

# Water Fund

## Mission Statement

The mission of the Water Division is to enhance Concord's quality of life, and through sound management, innovation, teamwork and vision, provide dependable, high quality, responsive water utility services, consistent with values and at reasonable costs to Concord's citizens, businesses, institutions and visitors.

## Water Fund Contents

Overview	pp. 1-2
Water Rates	p. 3
Program Highlights	pp. 4-6
Revenues and Expenditures	pp. 7-12
Capital Spending	pp. 13-14
Water Proforma	p. 15
Water Rates and System Map	pp. 16-17

## Water Fund Highlights

- The proposed FY18 base level (Step 1) water rate of \$0.0516 per cubic foot is a 4% increase over the FY17 rate of \$0.0496 per cubic foot. For the average residential customer, the annual increase in the water bill will be \$18.00.
- For FY18, \$1,190,000 is proposed for water main replacement along the Cambridge Turnpike and Whit's End Road.
- At the 2016 Town Meeting, the Town approved an excluded debt borrowing for construction of a new intake at Nagog Pond (\$1,850K) and Rehabilitation of Annursnac Hill Reservoir (\$958K). This work is scheduled to begin in FY18. There will also be repair work done at Pine Hill Reservoir and other reservoir improvements (\$186K) funded by user fees.
- \$205,000 is proposed for construction of a bulk chemical storage addition at Second Division well.

## Expenditure Summary

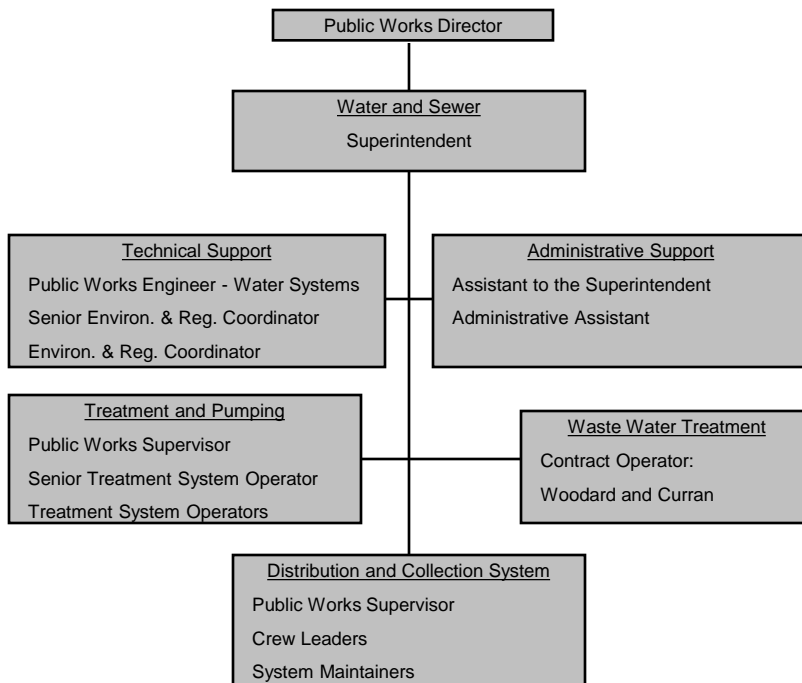
	FY15 Actual	FY16 Actual	FY17 Budget	FY18 Proposed
Operating Income	\$ 1,466,944	\$ 2,486,391	\$ 1,614,955	\$ 1,234,479
Net Income	\$ 1,335,037	\$ 2,328,659	\$ 1,568,570	\$ 1,182,854
Fund Balance	\$ 7,059,794	\$ 8,399,192	\$ 8,111,045	\$ 7,457,392

## Description:

Concord received legislative authority to establish a public water system in 1872. Today the system consists of ground-water and surface water sources, a total of seven pumping stations, two advanced treatment facilities, and a high pressure water main network consisting of over 130 miles of pipe. Two covered storage reservoirs, one located at Annursnac Hill and the other located at Pine Hill in Lincoln, provide total reserve capacity of 7.5 million gallons.

The 1974 Annual Town Meeting established the Water Fund. Expenses for the water system are covered entirely by user fees. The Water and Sewer Division of Concord Public Works is responsible for managing the day-to-day operations of the water infrastructure. As of 2016, the total value of infrastructure assets was approximately \$20.6 million.

There are presently 5,586 customers receiving potable water service and fire protection from the Town water system. This represents approximately 95% of Concord residents and businesses, along with a small number of Acton properties located on Route 2A.



The Concord Water System is designed to meet a variety of customer needs and interests, which include the provision of safe and reliable potable water, high volume flows for fire protection and integrated water resource protection. Drinking water quality and water withdrawal activities are strictly regulated by the Massachusetts Department of Environmental Protection (MassDEP) and the federal Environmental Protection Agency (EPA).



Water Main Repair on Cambridge Turnpike

**Long Term Financial Stability**

Along with its core mission to operate and maintain the Town’s water system in a reliable and efficient manner, the Water Enterprise must also be financially self-supporting. This means that the Water Division is expected to cover all costs associated with operations, capital maintenance and repairs by generating sufficient revenue through user fees and special service fees. The Water Division maintains a detailed 10-year financial proforma to facilitate long range planning for all revenues and anticipated investments.

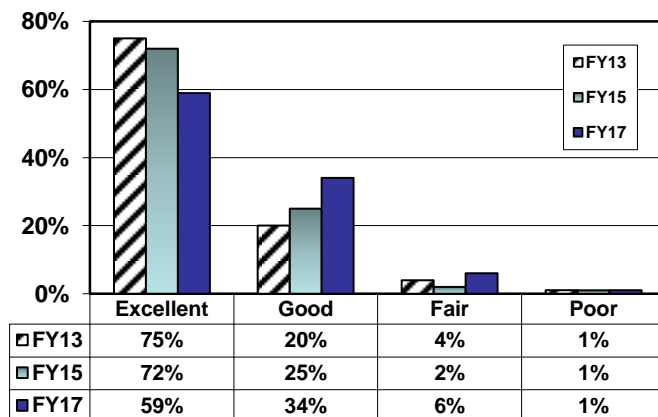
Since the Water Enterprise fund was formally established in 1974, there have been no property tax contributions requested to subsidize annual operations or maintenance of pre-existing infrastructure. Taxpayer contributions would only be sought for major system expansion projects or facility upgrades designed to meet broader community interests. No such projects are presently contemplated.

