

**Town of Harwich**  
**2013 TOWN REPORT - WATER DEPARTMENT**

The Harwich Board of Water Commissioners and the Superintendent respectfully submit our Annual Report to the Honorable Board of Selectmen and to the citizens of the Town of Harwich for the year ending 2013.

**Water System and Enterprise Fund**

The original water system was established in 1936. Although major expansion projects were undertaken in the 1950's, late 1960's and again in the late 1970's, these expansions were accredited to system expansion. Since the establishment of the original water system, minimal work had been done to the infrastructure of the system prior to the inception of the Water Enterprise Fund in FY06; beginning July 1, 2005. The current water system includes the following:

- 14 Pump Stations on approximately 400 acres of well fields or watershed protection areas
- 5 Corrosion Facilities; including one laboratory facility
- 3 Water Storage Tanks (2 – 1 MG and 1 – 1.5 MG elevated tanks)
- 1 Greensand Water Treatment Facility (Newly constructed 6.5 MGD)
- 210 Miles of Water Main
- 1,360 Fire Hydrants
- 9,920 Service Connections
- 1 Main Office Building
- 1 Service Garage (4 bay)
- 1 Equipment Garage (1 bay)
- 1 Storage Garage (1 bay)

Since the inception of the Water Enterprise Fund many infrastructure improvements have been made and consist of the following:

- Construction of a new 1.5 MG water tank in 2006
- 25% of our hydrants in system have been replaced
- 73% of metered water accounts have been upgraded with new meters and radio read devices
- 104 new water services and 109 water service renewals have been installed in the past 3 years
- 1.75 miles of a 16" ductile iron transmission main was installed to connect our main treatment facility to the new Greensand Water Treatment Facility
- Construction of a new 6.5 MGD Greensand Water Treatment Facility, was brought online in 2012
- Wells 1 and 4 were redeveloped, submersible pumps were installed and these wells were brought online
- 5+ miles of optical fiber was installed to optimize SCADA system communications and alarms which included installation of video surveillance

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- The Route 39 tank interior and exterior was rehabilitated in 2012 to include structural repairs
- Generators were installed at the Lothrop Ave and Pleasant Lake tanks
- SCADA upgrades and improvements
- Telecommunications equipment installed on two water tanks and cellular communication leases established with Verizon Wireless and T-Mobile
- Roof replacement and interior and exterior painting of all buildings
- Security fence installed around Route 39 tank
- Main building transformer replacement
- Electrical system upgrades at Stations 1, 2, 3 & 4 and Buildings A, B & C
- HVAC system installation at main building
- Repeater antenna installed at main station
- Blow-off pit installed at Route 39 tank
- Redevelopment of all Wells (over the past 5 to 8 years)
- Turbine wells replaced with submersible pumps at 13 out of 14 wells

The 2012 update to the Master Plan identifies a backlog of approximately \$40 million in capital improvements. Phase I includes water main replacement in Southeast Harwich in coordination with the installation of new sewer mains. When possible, infrastructure improvements are paid for by the enterprise fund retained earnings vs. borrowing.

**System-wide Leak Detection**

Leak detection is a necessary component to the management of a water distribution system. Unaccounted-for-water include unmeasured water put to beneficial uses such as firefighting and main flushing as well as water losses from the system. Illegal connections, leaks, theft and evaporation, etc. are examples of water losses. Such losses from the distribution system do not produce revenue, and are unavailable for other beneficial uses. The Department continues to be attentive in system-wide leak detection and is proud to report that the Harwich water system has only 6.4% unaccounted for water, well below the national average of 15%.

**Award-winning Water System**

The Harwich Water Department is pleased to announce that we received the Department of Environmental Protection “*2013 Public System Award*”. We are honored to receive this award and a Governor’s Citation in recognition of being “*One of the 10 Best Run Community Water Systems in the Commonwealth of Massachusetts*”.

**North Westgate Road Greensand Water Treatment Facility**

The North Westgate Treatment Facility project began in late 2013 and is anticipated to be online in July 2014. This new facility can treat 1.0 MGD and is expandable to 3.0 MGD. Full use of the well field at this location will help to keep the Lothrop Tank full without pumping water from the west end of Harwich.

