

**TOWN OF HARWICH  
2008 REPORT OF THE HARWICH WATER DEPARTMENT  
FOR TOWN REPORT**

From the Harwich Board of Water Commissioners and the Superintendent, we respectfully submit our Annual Report to the Honorable Board of Selectmen and to the citizens of the Town of Harwich for the year ending 2008.

**DEP'S PROPOSED REGULATORY AMENDMENTS**

2008 was a very challenging year for the Harwich Water Department as well as every other community in the Commonwealth. The Massachusetts Department of Environmental Protection (DEP) and the Environmental Protection Agency (EPA) have established new permit regulations and guidelines related to water withdrawals and usage that could have severe consequences to the Water Department, our business community and the citizens of Harwich.

DEP has proposed revisions to their Water Management Act regulations that would restrict the amount of water that the Town can pump and make available for use. Specifically, DEP is trying to implement a statewide guideline that would eventually limit residential usage to 65 gallons per day per capita. Currently DEP has set this limit at 85 gallons per day for Cape communities, but this would be gradually reduced over time. The consequence of this restriction is that the Town may need to restrict certain types of water usage, such as outside watering and washing your vehicles.

The Water Department feels strongly that these types of restrictions are unwarranted. Recently, the United States Geological Service completed a study of our aquifer, the Monomoy Lens, and concluded that we are using only 4% of the available water for our water supply, and that the overwhelming majority of water in the aquifer is discharged to ponds, streams and the ocean. Nonetheless, the Harwich Water Department has implemented extensive water management and conservation measures that has made it one of the tightest and best run systems on the Cape, and we have received several awards from DEP that recognize our excellent performance. It is for these reasons that the Department feels that additional and overly restrictive regulations that mandate how we use our water are unnecessary.

It has been a very difficult challenge to debate these issues with DEP, and time is running short before these proposed regulations will be promulgated. We have contacted our legislators for additional support, however because of the urgency of this issue we are asking for your help as well. We would like you to also contact our legislators for their assistance in this important matter.

**WATER SYSTEM IMPROVEMENTS**

*New Water Supply Development:* The Water Department continued their program of developing a new water supply at the well field located in the northwest corner of the Town, known as Site 10. This site has been selected by the Water Department as the preferred location for a new water supply source that will serve as a redundant source to the Town's existing well fields. The Water Department's goal is to receive approval to withdraw a minimum of 2 Million Gallons per Day (MGD) from the site, which includes the existing well that is already permitted to withdraw up to 0.97 MGD.

During 2007 the first of several DEP permitting steps, the *Request for Site Examination and Aquifer Performance Test Scope of Work* was approved by DEP. During 2008 our engineers, Environmental Partners Group, began the next phase of DEP's new water supply permitting program by

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conducting hydrologic testing that will provide an initial estimate of what the potential overall yield may be from additional water supply wells at the site and to determine the number of production

wells that are likely needed to achieve that yield. These activities also include using the regional groundwater flow model developed by the United States Geological Service to assess whether increased withdrawals from this well field will affect ponds and rivers in the area. By the end of this project the Water Department will have developed a comprehensive implementation program and estimated budget for bringing the new water supply at Site 10 online.

**NEW WATER TREATMENT PLANT AT THE MAIN WELL FIELD:**

For the last six years we have experienced a progressive increase in the amount of iron and manganese in the water from our main well field on Chatham Road which supplies about 60% of our water. Although these compounds are not harmful to drink, they do affect the aesthetics of the water by discoloring it. Iron appears as a red color in the water, and manganese turns the water black. This condition can be overcome to a certain extent by blending the water with well water from our other well fields, however the concentrations have increased to the point where this is no longer effective.

The Water Department is therefore making plans to construct a water treatment facility using a process known as Green Sand filtration that will remove the iron and manganese from the raw water and has a flow capacity of 4 Million Gallons per Day. The overall cost of the facility is projected to be \$6 Million, and this year we are requesting a sum of \$500,000 that will allow us to complete the facility design and prepare it for bidding. Should the project be approved by Town Meeting, the design would be initiated and we expect that the project will be constructed and operational before the end of summer 2011.

**WATER STORAGE TANKS:**

The Town presently maintains three water storage tanks that have capacities ranging from one to two million gallons. During the summer of 2009 we plan to take the tank located on Route 39 off line for approximately three weeks to make some structural repairs and to repaint the tank interior and exterior. The estimated cost for these repairs is \$1,350,000. Our tank maintenance program will continue during the summer of 2010, when we plan to make the same type of repairs to the tank located on Lothrop Avenue.