**Town Residential Survey**

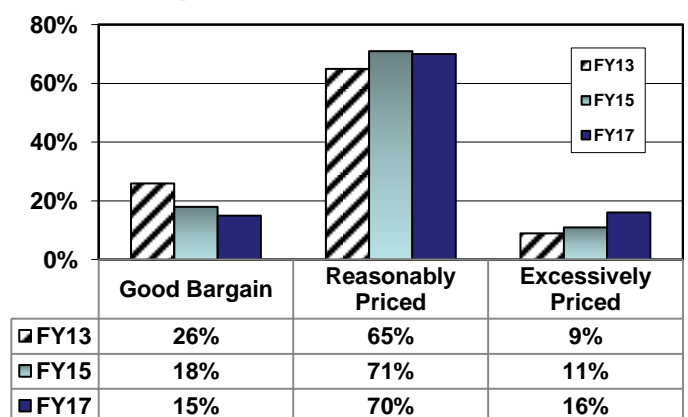
In the fall of 2010 and 2012 the Town conducted telephone surveys of 375 randomly selected Concord residents as part of the Town Residential Survey. In the fall of 2014 (FY15), the survey was expanded and received 1,337 respondents. For the Water Division, two questions were asked. Below left are the results of the question, “How would you rate the overall quality of water service?” Of those who said they use the service, the vast majority (72%) thought that the quality is Excellent and another (25%) thought it is Good.

Below right are the results of the question, “What is your opinion of the price of water service?” In FY15, of those who said they use the service, 18% thought that the price is a Good Bargain and 71% thought that it is Reasonably Priced. From FY11 to FY15, we see a consistent opinion that water services are a good bargain.

**Rating of Water Service**



**Opinion of Water Service Price**



Water Rates

The total revenue projected to be raised through water user fees in FY18 is \$5,305,000, which represents 97% of total Water Fund revenues.

User fees are assessed according to actual measured (metered) use.

Rates are set each year by the Public Works Commission following a public hearing with the following goals:

1. To ensure that the Division has the resources to operate, maintain, and improve the system,
2. To encourage users to conserve water; and
3. To minimize rate changes so that water use can be a relatively predictable expense for customers.

**Water Rate Highlights**

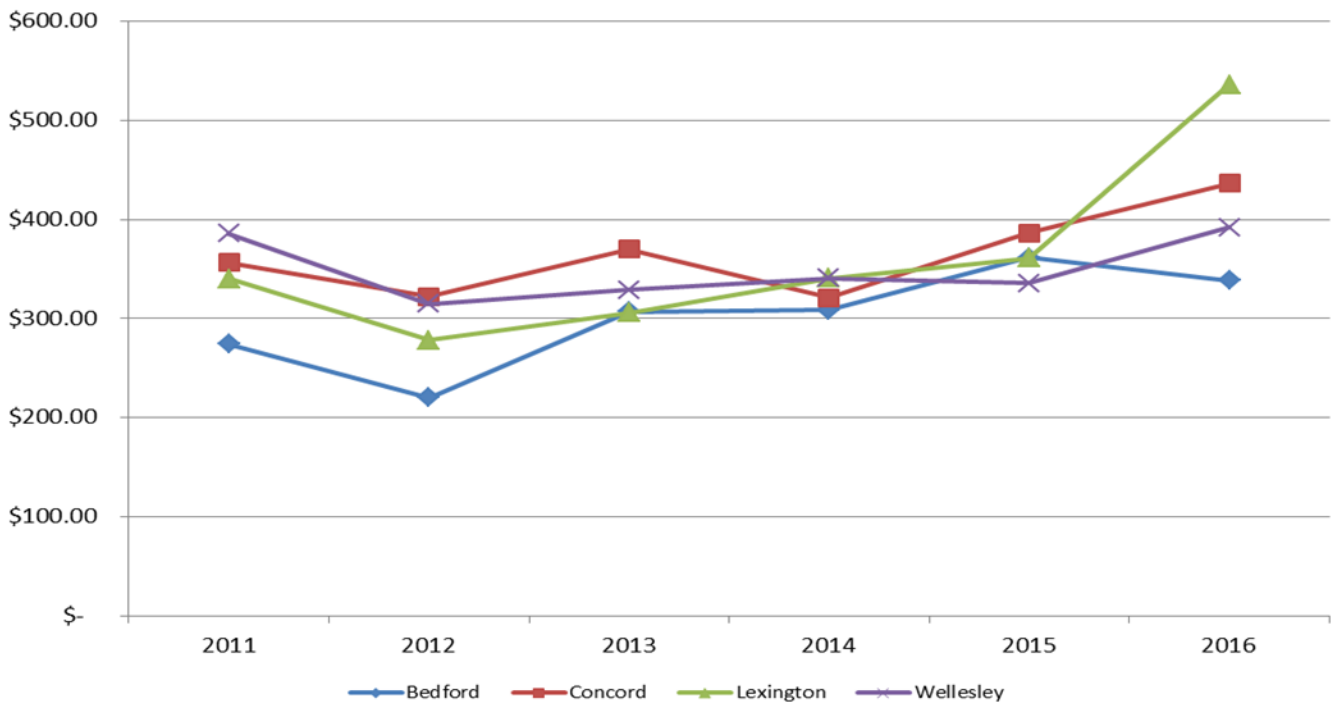
***The FY18 proposed Residential Service (step 1) water rate is \$0.0516 per cubic foot (1 cubic foot = 7.48 gallons)***

- The FY18 rate of \$0.0516 represents a 4% increase over the FY17 rate of \$0.0496. Since FY 2008, water rates have increased by an average of 3.7% per year.

- In FY18, the average residential customer is expected to pay a total of \$464 in water use over the course of the year. The average residential customer is assumed to use 1,500 cubic feet bimonthly. Customers who consume more than 2,400 cubic feet of water bimonthly will pay a higher rate (a Conservation Step).

- Property owners who meet certain age and income criteria may qualify for a 50% discount on the step 1 residential rates.

**Typical Annual Water User Fees Based on Actual Use**



Rate comparisons are provided for general information only; differences exist in the management and financial structure of every system. Concord prides itself on operating as a full cost accounting enterprise where rates are designed to cover O&M, depreciation and long-term investment needs. Concord is one of only 6% of systems within Massachusetts which have adopted a seasonal ascending-block conservation rate structure. (From Tighe and Bond Survey, 2010)

### Program Highlights

Concord Water functions in a highly regulated environment. Its operations are regulated by federal, state and local government agencies. These laws and regulations directly impact daily operations and budget plans required to maintain compliance with these directives.

On the federal level, the Division's operations are governed by the Safe Drinking Water Act (SDWA). Originally enacted in 1974, the SDWA allows the Environmental Protection Agency (EPA) to promulgate national primary drinking water regulations to regulate contaminants that may pose health risks and that are likely to be in the public water supply. Under the SDWA, EPA establishes a maximum contaminant level standard that regulates physical, chemical, biological and radiological substances in the drinking water supply.