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Approximately 10 years ago the Department began to notice that Iron and Manganese levels were starting to rise. Because there was no adverse health effects connected to high iron and manganese, this project was placed on the back burner. Due to these levels rising, corrective action has been taken to install a second greensand treatment facility. Such facility will eliminate a host of issues from dirty or rusty looking drinking water to stained fixtures and clothing. Although these minerals are naturally occurring, the DEP has now declared them to have health effects on the elderly as well as children.

The cost of this project is estimated to \$1.6M and the Department is using State Revolving Fund financing to fund this project. A huge benefit to funding the project by this means is the significant debt forgiveness.

**Water Storage Tanks**

The Town presently maintains three water storage tanks that have capacities ranging from 1 MG to 1.5 MG. In 2012, the Orleans Road storage tank was rehabilitated which included structural repairs and painting. The Lothrop Avenue tank rehabilitation will commence in early 2013. Careful planning has allowed us to fund this project without borrowing. All tanks are on 10-year maintenance schedule. By maintaining the tanks we hope to prolong full replacement.

The Harwich Water Department is almost three years into Verizon Wireless and T-Mobile cell tower leases for Pleasant Lake Avenue and Route 39 water tanks. This revenue source continues to help offset the very expensive cost of water tank rehabilitation, maintenance and painting.

**Services**

The Water Department offers a wide variety of services from seasonal water turn on/off, new and renewal water service installation, utility markouts, final readings for property transfers, backflow inspection and much more. Below is a summary of services performed in 2013:

**2013 Annual Statistics of Services Performed**

Curb Stop Repair / Renewals	6
Frozen Water Meters / Services	0
Meter Reading Troubleshoot	289
Hydrant Repairs	12
Hydrant Replacement	0
Hydrants Installed	11
Installation of Yard Hydrants for Water Samples	0
Mark Outs	261
New Water Service Installations	32
Property Transfers Requests	295
Radio Reads Installed / Replaced	646
Renewal of Water Services	41

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Seasonal Turn On / Off	1,213	
Total Hydrants in System	1,360	Hydrants
Total Usage for Hydrant for Construction	14,700	Gallons
Meter Change Outs	617	
Meters Installed	32	
Water Service Repairs / Technical Services	438	
Water Usage for Flushing	5,700,000	Gallons

**Online Bill Presentment and Payment**

The Harwich Water Department provides our customers a convenient way to view, print and pay your water bill online. Registering for this service also provides you with notification that your bill is ready as well as several reminders that your bill is due. Opting to go paperless is also a great option. We are sure you will find it more convenient and it is better for the environment. Already, due to the combined effort of many residents state-wide, 340 new trees were planted through the “National Forest Foundation’s Gift of Trees” program.

Visit our website and click “View or Pay a Bill” and register your account so you can take advantage of all the services that are being offered.

**Voice Broadcast System**

The Voice Broadcast system has become a useful tool in communicating not only water emergencies to our residential and commercial customers but also town-wide emergencies to all residents. Enroll now by either visiting our website or contacting our office at 508-432-0304.

**Service Tight Protection Plan**

Did you know that as a homeowner you are responsible for the water service line that runs from the street to your home? In many cases those lines have been in place since your home was originally built. Many homeowners assume the lines are the water department’s responsibility or any problems on the lines are covered under their homeowners’ insurance policies. Unfortunately, these are false assumptions. Replacing a water service can cost \$2,000 or more.

Why not protect yourself and sign up for our *Service Tight Protection Plan* today! For as little as \$68 per year we can protect participants from costly repairs or replacement costs in the event of a water service break at your property. You can learn more about this plan and enroll by visiting our website and/or feel free to contact our office and we’ll mail you a brochure.

**HarwichWater.com and HarwichGIS.com**

If you haven’t visited the Water Department website at [www.harwichwater.com](http://www.harwichwater.com), we would like to invite you to do so. We continue to provide our customers with quick and easy access to all of the information they need. Some of the items you will find on our website are Department forms and reports, online bill payment, water rates and fees schedules, voice broadcast messages that

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were sent, up-to-date meeting minutes of the Board of Water Commissioners and news event updates. In addition, there are many informational facts and how-to instructions that you may find very helpful.