**WATER MAIN IMPROVEMENTS:**

During 2008 the Water Department continued our water main upgrade and replacement program by replacing or relining the older water mains in our system. As part of this effort, we are closely coordinating our water main replacement program with the Highway Department by scheduling our construction activities to occur in the same streets that the Highway Department is resurfacing. This coordinated approach to our construction activities therefore results in a large savings to our rate payers.

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**HYDRANTS AND VALVES:**

The Department has replaced twenty-four (24) hydrants this year. We have identified all hydrants that are in need of replacement. Every hydrant in Harwich has been inspected and exercised this year, and in 2009 we will flow test every hydrant on the system.

The Water Department also has an ongoing program for maintaining our valves throughout the system, and during 2009 we plan to add an additional twelve (12) valves to our infrastructure. This will allow us to isolate smaller areas of Town during water emergencies and to provide even more discrete controls on our flushing program. We hope to make these installations during the early spring or late fall 2009

**WATER METER AND RADIO READ DEVICES:**

The Harwich Water Department has implemented a new 10-year replacement program for water meters. This change out program is very important to the Department, since meters are the Department's cash registers. It has been proven that over time a water meter will begin to register less water. It is very unlikely that a meter will ever register a higher consumption. Over the last the last year the Department has changed out 633 meters and 1020 radio read devices.

When the Department changes out water meters we are installing new radio read devices. At the present time it takes seven (7) technicians approximately 16 weeks to read our system two times per-year. When we finish installing 100% radio reads one (1) person will be able to read the system in 12 days. This will allow us to shift those resources to other areas that have not been receiving the attention due to lack of man power. We have chosen to install our radio read devices in-house because if we were to put this out to contract we would have to pay prevailing wages, which would cost the Department an hourly wage of approximately \$70 per hour. It would be much done faster, but at a much higher cost. Therefore, we have chosen to do this in-house at a cost of 50% less than what a private contractor would have cost.

**PUMPING & TREATMENT OPERATIONS:**

This year our cost for the chemicals Potassium Hypochlorite increased from a \$1.75 per gallon to \$6.58 per gallon. This chemical is mandated by the Massachusetts Department of Environmental Protection (DEP), therefore, we are required to use this chemical. We have been in discussion with DEP to have them allow us to use Sodium Hydroxide which would cost us approximate \$3.50 per gallon. This is still a 100% increase in chemical costs. If and when we switch to Sodium Hydroxide there will be a cost associated with the retro-fit.

We also experienced an increase in fuel, natural gas, propane and electricity. Like everyone else in the Town we were directed to only increase our fuel and electrical costs by 10%. No one knew how high fuel would climb to. It was a hard time for the Town as well as its citizens.

With these increases, we are approximately \$175,000 dollars short for FY2009. This money will be transferred to the enterprise fund reserve account. We have therefore, requested that we be allowed to increase departmental costs according to our actual costs. Therefore, we should never experience another shortage like this again.

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This year we have replaced our last three turbine pumps with new submersible pumps. These pumps are much more efficient. This leaves us with one remaining turbine pump which is scheduled to be changed at the end of next summer.

### **CONSERVATION PROGRAMS:**

The Harwich Water Department is always looking at methods on how we can conserve water. We ask that you work with us to help conserve water. Even though there is abundance on Cape Cod we should still strive to conserve as much water as possible.

#### **Household Tips**

American's have access to an abundance of water much of the time, so the importance of clean water is often overlooked. For most of us, water use is a habit. We are accustomed to having water available at the twist of a faucet and usually do not think about how much water we use.

#### **Average Daily Water Usage**

Awareness is the first step in conservation, please be aware of how much water you use. 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 per year round.

#### **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.

### **GEOGRAPHIC INFORMATION SYSTEM (GIS):**

The Department has continued to make great strides in the implementation of our GIS system and now has one of the most advanced systems on the Cape. Our staff can now immediately access information about our water system directly from their field vehicles, resulting in even greater efficiency, accuracy and costs savings.

We are able to update any new data that is acquired during the work day into our database each evening when the field staff returns to our office which keeps our database current.

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As wireless signals increase in the Town, we will be soon be able to access live data and also have the ability to send a work order or emergency directly to our field staff electronically which would allow for a faster response time during an emergency.

The Water Department has the ability to rapidly produce plans and mapping for use by our customers, Contractors and other Town Departments. This enables us to provide a higher level of service to our customers and to expedite our response times during emergencies.

During 2008 we implemented a voice broadcast system which allows us to automatically send voice messages to notify customers of a water emergency in their area of Town or to efficiently provide other notifications that may be necessary.