The SDWA allows EPA to delegate primary oversight and enforcement of these laws to the state, if the state meets certain requirements. The state of Massachusetts has been granted this "primacy". In addition to providing oversight and enforcement of drinking water quality issues, MassDEP also regulates water withdrawals and demand management programs in accordance with statutes detailed within the State's Water Management Act program.

The programs and initiatives described below are provided to highlight some of the more noteworthy and potentially significant programs that influence the short-term and long-term financial well-being of the Water Fund.

#### **Regulatory Update:**

In 1989 EPA established the Total Coliform Rule (TCR) to protect public health by ensuring the integrity of the drinking water distribution system and monitoring for the presence of microbial contamination. The rule requires all public water systems (PWSs) to monitor for the presence of total coliforms in the distribution system at a frequency proportional to the number of people served. This past year, MassDEP finalized changes to their Drinking Water Regulations, incorporating provisions of the new Federal (EPA) Revised Total Coliform Rule (RTCR). Notable changes include the setting of a maximum contaminant level goal (MCLG) and maximum contaminant level (MCL) for increased protection against potential fecal contamination; setting associated treatment technique requirements; improved monitoring; and improvements to public notification (PN) requirements for associated water quality violations.

**Water Testing:** All routine and non-routine water quality testing activities are performed in accordance with Massachusetts Department of Environmental Protection regulations. Testing continues to demonstrate that the drinking water provided to customers satisfies State and Federal requirements for public water systems. A summary of the water quality test results is available on the Town website.

**2015 Water Fluoridation Quality Award:** Concord Water once again received recognition from the Centers for Disease Control and Prevention (CDC) and the American Dental Association (ASTDD) for maintaining effective dosing and documentation of ongoing drinking water fluoridation efforts.

**Cross-Connection Control Program:** Water Safety Services (Woburn MA) continued to perform routine inspection and testing of all cross-connection control devices installed within industrial and commercial facilities requiring "process" water that is connected directly to the municipal water system. These efforts protect all customers from potential contamination risks associated with a back-flow of water that has been tainted by industrial/commercial processes, rendering the water undrinkable.

Program Highlights (continued)**Nagog Pond Water Filtration Facility Design and Permitting:**

Environmental Partners Group (Weymouth, MA) submitted a draft (50% ) design plan of the full scale water filtration facility planned for the Nagog Pond water supply. The design for this 1.5 MGD capacity water treatment plant integrates several large subsurface chambers associated with the existing ozone facility and will include the following new treatment processes: pre-oxidation; coagulation/flocculation; dissolved air flotation (DAF) for clarification; intermediate ozonation for enhanced organics control; and carbon filter media for filtration.



Environmental Partners Group has worked with special counsel for the better part of a year navigating permitting challenges that must be cleared before completing the final design and moving on to construction. Several important permitting milestones have been passed, including the issuance of a Notice of Intent (Acton Conservation Commission) allowing for the replacement of a 16-inch intake pipe as well as the siting of the treatment facility and the issuance of a MEPA “Certificate of Approval” (by the Secretary of Energy and Environmental Affairs) for both the intake pipe replacement and the filtration facility.

Special Use Permit and Site Plan Special Permit requests made to the Acton Board of Selectmen have triggered a considerable amount of interest and resistance from the greater Acton community – so much so that the *Acton Beacon* identified Concord’s permitting efforts as Acton’s top news story of 2016. Local concerns include the scale of the filtration facility, traffic associated with routine chemical and residuals handling activities, security fencing and potential impacts on adjacent recreation trails, archaeologically sensitive areas, and wildlife habitat.

**Brewster [future] Well Site:**

The preservation of 17 acres of water supply land located off Balls Hill Road, originally secured by the Water Division in 2001, has been further leveraged by the Town through the purchase of an adjoining 80 acres of property along the Concord River. In exchange for additional Water Fund contributions, the newly acquired land ensures that this additional land will be preserved for “water supply purposes” as well as passive recreation. Such land acquisitions are in keeping with the Water Division’s long-range planning goals and interests.

Program Highlights (continued)

Demand Management

Concord’s WMA permit provides an “authorized” water withdrawal allowance of up to 2.51 million gallons per day (MGD) with an allowance of 65 gallons per day per capita (RGPDC) and 10% system wide “unaccounted for” water. Unaccounted for water is the volume of water that is pumped but not measured through existing meters – for example: leaks, hydrant flushing and fire protection use.

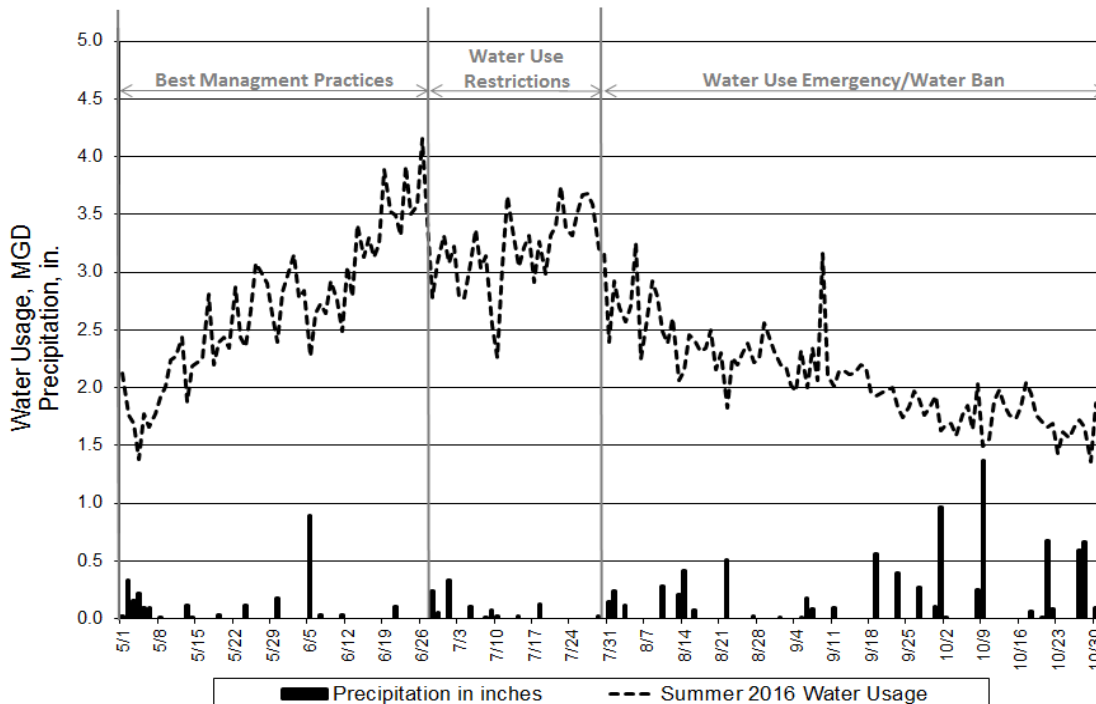
Drought Response

In 2016, the total water production required to meet residential, commercial, institutional and municipal needs was approximately 728 million gallons, equivalent to an average demand of 1.99 million gallons per day. A peak day demand of 4.15 million gallons was recorded on June 26, 2016. The RGPDC and total system unaccounted for water use estimates were calculated to be 70 gal/day and 11%, respectively.