At [www.harwichgis.com](http://www.harwichgis.com) we have a variety of maps. You can view our water system map and many of the Harwich maps; zoning, town owned property, flood area, conservation and recreation as well as road and street maps. Be sure to visit our electronic business-front on the Web.

### **System Maintenance**

#### **Hydrants and Valves**

The Water Department also has an ongoing program for maintaining our valves throughout the system. We continue to add valves into our infrastructure which allows us to isolate smaller areas of Town during water emergencies and provides even more discrete controls on our flushing program. Hydrants are inspected and exercised and fire flow testing continues to be done on a recurring schedule. The Department replaced, installed or repaired eleven hydrants in 2013. The majority of hydrant replacement and repair occurred in 2011.

#### **Water Meter Upgrade Program**

Water Meter upgrades continue on schedule. Meters age 15 years and older are part of our ongoing meter replacement program. In 2013, 617 meters were replaced and 32 new meters were installed for new water services.

#### **Radio Read Installation Program**

We continue to install radio reads throughout our customer base. In 2013 we installed 646 radio reads for a total of 7,842 now installed, which is 79% of our customer base. In the fall of 2013 we were able to bill all customers in one billing cycle vs. two and three cycles in years prior. This is a huge accomplishment and we will continue to work diligently on this program and anticipate achieving 100% radio read in 2014. Radio read devices compliment the meter and encode, receive, and transmit the data by radio signal. This technology greatly reduces the number of technicians needed for meter reading and allows us to dedicate more staff to routine maintenance of the distribution system, service installations and seasonal services. We appreciate your patience and cooperation as we contact you for access to your property.

#### **Water Department and Town Department Coordination**

In 2013, the Water Department installed a new water system at the Town Garden and the Highway Department performed all of the necessary road work. We continue to work in coordination with other Town Departments in a variety of ways, from sharing software applications to managing a Voice Broadcast System that is also for town-wide use to assisting

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the Highway Department with snow plowing needs. We look forward to continued cooperation with town departments.

**Water Main Improvements**

Our water main upgrade program will consist of replacing or re-lining the older water mains in our system. As part of this effort, we will continue to closely coordinate our water main replacement program with the Highway Department by scheduling our construction activities to occur during the same time as street resurfacing by the Highway Department and future wastewater plan of the Town. This coordinated approach to our construction activities results in a large savings to our rate payers.

**Drought Management and Conservation Programs**

The Water Department has placed drought management signs throughout the Harwich Community. During peak season please refer to these signs and our website for up-to-date watering restrictions. Whether or not a voluntary or mandatory restriction exists, we encourage our customers to be diligent in conserving water. Even though there is an abundant water supply on Cape Cod, we should still conserve as much water as possible.

Awareness of how much water you use is the first step in conservation. The average person uses fifty (50) gallons of water per day on the following activities:

- Toilet = 19 gallons per day
- Bathing & Hygiene = 15 gallons per day
- Laundry = 8 gallons per day
- Kitchen = 7 gallons per day
- Housekeeping = 1 gallon per day
- Irrigation/Lawn Watering = 70 gallons per day
- Total Winter Use = 50 Gallons
- Total Summer Use = 120 Gallons

Because of the seasonal influx during the summer months, the Town of Harwich averages approximately 65 to 70 gallons per day per capita.

**Metered Water Calculation**

To review your metered water bill, divide your water usage by the number of days in the billing period (approximately 180 days) and also by the number of residents of your household to determine your average.

