.
- **Glyphosate Monitoring Program** – The Water Department in partnership with the Massachusetts Department of Agricultural Resources began a yearlong Glyphosate

monitoring program which began in November. The purpose of the program is to collect data as part of a review to ensure that current uses of this herbicide continue to adhere to the regulatory standards for protection of human health and environment.

- **Water Bottle Filling Stations** – With a generous donation from Patrick Otton, the Water Department in partnership with the DPW installed 4 water bottle filling stations throughout Harwich. The filling stations are located at Red River Beach, Harwich Chamber of Commerce, Brooks Park, and along the Cape Cod Rail Trail adjacent to Hinkleys Pond.
- **Emergency Response Plan –** The Water Department developed a new Emergency Response Plan in compliance with EPA's America's Water Infrastructure Act of 2018 (AWIA).
- **Standby Generator Replacement at Pleasant Lake Tank –** Department staff completed the removal and installation of a new 20kw generator at the Pleasant Lake Tank.
- **Cla-Valve Repair at Bruce Cahoon WTP –** Completed an overhaul of a failed 8" Cla-Valve at the Bruce Cahoon Water Treatment Plant.
- **Workorder Software & GIS Maps –** The department completed a long-awaited upgrade to our paperless workorder software and Water System GIS maps.
- **East Harwich Wastewater Collections System** – The East Harwich wastewater collections system was extended to serve an additional 58 properties in the Continental & Whidah Drive neighborhood. Completion of this project makes the municipal sewer system available to 472 parcels in East Harwich.
- **New Source Exploration** – Ongoing site investigation occurred throughout 2022 in the area of Well #10 in North Harwich. Highlights include exploratory drilling, installation of 2 deep test wells & monitoring wells, preliminary pump test, and completion of MassDEP BRP WS 17 Permit Application for Site Examination and Prolonged Pump Test.
- **Route 28 Watermain Replacement Project**– Design of the Route 28 Watermain Replacement Project commenced in 2022. This project includes the replacement of an old 1930-1940's era 8" cast iron watermain with a new 12" Ductile Iron watermain from Division Street to Lower County Road. Also included is a horizontally directional drilled watermain beneath the Herring River improving the resiliency and redundancy of the West Harwich service area.
- **Route 28 Dry Sewer Pipe Project** – Design of the Route 28 Dry Sewer Pipe Project commenced in 2022. This project includes the design of a low-pressure sewer main along Route 28 from Division Street to the Herring River.
- **Wastewater Effluent Recharge Site Investigation** – This project includes the evaluation of various parcels for consideration as a host site for effluent recharge. Work to date includes preliminary site identification, desktop analysis, and groundwater modeling. Additional work under this scope includes a particle tracking analysis, subsurface investigation at 2 sites, soil borings, hydraulic load test, and determination of hydraulic capacity for the infiltration area.
- **Phase 3 Wastewater Collections System Design**- Funding for the design of the Phase 3 Wastewater Collections System in East Harwich was approved in October 2021 and design commenced in January of 2022. Work to date includes pump station site identification, topographical survey, soil borings, and preliminary sewer system design.

The Phase 3 collections system is intended to address nitrogen impacting the Round Cove and Pleasant Bay Sub-watersheds

- **Comprehensive Wastewater Management Plan(CWMP) Update**– This project seeks to review and update various components of the CWMP including growth assumptions, enhanced innovative alternatives (I/A) systems, septic system, regionalization opportunities, project cost and project timeline. Two public outreach sessions were held in 2022 as part of this project with residents expressing overwhelming support for the inclusion & remediation of freshwater ponds in the CWMP. Work under this scope is currently in a holding pattern as MassDEP is contemplating revisions to Title V & promulgation of new Watershed Permit Regulations which are likely to impact implementation activities under the CWMP.

Water/Sewer Rates and Financial Overview

Upon evaluating anticipated revenues, operational expenses and capital needs of the department it was determined by the Board that an increase to the water rates must be considered for 2022. After evaluating a number of different rate scenarios the Board settled on a 5% increase on the tiered usage rates which became effective July 1st 2022. In addition to adjustments on the tiered usage rates, the Board also adopted a new System Development Fee structure for private watermain extensions. There was no increase to the sewer rates in 2022.

The stance of the Board of Water/Wastewater Commissioners, with support of the Department, is to keep rates fair and equitable. Water rate increases become necessary when revenues are unable to keep up with inflation, increases to operational and maintenance expenses and/or when a new capital project must be funded. To see what's on the horizon for capital projects for the next five (5) years, please refer to the Capital Planning section in our report.

In addition to water rates and services, the Department continues to look for other revenue sources as well as ways to run more efficiently and economically.