On June 27, 2016, in response to a prolonged period of drought, the level of Concord’s Seasonal Demand Management Plan was elevated from a standing seasonal “Advisory” outdoor water use restriction (2 days/week - voluntary) to a mandatory “Restriction” which is enforceable by fine. Notice to all customers was announced via “News and Notices” (e-mail blast), website update, “Code Red” (reverse 911), and strategically located signboards. Notice was also provided to MassDEP in accordance with state regulations.

On July 1, 2016, at the urging of the State’s Drought Advisory Task Force, the Secretary of Energy and Environmental Affairs declared a drought “Watch” for the Central and Northeast regions of the State. On August 1, 2016, the drought watch was elevated to a drought “Warning”. At about this same time, Concord elevated its Outdoor Water Use “Restriction” to an “Emergency” level when a critical asset of the Town’s water system (Pine Hill Reservoir) was taken off line. The “Emergency” level required the prohibition of all lawn watering, filling or topping off of swimming pools, and private washing of cars and boats. Most customers responded responsibly to these declarations, resulting in a water use reduction of over one million gallons per day. The Division issued over 400 written warnings to individual property owners who failed to comply in a timely manner.

**2016 Demand Management & Drought Response**



Program Highlights (continued)**Mains (New/Replacement):**

A key factor in developing the annual Water Enterprise Fund budget is identifying funds required to make necessary investments in our water main infrastructure to maintain a safe and reliable supply of water to our customers. The most important measure of success relates to the frequency of interruptions of service resulting from water main breaks. Main breaks occur for a number of reasons, including age of pipe, pressure surges, and cold weather. The Water Research Foundation (WRF) states that the average number of main breaks in North America is 25 breaks per 100 miles of main per year. The Partnership for Safe Water (PFSW), a group supported by US EPA and the American Water Works Association, among others, recommends a goal of less than 15 main breaks per 100 miles of main per year. As identified previously, Concord's distribution system consists of over 133 miles of water main. Over the past decade, the Water Division typically responds to approximately 5-10 breaks per year. This favorable "reliability" metric is directly attributed to the annual capital outlay dedicated to system improvements, expansion and emergency repairs. This past year, notable work included;



- **Monument Street Replacement:** N. Cibotti, Inc. (Braintree, MA) replaced aging water and drainage infrastructure along a limited section of Monument Street – starting near the intersection of Liberty Street and ending several hundred feet north of Red Coat Lane. The scope of work included the replacement of approximately 1,568 linear feet of cast iron 8-inch water main with a new 12-inch diameter cement lined ductile iron (CLDI) water main, along with the installation of three (3) hydrants, four (4) main isolation valves and seven (7) service connections. Drainage improvements included the replacement of three (3) catch basin structures and the installation of one (1) new drain manhole structure.
- **Black Horse Place PRD:** Meninno Construction (Lynn, MA) installed 2,510 feet of private "common" 8-inch CLDI water service which included the addition of 5 new hydrants, 11 new gate valves and the creation of a system loop eliminating two previously existing dead ends located on Commerford Lane and Whit's End Road.
- **Rt 2A Gate Valve Improvements:** N. Cibotti Inc. installed a new three-way gate valve assembly (16-inch by 8-inch) at the intersection of Commerford Road and Rt 2A, near the Acton Town line. This work was prioritized following the recent completion of the new water system loop created for the Black Horse planned residential development. The new gate valve assembly will not only allow us to more quickly isolate services along Rt 2A in Acton in the event of water system emergencies, but it will help improve our ability to maintain service when such breaks occur, in the area of Whit's End Road, Black Horse Road, Commerford Road and properties along Elm Street.

:

Program Implementation

The proposed FY18 budget projects operating income of \$1,234,479 and a net income of \$1,182,452.

Depreciation expense reflects the cost imposed by the annual use, or wear-and-tear, of the Water Division's approximately \$20 million worth of depreciable infrastructure (as of the end of FY16). The budgeted FY18 depreciation expense, totaling \$1,122,756, represents a depreciation of roughly 6% of these capital assets.

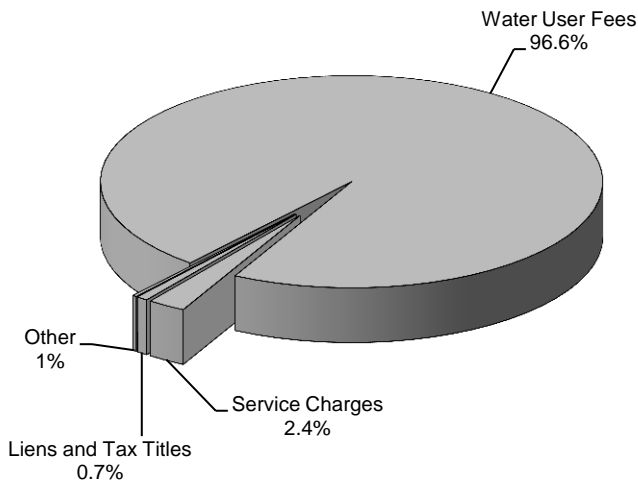
Personnel Services are budgeted to total \$1,328,433 in FY18, a 2.5% increase from the revised FY17 total of \$1,296,558. There is no change in staffing or overtime hours.

The next largest expense categories are for electricity (\$299,640) and chemicals (\$185,346); these consumables vary widely from year-to-year based on the demand for water. Budgets for these accounts are based on anticipating a relatively strong demand for water. This demand is directly affected by weather trends as well as the water conservation behavior of customers.