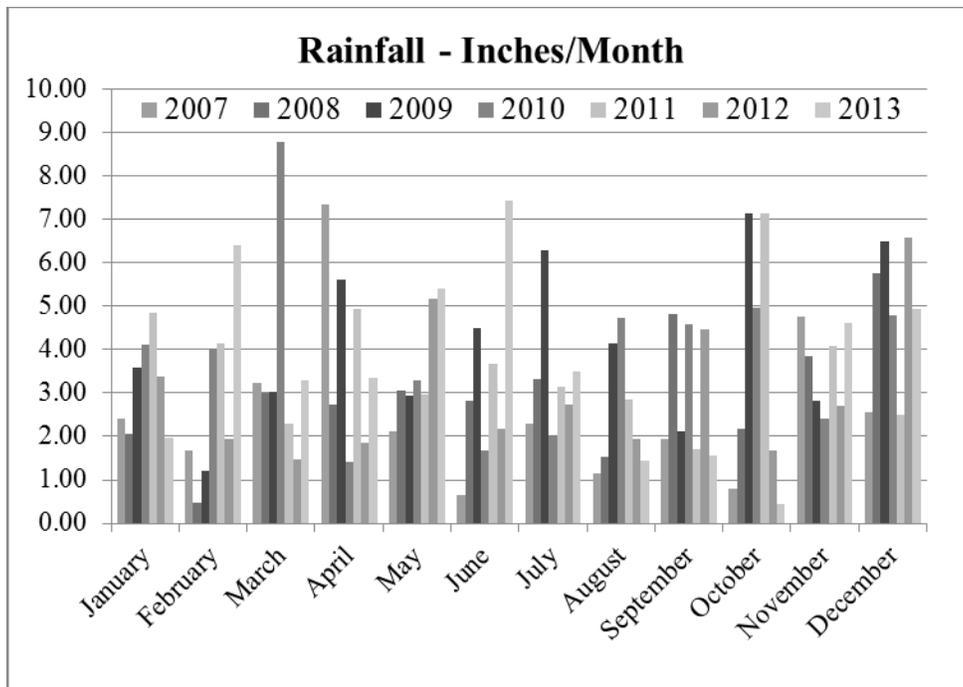
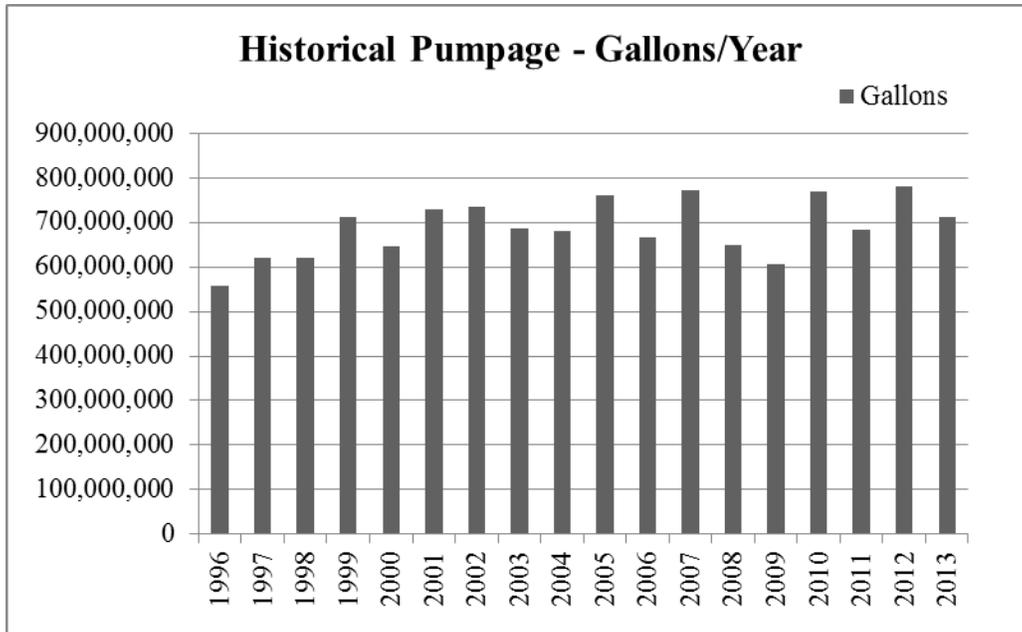
**High Consumption and Irrigation Systems**

The fall billing provides for a multitude of calls to our Department concerning high consumption. In most cases, the high consumption is related to an irrigation system leaking or running too frequently. We can't stress enough that our customers become familiar with their

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meter location and how to read the meter. Customers, especially those who have irrigation systems, should monitor consumption on a regular basis to ensure that any issue is addressed immediately. All water that passes through the meter is the responsibility of the homeowner and who wants to pay for water that is lost. More importantly, it is a waste of our precious water resource.