FY22 Financial Summary

Expenses	
Salary and Wages	1,244,325
Operational Expenses	1,318,699
OPEB Contribution	50,000
Debt	700,977
Indirect Expenses; Insurance & Employee Benefits	727,304
Total Expenses	**4,041,305**
Revenues	
Water Rates & Recurring Services	4,298,718

Service Repairs & Site Visits	56,637
Markouts & Final Reads	34,656
Service Tight Protection Plan	91,728
Solar Revenue	169,592
Backflow Inspection	37,464
Water Service Installation and Renewals	190,401
Late Fees, Interest, Lien Collection & Penalties	73,200
Wireless Communications Lease	135,483
Investment Revenue	797
Total Revenues	**5,088,676**

Water Enterprise Fund Balance Summary	
FY22 Fund Balance	**1,689,280**
FY22 Abatements & Adjustments	13,856

Capital Planning

The Board of Water/Wastewater Commissioners and Department staff continues to evaluate the aging infrastructure, water consumption forecasts, revenue projections, and the current debt schedule to identify and plan for the future capital needs of the Department.

5-Year Capital Plan:

- Fiscal Year 2024
  - Phase 3 Wastewater Collections System
  - Route 28 Sewer Main Installation
  - Route 28 Water Main Project
  - New Well Source Exploration – Phase 2
  - Pavement Management - Well access roads
- Fiscal Year 2025
  - Phase 4 Collections System Design
  - Backhoe Replacement
  - Vehicle Replacement (2x)
  - Paint Pleasant Lake Tank
  - Distribution System Upgrades
- Fiscal Year 2026
  - Pipe Discontinuity Upgrades
- Fiscal Year 2027 – No Project(s)
- Fiscal Year 2028 – No Projects(s)

System Maintenance

Regular distribution maintenance helps minimize the impact to residents and businesses during repairs. For this reason, the Department continues its standard maintenance/monitoring programs, which include:

- **Hydrant Maintenance**- Evaluate hydrant coatings & re-paint where necessary to prevent corrosion & remove and lubricate hydrant cups to maintain ease of access in the event the hydrant needs to be utilized for fire suppression
- **Valve Maintenance**- Vacuum valve boxes to guarantee access to the valves operating nut & exercise the valve by opening and closing to verify it is working order
- **Well & Pumps**- Take manual drawdown readings to check the wells specific capacity, which is used to check the wells current capacity to historical data. This information is used to determine if the well is in need of cleaning & redevelopment, or to verify the pump is functioning in the capacity it was designed
- **Water Storage Tanks**- In addition to the daily site visits, monthly tank inspection reports are completed to document a more thorough evaluation of tank conditions. These monthly reports combined with our contracted annual inspection are used to predict future maintenance needs
- **Water Meter Replacement**- The Department upgrades & replaces all customer meters 15 years or older

Water System

The original water system was established in 1936. Major expansion projects were undertaken in the 1950s, late 1960s and again in the late 1970s, these expansions made the water distribution system what it is today.

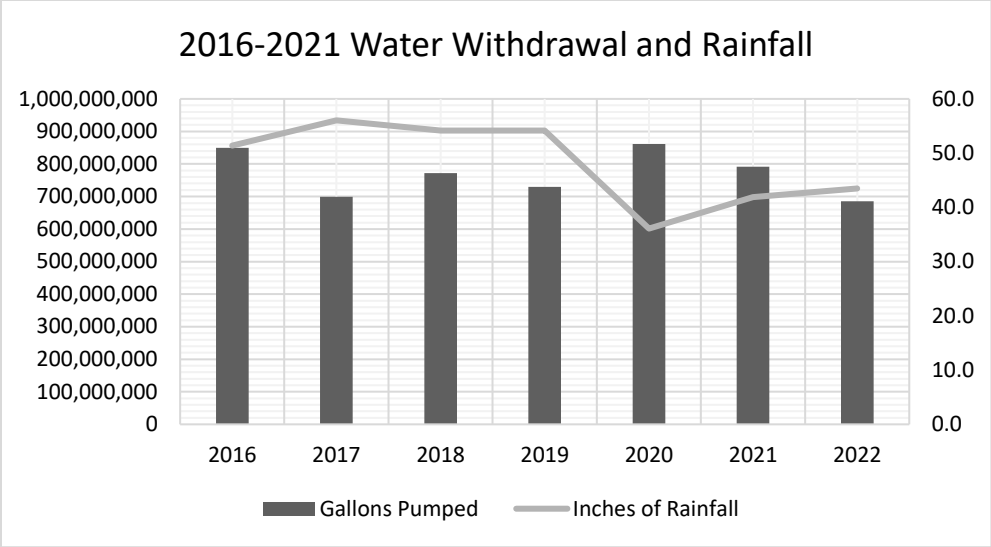
The Water Department operation consists of 14 pump stations, approximately 400 acres of well fields/watershed protection areas, 5 corrosion control facilities, 2 elevated and 1 ground-level water storage tanks and 2 Greensand Water Treatment facilities which provide service to 10,117 metered accounts, 129 fire sprinkler accounts and 1,397 fire hydrants for fire protection.