**SERVICE TIGHT PROGRAM:**

On July 1, 2008, the Water Department was pleased to introduced the *Service Tight Protection Plan*; a water service insurance plan for homeowners and businesses. This plan is designed to protect participants from costly repair or replacement costs in the event of a water service break at their property. In order to notify Town residents and business owners of this new service, the department devised several marketing strategies including; detailed pamphlets, Channel 18 notices, newspapers advertisements, notices on water bills, and the use of the Voice Broadcast system. With well over 9,000 town water service accounts, the department expects this plan to be a popular and cost saving plan for enrollees, while at the same time, generating extra revenue for the department.

**ELECTRICAL OPERATIONS:**

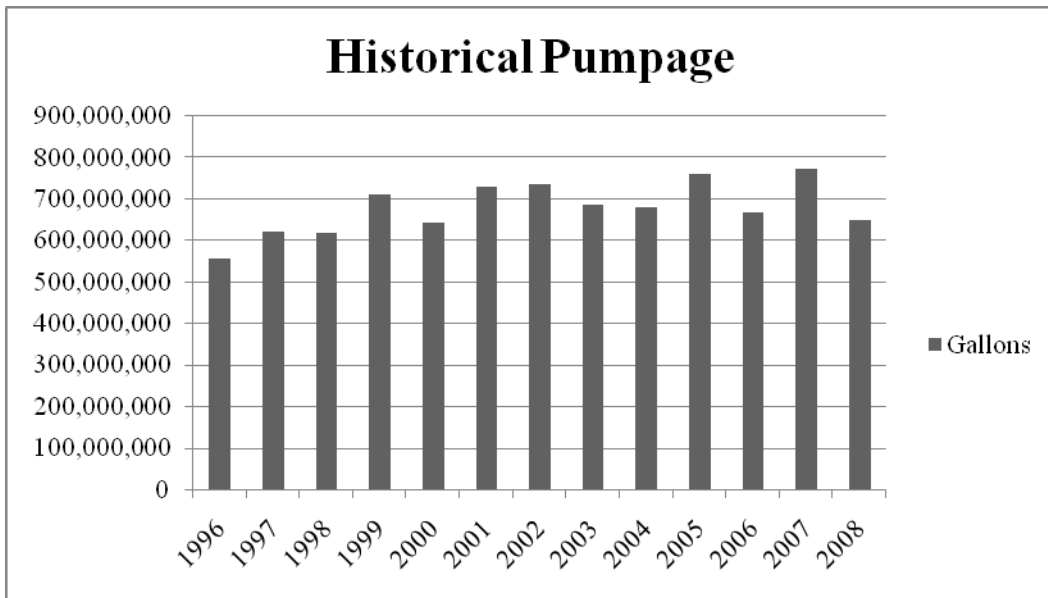
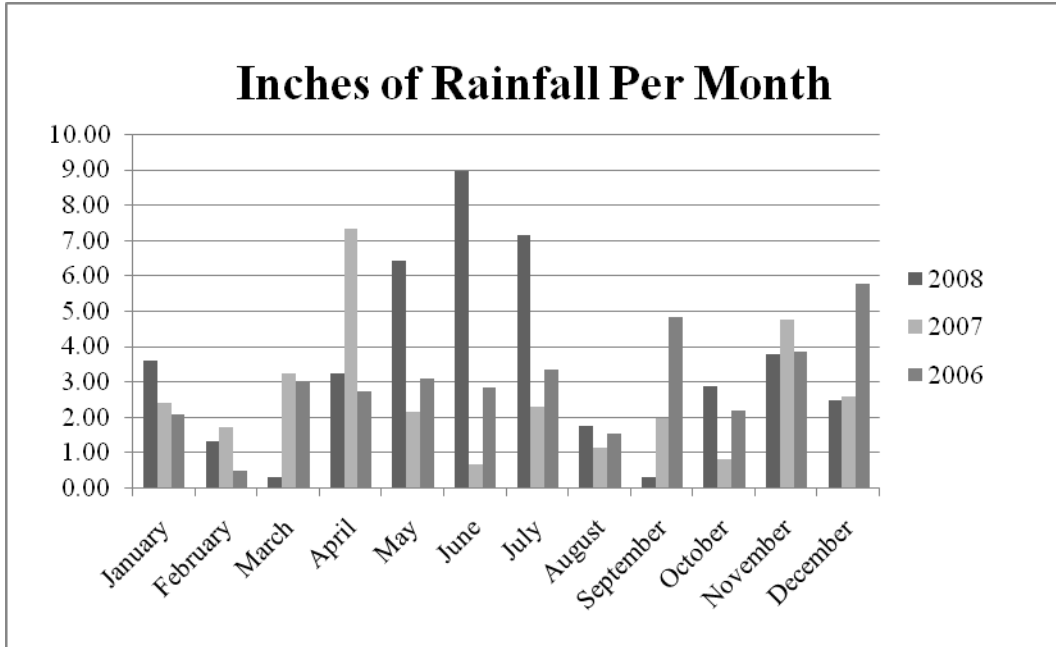
Last year our Department hired an Electrician. When our electrician has time we will hire him out to other departments in the Town. We are able to save other department's substantial savings. In most cases, our electrician can respond quicker than an outside contractor. Our electrician has worked for the Police Department, Fire Department, Schools, Golf Course, Library, Town Hall and Harbor Master.