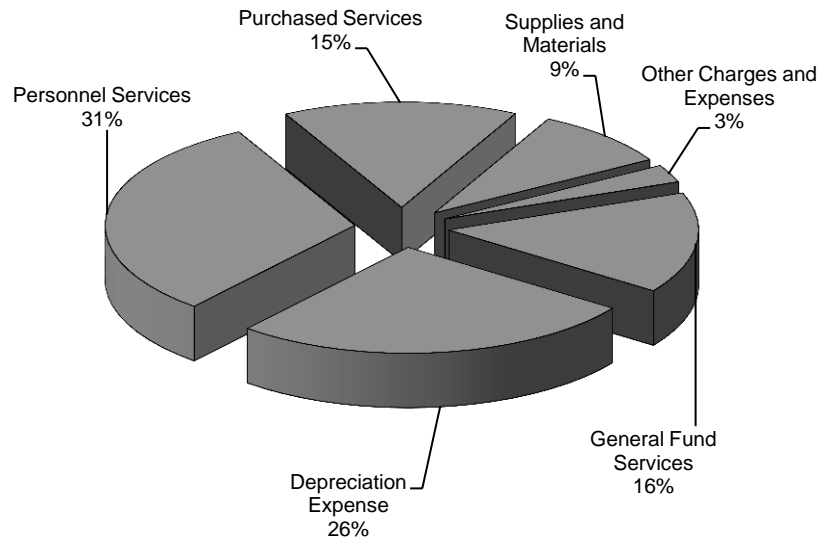
The FY18 Budget also includes \$58,916 for water quality testing at 7 pumping stations, 2 reservoirs and throughout the distribution system.

In addition, the FY18 budget includes \$76,200 for inspection services, including leak detection covering half of the entire system (the entire system is checked every two years) and testing of backflow prevention devices at commercial facilities. The budget also includes \$39,111 for electrical, instrumentation and other maintenance and support services at the pumping stations and reservoirs.

**FY18 Operating Revenues**  
Totaling \$5,494,000



**FY18 Operating Expenditures**  
Totaling \$4,259,521





**OPERATING REVENUES**

	FY15 Actual	FY16 Actual	Rev. FY17 Budget	FY18 Budget
Water User Fees	\$ 4,716,374	\$ 5,541,962	\$ 5,335,000	\$ 5,305,000
Service Charges	174,315	380,585	275,000	134,000
Liens and Tax Titles	42,722	44,716	40,000	40,000
Other	12,465	19,428	15,000	15,000
<b>Operating Revenues Total</b>	<b>\$ 4,945,876</b>	<b>\$ 5,986,690</b>	<b>\$ 5,665,000</b>	<b>\$ 5,494,000</b>

**OPERATING EXPENSES**

	FY15 Actual	FY16 Actual	Rev. FY17 Budget	FY18 Budget
<b><u>Personnel Services</u></b>				
Personnel Expenses	\$ 1,144,641	\$ 1,056,618	\$ 1,296,558	\$ 1,328,433
Audit Adjustment	-	-	-	-
<b>Subtotal</b>	<b>\$ 1,144,641</b>	<b>\$ 1,056,618</b>	<b>\$ 1,296,558</b>	<b>\$ 1,328,433</b>
<b><u>Non-Personnel Services</u></b>				
Purchased Services	474,514	521,301	666,350	649,134
Supplies & Materials	353,157	361,513	363,776	384,561
Other Charges & Expenses	74,660	62,819	96,461	115,785
Audit Adjustment	-	-	-	-
<b>Subtotal</b>	<b>\$ 902,331</b>	<b>\$ 945,634</b>	<b>\$ 1,126,587</b>	<b>\$ 1,149,480</b>
<b><u>Other</u></b>				
General Fund Services	600,507	613,901	638,482	658,852
Depreciation Expense	831,453	884,146	988,418	1,122,756
<b>Subtotal</b>	<b>\$ 1,431,960</b>	<b>\$ 1,498,047</b>	<b>\$ 1,626,900</b>	<b>\$ 1,781,608</b>
<b>Total Operating Expense</b>	<b>\$ 3,478,932</b>	<b>\$ 3,500,299</b>	<b>\$ 4,050,045</b>	<b>\$ 4,259,521</b>

**RETIREMENT AND OPEB ASSESSMENT**

<i>For Informational Purposes Only</i>				
	FY15 Actual	FY16 Actual	Rev. FY17 Budget	FY18 Budget
<b><u>Personnel Services</u></b>				
Retirement Assessment	\$ 64,305	\$ 72,280	\$ 86,179	\$ 82,117
OPEB Assessment	17,000	19,981	21,264	25,000
<b>Total Assessment</b>	<b>\$ 81,305</b>	<b>\$ 92,261</b>	<b>\$ 107,443</b>	<b>\$ 107,117</b>

**AUTHORIZED POSITIONS**

	FY17 Revised Budget		FY18 Initial Budget	
	\$ Amount	Position/Hours	\$ Amount	Position/Hours
<b>Regular Staff</b>				
Water and Sewer Superintendent	\$ 87,999	0.80 FTEs	\$ 89,806	0.80 FTEs
Public Works Engineer	15,741	0.20	16,125	0.20
Assistant to Superintendent	69,586	0.80	70,968	0.80
Sr. Environ. & Regulatory. Coord.	64,990	0.80	67,910	0.80
Environ. & Regulatory. Coord.	42,856	0.80	44,885	0.80
Administrative Assistant	51,530	0.80	52,550	0.80
Public Works Supervisor	138,376	1.60	142,288	1.60
Crew Leader	116,795	1.60	117,219	1.60
Senior Treatment Systems Operator	57,530	0.80	60,136	0.80
Treatment System Operator	99,089	1.60	102,201	1.60
System Maintainer	205,318	4.00	213,693	4.00
Standby Pay (5111)	15,118	0.17	15,546	0.17
Charges to Snow Account	(4,328)	-0.08	(4,328)	-0.08
Charges to Capital Projects	(19,935)	N/A	(20,364)	0
Vacancy Savings	-	0	-	0
Salary Adjustments	17,860	-	26,747	-
<b>Subtotal</b>	<b>\$ 958,525</b>	<b>13.89 FTEs</b>	<b>\$ 995,382</b>	<b>13.89 FTEs</b>
<b>Part-Time Staff</b>				
Watershed Patrol	\$ 4,600	460 hrs.	\$ 5,060	460 hrs.
Environmental Technology Intern		0 hrs.	7,700	700 hrs.
GIS Project Specialist	-	0 hrs.		0 hrs.
<b>Subtotal</b>	<b>\$ 4,600</b>	<b>0.22 FTEs</b>	<b>\$ 12,760</b>	<b>0.56 FTEs</b>
<b>Employee Benefits</b>				
Health Insurance	\$ 87,000	N/A	\$ 70,000	N/A
Life Insurance	-	N/A	-	N/A
Dental Insurance	-	N/A	-	N/A
Retirement Contribution	86,179	N/A	82,117	N/A
OPEB Contribution	21,264	N/A	25,000	N/A
<b>Subtotal</b>	<b>\$ 194,443</b>	<b>N/A</b>	<b>\$ 177,117</b>	<b>N/A</b>
<b>Payroll Taxes</b>				
Medicare Tax	\$ 11,250	N/A	\$ 12,000	N/A
Social Security Contribution	1,250	N/A	1,250	N/A
<b>Subtotal</b>	<b>\$ 12,500</b>	<b>N/A</b>	<b>\$ 13,250</b>	<b>N/A</b>
<b>Other Personnel Costs</b>				
Overtime (5130)	\$ 99,522	1900 hrs.	\$ 102,398	1900 hrs.
Overtime Adjustments (5130)	1,493	N/A	2,048	N/A
Police Overtime (5131)	7,400	185 hrs.	7,400	185 hrs.
Mobile Phone Allowance	3,840	N/A	3,840	N/A
IT Salary (5111)	14,235	N/A	14,239	N/A
<b>Subtotal</b>	<b>\$ 126,490</b>	<b>N/A</b>	<b>\$ 129,925</b>	<b>N/A</b>
<b>Total Personnel Costs</b>	<b>\$ 1,296,558</b>	<b>14.12 FTEs</b>	<b>\$ 1,328,433</b>	<b>14.45 FTEs</b>