**Pumpage and Rainfall Statistics**



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<b>Water Department Comparative Table</b>			
Year	Rainfall in Inches	Gallons Pumped	Maximum Daily
1996	63.33	555,982,400	4,344,600
1997	48.46	620,145,100	5,627,100
1998	49.93	619,321,800	4,740,800
1999	44.48	710,729,600	5,681,400
2000	48.11	644,636,400	5,065,400
2001	36.76	730,249,000	5,879,600
2002	50.44	735,869,800	5,666,970
2003	53.75	687,473,053	5,701,605
2004	37.88	680,194,630	5,568,509
2005	61.42	759,802,792	5,728,926
2006	42.03	666,986,217	5,052,381
2007	30.89	772,525,325	5,659,678
2008	35.60	649,958,341	5,401,605
2009	49.89	605,297,549	4,386,341
2010	46.76	769,662,599	7,062,033
2011	44.28	683,643,260	5,237,726
2012	36.10	781,299,860	6,288,802
2013	44.34	711,486,828	5,515,227

**Water Rates and Financial Overview**

Water rates increased 5.5% in March 2013 and no rate increase is anticipated in March 2014. Smaller annual rate increases vs. larger increases every few years has been the preferred option of the Board of Water Commissioners. Rate increases provide for increasing operational and maintenance costs as well as contribute to current and future capital improvements.

Considering all, the Harwich Water Department rates still remain on the lower side in comparison to similar sized communities on the Cape. When compared to off-Cape, the Cape's water rates in general are low.

In addition to water rates and services, we do have other revenue sources and continue to investigate new ones. Budget-wise, we also strive to seek lower pricing for products and services and seek procurement through bids.

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Through all of these measures we have been able to return revenues to the reserve fund and over the course of several years we have saved enough to pay for a sizeable capital project without borrowing. Although borrowing is necessary at times, the feeling has been to keep the debt down and not pay interest.

**FY13 Financial Summary**

**Expenses**

Salary and Wages	1,003,995
Supplies and Services	794,423
Installation Supplies	16,876
Water Main Maintenance & Repair	222,982
Well Rehab Maintenance & Repair	16,613
Pump Station Rehabilitation	25,446
Indirect Expenses; Insurance & Employee Benefits	411,255
Debt	729,440
Articles & Encumbrances	35,081
<b>Total Expenses</b>	<b>3,256,111</b>

**Revenues**

Water Rates & Recurring Services	3,443,983
Service Repairs & Technical Services	68,913
Service Tight Protection Plan	26,060
Backflow Inspection	14,095
Water Service Installation and Renewals	148,635
Late Fees, Interest, Lien Interest & Penalties	59,415
Wireless Communications Lease	119,621
<b>Total Revenues</b>	<b>3,880,720</b>

**Water Enterprise Fund Balance Summary**

FY12 Fund Balance	1,773,070
FY13 Authorized Capital Projects	-1,745,728
FY13 Surplus Estimate	1,007,794
<b>FY13 Fund Balance to be Certified</b>	<b>1,035,136</b>

FY13 Abatements & Adjustments -21,356

**Anticipated Activities During 2014**

- Construction of Greensand Water Treatment Facility at North Westgate Road (Well 10)
- Rehabilitation and Painting of the Lothrop Avenue water tank
- Begin pump station maintenance and rehabilitation

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- Water main replacement and upgrades in coordination with sewer main installation

**Conclusion**

As Department Superintendent, I would like to thank the Water Department employees for their teamwork and dedication, the Board of Water Commissioners for their continued support and all Town Departments, Town Committees, and Boards for their service to the community and myself throughout the year.

*Craig Wiegand, Water Superintendent*

*Board of Water Commissioners*

Donald Bates, Chairman

Allin Thompson, Vice Chairman

Danette Gonsalves, Clerk