The Town has so much electrical work that they should hire another electrician or allow us to hire another electrician. We could very easily keep two electricians busy throughout the year.

**2008 WATER MAIN INSTALLATIONS**

<b><u>Street</u></b>	<b><u>Type</u></b>	<b><u>Size</u></b>	<b><u>Footage</u></b>	<b><u>Hydrants</u></b>
Shore Rd.	Ductile Iron	8"	321 ft.	1
Gomes Way	Ductile Iron	8"	910 ft.	3
Belmont Estates	Ductile Iron	12"	1545 ft.	4
Harwich Police Dept.	Ductile Iron	6"	10 ft.	1

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**WATER DEPARTMENT COMPARATIVE TABLE**

<b>Year</b>	<b>Rainfall / Inches</b>	<b>Gallons Pumped</b>	<b>Maximum Per Day</b>
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

**ANNUAL STATISTICS OF SERVICES PERFORMED**

1.	Frozen Water Meters	5
2.	Seasonal Turn On/Off's	1474
3.	Mark Outs	631
4.	Water Meter Change Outs	633
5.	Water Service Repairs	131
6.	Hydrant Repairs	8
7.	Hydrant Replacement	4
8.	Water Main Repairs	25
9.	Curb Stop Renewals	10
10.	Gooseneck Renewals	1
11.	Property Transfers Requests	278
12.	Water Meters Installed New/Renewal Services	52
13.	ARB Repairs	66

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14.	Radio Reads Installed/Replaced	1020	
15.	New Water Service Installations	30	
16.	Renewal of Water Services	34	
17.	Hydrants Installed	9	
18.	Total Usage for Hydrant for Construction	34,310	Gallons
19.	Water Usage for Flushing	4,639,450	Gallons
20.	Installation of Yard Hydrants for Water Samples	4	
21.	Total Hydrants in System	1333	Hydrants

**SUMMARY OF ACCOUNTS FOR FY08**

**Period Ending June 30, 2008**

COMMITMENTS:

Water Rates	2,356,535	
Commercial Fire Sprinkler	15,996	
Residential Fire Sprinkler	2,300	
Residential Fire Sprinkler Inspection	250	
Commercial Fire Sprinkler Inspection	2,000	
<b>TOTAL WATER RATES</b>		<b>\$2,377,081</b>
Repair Charges	5,475	
<b>TOTAL REPAIRS CHARGES</b>		<b>\$5,475</b>
Seasonal Charges	67,385	
<b>TOTAL SEASONAL CHARGES</b>		<b>\$67,385</b>
Miscellaneous Charges	23,121	
<b>TOTAL MISCELLANEOUS CHARGES</b>		<b>\$23,121</b>
Transfer Charges	23,834	
<b>TOTAL TRANSFER CHARGES</b>		<b>\$23,834</b>
New Services	28,500	
Renewal Services	2,100	
New Meter Charges	8,410	
<b>TOTAL NEW/RENEWAL SERVICES</b>		<b>\$39,010</b>
Late Fees	22,950	

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Other Miscellaneous Fees	100	
TOTAL FEES	<hr/>	\$23,050
<b>TOTAL COMMITMENTS</b>		<b>\$2,558,956</b>
<b>TOTAL ABATEMENTS/ADJUSTMENTS</b>		<b>\$4,541</b>
<b>TOTAL RECEIPTS</b>		<b>\$2,454,681</b>

**ANTICIPATED ACTIVITIES DURING 2009**

- Repairs to the Lothrop Avenue water storage tank
- Permitting of the new water supply at Site 10
- Design of the new water treatment plant for the main well field
- Water main replacement and upgrades

**CONCLUSION**

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

*Craig Wiegand, Water Superintendent*

*Board of Water Commissioners*

Donald Bates, Chairman

Danette Gonsalves, Vice-Chairman

George Cavanaugh, Clerk