**NET INCOME**

	FY15 Actual	FY16 Actual	Rev. FY17 Budget	FY18 Budget
<b>Statement of Net Income:</b>				
Operating Revenues	\$ 4,945,876	\$ 5,986,690	\$ 5,665,000	\$ 5,494,000
Less Operating Expenses	(3,478,932)	(3,500,299)	(4,050,045)	(4,259,521)
<b>Operating Income</b>	<b>\$ 1,466,944</b>	<b>\$ 2,486,391</b>	<b>\$ 1,614,955</b>	<b>\$ 1,234,479</b>
<b>Nonoperating Revenues (Expenses)</b>				
Add Investment Income	\$ 16,018	\$ 31,175	\$ 56,344	\$ 70,411
Add Other Revenue/Expense				
Less Interest Expense	(147,925)	(188,907)	(94,730)	(119,228)
Less Issuance Expense	-	-	(8,000)	(2,808)
<b>Nonoperating Income</b>	<b>\$ (131,907)</b>	<b>\$ (157,732)</b>	<b>\$ (46,386)</b>	<b>\$ (51,625)</b>
<b>Net Income</b>	<b>\$ 1,335,037</b>	<b>\$ 2,328,659</b>	<b>\$ 1,568,570</b>	<b>\$ 1,182,854</b>

**AVAILABLE RESOURCES**

<b>Resources Available from Current Operations for Replacement &amp; Renewal of Facility:</b>				
	FY15 Actual	FY16 Actual	Rev. FY17 Budget	FY18 Budget
<b>Capital Purposes</b>				
Add Depreciation Expense	\$ 831,453	\$ 884,146	\$ 988,418	\$ 1,122,756
Add Net Income	1,335,037	2,328,659	1,568,570	1,182,854
Add Debt Financing	-	-	800,000	2,808,000
Less Bonds Payable	(520,000)	(631,800)	(441,200)	(463,333)
<b>Net Available for Capital</b>	<b>\$ 1,646,490</b>	<b>\$ 2,581,005</b>	<b>\$ 2,915,788</b>	<b>\$ 4,650,277</b>

**CASH POSITION AND FUND BALANCE FORECAST**

<b>Cash at Year Opening</b>	<b>FY17</b>		<b>FY18</b>	
<b>Cash on July 1st</b>	<b>\$ 7,656,721</b>		<b>\$ 7,368,574</b>	
Add Receivables	1,250,551		1,250,551	
Add Inventory & Other Assets	114,170		114,170	
Less Cash held for Liabilities	(901,044)		(901,044)	
Deferred Outflows (Inflows)	278,794		278,794	
<b>Fund Balance on July 1st</b>	<b>\$ 8,399,192</b>		<b>\$ 8,111,045</b>	
<b>Fund Balance Details (projected)</b>	Operating Fund	Depreciation Fund	Operating Fund	Depreciation Fund
Fund Balance on July 1st	\$ 6,225,494	\$ 2,173,698	\$ 7,221,864	\$ 889,181
Net Income	1,568,570		1,182,854	
Bond Principal Repayment	(441,200)		(463,333)	
BAN and Bond Proceeds	800,000		2,808,000	
Capital Borrowing	(931,000)		(2,808,000)	
Capital Outlay (non-borrowing)		(2,272,935)		(2,495,930)
Add Depreciation Expense		988,418		1,122,756
Balance Projected at June 30th	7,221,864	889,181	7,941,385	(483,993)
<b>Fund Balance on June 30th</b>	<b>\$ 8,111,045</b>		<b>\$ 7,457,392</b>	
<b>Cash at Year End (projected)</b>				
Fund Balance on June 30th	\$ 8,111,045		\$ 7,457,392	
Less Receivables	(1,250,551)		(1,250,551)	
Less Inventory & Other Assets	(114,170)		(114,170)	
Add Cash Held for Liabilities	901,044		901,044	
Add Cash Held for Deferred Inflows	(278,794)		(278,794)	
<b>Projected Cash at June 30th</b>	<b>\$ 7,368,574</b>		<b>\$ 6,714,922</b>	

**DEBT SERVICE**

	FY15	FY16	Rev. FY17	FY18
	Actual	Actual	Budget	Budget
<b>Long-Term Debt Repayment</b>				
Principal	\$ 520,000	\$ 631,800	\$ 441,200	\$ 463,333
Interest	147,925	188,907	94,730	119,228
Debt Issuance Expense	-	-	8,000	2,808
<b>Total</b>	<b>\$ 667,925</b>	<b>\$ 820,707</b>	<b>\$ 543,930</b>	<b>\$ 585,369</b>