Wastewater Collections System

Construction of the wastewater collections system began in 2019 and received approval from MassDEP to initiate operation for the Contract 1 service area in October 2021, and April 2022 for the Contract 2 service area. The collections system includes sewer stubs for 472 parcels in the Upper & Lower Muddy Creek sub-watersheds and 5 wastewater pumping stations. There are currently 84 properties connected to the sewer system.

Water Withdrawal

The Water Department pumped 685,627,413 gallons of water from our wellfields during 2022. Most of the water pumped was withdrawn from Chatham Road and Depot Road wells.



Water Quality

The Harwich Water Department is constantly striving to provide its consumers with the best water possible. The water provided to the residents of Harwich is tested numerous times a month for a variety of contaminants. Harwich Water Department continues to provide water that meets or exceeds State and Federal standards. The results of this testing are located within the Annual Water Quality Report on the Department website. Iron and Manganese levels in the untreated source water have, in the past, caused unfavorable aesthetic qualities in the water. Sources containing these impurities were infrequently pumped. Since the addition of the Bruce Cahoon Greensand Water Treatment Facility and North Westgate Treatment Facility, these minerals are no longer affecting the water quality.

Nitrogen and Phosphorus in fertilizer are the greatest concern to water quality. Generally speaking, lawns need less fertilizer than advertised and there are multitudes of fertilizing alternatives available today. While water quality in Harwich is excellent, let's do our best to keep it that way and protect our precious resource.

Service Tight Protection Plan

As property owner, you are responsible for the repair and maintenance of your water service, and until a problem occurs, you could incur thousands of dollars in repair costs. Harwich Water offers a Service Tight Protection Plan which covers the costs of repairs to your service in the event of a sudden leak. The cost is $17 per quarter for an annual fee of $68. You can enroll and learn more by visiting harwichwater.com or by calling the department for a brochure.

Drought Management and Conservation

Due to ongoing drought conditions and low groundwater levels in the Monomoy Lens the Board of Water & Wastewater Commissioners implemented a mandatory ban on all non-essential

outdoor water use. Enforcement of the mandatory water ban resulted in the issuance of 253 citations totaling $50,200. To date, 168 citations have been paid totaling $35,900. Groundwater levels remain low and the Monomoy Lens continues to be in level 1 drought status as of the writing of this report. The Water Department has drought management signs throughout the Harwich Community. Please refer to the signs around town as well as notices on our website for the most up to date information on drought notification and water restrictions.

We continue to encourage our customers to be diligent in conserving water even if the supply is abundant. It is important to keep in mind that the average person uses 80-100 gallons of water per day on the following activities:

Bathing & Hygiene	15 gallons per day	Kitchen	7 gallons per day
Housekeeping	1 gallon per day	Laundry	8 gallons per day
Irrigation/Watering	70 gallons per day	Toilet	19 gallons per day

To review your metered water bill, divide your water usage by the number of days in the billing period (approximately 90 days) and by the number of residents of your household to determine your average.

High Consumption and Irrigation Systems

The majority of our high consumption calls come in after the October bill is received. When we receive these calls, the irrigation system usually has been shut down for the season and the seasonal home is vacant. We cannot stress enough the importance of becoming familiar with your irrigation systems to anticipate this expense. You may need the help of your irrigation company to determine the number of zones, number of heads in each zone, frequency of zones running, and how much water is used for a full cycle and/or each day, each week, each month, etc. Consumption should be monitored on a regular basis by checking your water meter reading so if an issue exists it can be corrected immediately. All water that passes through the meter is the responsibility of the homeowner, and who wants to pay for water that is lost?

We would also like to remind our customers who do have an irrigation system that a testable backflow device must be installed on the line that feeds your irrigation system. This device is put in place to protect contaminants from being pulled back into the public water supply.

Conclusion

As we begin 2023, the Board of Water/Wastewater Commissioners would like to thank the dedicated staff and further extend our appreciation to all Town Departments, Town Committees, Boards and Residents for their continued support.

Sincerely,

Board of Water/Wastewater Commissioners
Gary Carreiro, Chairman
Allin Thompson, Vice Chairman
Noreen Donahue, Clerk
Judith Underwood, Commissioner
John Gough, Commissioner