**PAYMENTS TO THE GENERAL FUND**

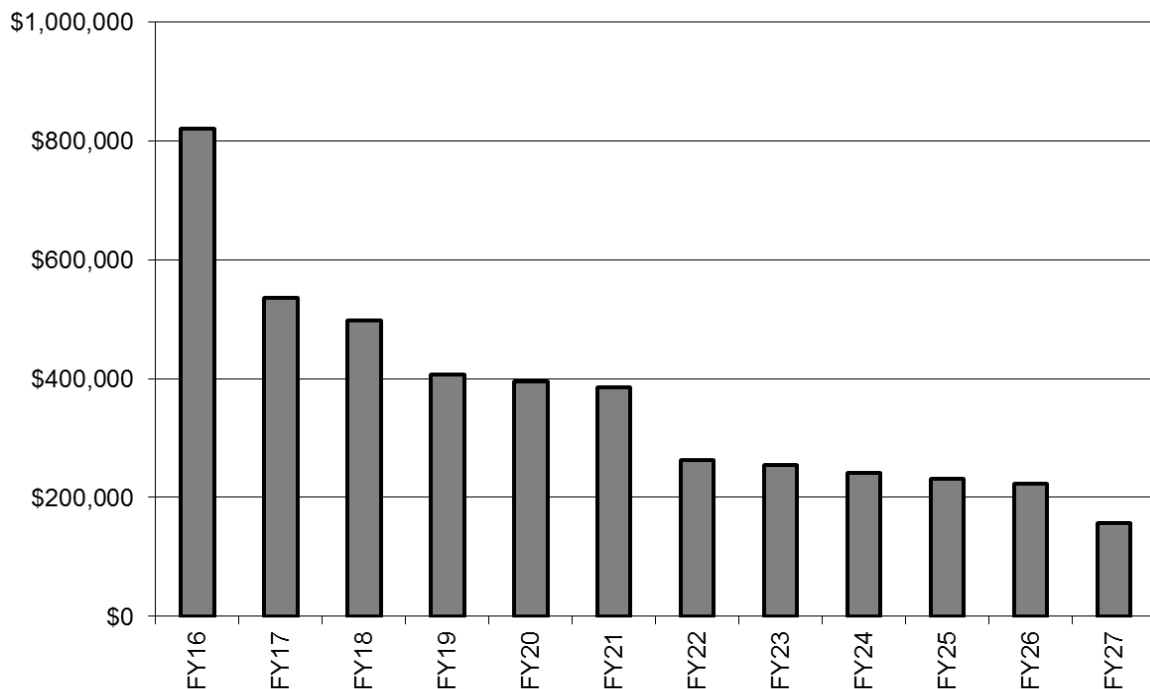
	FY15	FY16	Rev. FY17	FY18
	Actual	Actual	Budget	Budget
<b><u>Management &amp; Engineering</u></b>				
Highway Maintenance	\$ 18,507	\$ 19,110	\$ 19,618	\$ 19,618
133/135 Keyes Road	48,807	49,782	50,440	51,410
Public Works Engineering	86,086	87,820	89,128	88,800
Public Works Administration	86,808	88,002	92,930	93,118
<b>Subtotal</b>	<b>\$ 240,208</b>	<b>\$ 244,714</b>	<b>\$ 252,116</b>	<b>\$ 252,946</b>
<b><u>Finance &amp; Administrative</u></b>				
Town Manager	\$ 60,925	\$ 58,973	\$ 62,218	\$ 62,076
Human Resources	17,587	19,190	19,998	20,545
Town Accountant				
Accounting Services	49,262	50,980	53,625	54,663
Audit Services	6,000	6,000	6,000	6,000
Treasurer-Collector	51,963	53,051	54,789	55,124
Finance Administration	72,952	75,048	81,121	77,626
Town House Facility	6,734	6,759	7,016	7,055
<b>Subtotal</b>	<b>\$ 265,423</b>	<b>\$ 270,001</b>	<b>\$ 284,767</b>	<b>\$ 283,089</b>
<b><u>Natural Resources</u></b>				
Planning Administration	\$ 42,502	\$ 44,611	\$ 45,840	\$ 47,415
Natural Resource Protection	25,065	26,047	26,508	27,344
Health Department Services	27,309	28,528	29,251	29,760
<b>Subtotal</b>	<b>\$ 94,876</b>	<b>\$ 99,186</b>	<b>\$ 101,599</b>	<b>\$ 104,519</b>
Salary Reserve	-	-	-	18,298
Audit Adjustments	-	-	-	
<b>Totals</b>	<b>\$ 600,507</b>	<b>\$ 613,901</b>	<b>\$ 638,482</b>	<b>\$ 658,852</b>

**DEBT SERVICE SCHEDULE**

(Issued through 6/30/2016)

<u>Fiscal Year</u>	<u>Principal</u>	<u>Interest</u>	<u>Total</u>
FY16	631,800	188,907	820,707
FY17	441,200	94,730	535,930
FY18	410,000	87,228	497,228
FY19	335,000	72,015	407,015
FY20	335,000	60,815	395,815
FY21	335,000	49,615	384,615
FY22	225,000	38,415	263,415
FY23	225,000	30,015	255,015
FY24	220,000	21,715	241,715
FY25	217,000	14,995	231,995
FY26	215,000	8,300	223,300
<u>FY27</u>	<u>155,000</u>	<u>1,500</u>	<u>156,500</u>
<b>Totals</b>	<b>\$ 3,745,000</b>	<b>\$ 668,250</b>	<b>\$ 4,413,250</b>

**DEBT SERVICE CHART**



TREATMENT

**Nagog Treatment Plant: \$400,000** – Project to construct a facility that would comply with EPA's surface water treatment rule has been deferred to FY19 based upon permitting challenges. Outlay planned for FY18 includes a provision to replace one of two ozone generation units as well as design and permitting support for full scale surface water treatment facility.

Construction anticipated to span FY2019 and FY2020. The total cost is \$13,500,000, including \$12,400,000 for construction and \$1,100,000 for engineering and construction administration and supervision.

**Nagog Intake: \$1,850,000-** Replacement of a 16-inch diameter cast iron intake structure which extends into Nagog Pond. The existing intake dates from 1909 and is approximately 1,800 feet long.

DISTRIBUTION SYSTEM

**Mains (New/Replacement): \$1,190,000** - Annual capital outlay for improvements and extension to distribution system including water services within the right-of-way. The water distribution system consists of over 133 miles of water main ranging from 6 to 16 inches in diameter. The replacement/rehabilitation program has been developed with consideration of age, material and condition of mains. The plan of work for FY18 includes the replacement of over 5,000 feet of water main along Cambridge Turnpike and 700 feet along Whit's End Road. Both projects are being coordinated with Town roadway and drainage improvement initiatives.

**Water Meter Replacement Program: \$151,000** - Water Fund portion of costs associated with system-wide meter maintenance and replacement efforts. Efforts will include advancement of smart water-meter technology to allow for increased customer awareness of individual water consumption patterns and water-saving opportunities.

**Hydrants: \$38,000** - The Water Division conducts annual hydrant inspection and replacement activities to insure that all hydrants operate properly. Budget includes costs to replace approximately 15 of the 1,300 hydrants in the distribution system.

PUMPING STATIONS AND RESERVOIRS

**Reservoirs: \$1,144,000** – Rehabilitation of Annursnac Hill Reservoir, a 2.5 million gallon storage structure, including the installation of a concrete liner as well as minor interior patching and refurbishment of access way to Pine Hill Reservoir.

**Station Structures: \$205,000** - Annual capital outlay for improvements and replacement of station structures. Planned work includes a new chemical storage addition to the 2<sup>nd</sup> Division well site as well as the rehabilitation of one of the nine groundwater wells.

**Pumping Station Equipment: \$50,000** - Annual capital outlay for improvements and replacement of station equipment used to control, monitor, pump, store, and treat water including motors, pumps, motor control panels, and chemical feed systems. The Water Division maintains eight different water production/treatment facilities and two storage reservoirs.

GENERAL PLANT

**Keys Road Facility: \$115,000** - Capital outlay for improvements to Water/Sewer administrative office and garage facilities. Budget includes allowance for major electrical system upgrade and design of a covered storage facility for rolling stock presently exposed to the elements.

**Vehicles: \$118,400** – The Water/Sewer fleet consists of 17 service vehicles and miscellaneous equipment such as compressor, vacuum, skid steer, and forklifts which are replaced in accordance with CPW criteria based on industry-accepted useful life measures. Planned improvements include the replacement of one engineering/administration vehicle, two service vehicles, and a small skid steer/loader.

**GIS and Miscellaneous Equipment: \$10,000** - Miscellaneous equipment not included in 5-year capital plan.

SUPPLY/CAPACITY

**Source Protection: \$12,000** – Funds for ongoing implementation of groundwater and surface water resource protection programs.

CAPITAL SPENDING PLAN										
	Actual	FY16	FY17	FY18	FY19	FY20	FY21	FY22	Total	FY18-22
<b>Distribution System</b>										
Water Mains	628,634	447,000	1,190,000	1,000,000	1,030,000	1,061,000	618,000	4,899,000		
Meter Replacements	51,123	136,000	151,000	105,000	114,000	126,000	118,000	614,000		
Hydrants	19,405	37,000	38,000	39,000	40,000	41,000	42,000	200,000		
<b>Subtotal</b>	<b>699,161</b>	<b>620,000</b>	<b>1,379,000</b>	<b>1,144,000</b>	<b>1,184,000</b>	<b>1,228,000</b>	<b>778,000</b>	<b>5,713,000</b>		
<b>Pumping Stations/Treatment</b>										
Structures	31,721	50,000	205,000	54,000	56,000	58,000	60,000	433,000		
Equipment	38,363	50,000	50,000	52,000	54,000	56,000	58,000	270,000		
Reservoir Improvements	0	0	958,000	0	200,000	0	0	1,158,000		
			186,000					186,000		
Nagog Improvements	330,543	170,000	186,000							
Route 2A Station and Filtration	0	1,200,000	400,000	5,362,500	8,170,500			13,933,000		
Dam Reconstruction	6,777							0		
Nagog Intake	147,485	131,000	1,850,000					1,850,000		
<b>Subtotal</b>	<b>554,890</b>	<b>1,601,000</b>	<b>3,649,000</b>	<b>5,468,500</b>	<b>8,480,500</b>	<b>114,000</b>	<b>118,000</b>	<b>17,830,000</b>		
<b>General Plant</b>										
Keyes Road CPW Facility	0	26,000	115,000	27,583	500,000	29,000	30,000	701,583		
GIS	0	0	0	0	0	0	0	0		
Vehicles	149,974	98,000	118,400	60,000	44,000	83,200	69,600	375,200		
Utility Software Upgrade										
Miscellaneous Equipment	3,207	10,000	10,000	10,300	10,600	10,900	11,200	53,000		
Depreciable Personnel Services	17,284	19,935	20,530	21,150	21,780	22,430	23,100	108,990		
<b>Subtotal</b>	<b>170,465</b>	<b>153,935</b>	<b>263,930</b>	<b>119,033</b>	<b>576,380</b>	<b>145,530</b>	<b>133,900</b>	<b>1,238,773</b>		
<b>Supply and Capacity</b>										
Source Protection	0	29,000	12,000	12,400	12,800	13,200	13,600	64,000		
Land Acquisition		800,000								
New Source Permitting, Design	0	0						0		
<b>Subtotal</b>	<b>0</b>	<b>829,000</b>	<b>12,000</b>	<b>12,400</b>	<b>12,800</b>	<b>13,200</b>	<b>13,600</b>	<b>64,000</b>		
<b>Total Capital Uses</b>										
<b>1,424,516</b>	<b>3,203,935</b>	<b>5,303,930</b>	<b>6,743,933</b>	<b>10,253,680</b>	<b>1,500,730</b>	<b>1,043,500</b>	<b>24,845,773</b>			
<b>Funding the Capital Plan</b>										
From Debt	147,485	931,000	2,808,000	5,362,500	8,670,500	-	-	16,841,000		
From Water Fund Resources	1,277,031	2,272,935	2,495,930	1,381,433	1,583,180	1,500,730	1,043,500	8,004,773		
<b>1,424,516</b>	<b>3,203,935</b>	<b>5,303,930</b>	<b>6,743,933</b>	<b>10,253,680</b>	<b>1,500,730</b>	<b>1,043,500</b>	<b>24,845,773</b>			

Water Fund: Plan and Projection	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	10 years FY 18-27
<b>Operating Revenue</b>													
User Fees	5,541,961	5,335,000	5,305,000	5,495,000	5,685,000	5,884,000	6,091,000	6,308,000	6,532,000	6,764,000	7,004,000	7,253,000	62,321,000
Other	444,729	330,000	189,000	190,000	191,000	192,000	193,000	194,000	195,000	196,000	197,000	198,000	1,935,000
Subtotal	5,986,690	5,665,000	5,494,000	5,685,000	5,876,000	6,076,000	6,284,000	6,502,000	6,727,000	6,960,000	7,201,000	7,451,000	64,256,000
<b>Operating Expense</b>													
O & M	2,616,153	3,061,627	3,136,765	3,356,868	3,579,894	3,688,436	3,800,314	3,915,634	4,034,506	4,157,042	4,283,359	4,413,577	38,366,394
Depreciation	884,146	988,418	1,122,756	1,321,922	1,567,502	1,726,948	1,738,972	1,750,839	1,794,205	1,802,389	1,837,222	1,862,908	16,525,663
Subtotal	3,500,299	4,050,045	4,259,521	4,678,790	5,147,396	5,415,383	5,539,286	5,666,473	5,828,710	5,959,431	6,120,580	6,276,486	54,892,057
<b>Operating Income</b>	2,486,391	1,614,955	1,234,479	1,006,210	728,604	660,617	744,714	835,527	898,290	1,000,569	1,080,420	1,174,514	9,363,943
ADD: Interest Income	31,175	56,344	70,411	87,142	109,289	102,220	91,767	87,082	82,707	79,953	81,038	85,405	877,012
Miscellaneous Non-Operating Income	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Net Income</b>	2,328,659	1,568,570	1,182,854	965,047	522,049	-64,084	127,599	259,260	363,081	506,460	631,224	773,569	5,267,060
<b>Available Resources from:</b>													
Net income	2,328,659	1,568,570	1,182,854	965,047	522,049	-64,084	127,599	259,260	363,081	506,460	631,224	773,569	5,267,060
Depreciation expense	884,146	988,418	1,122,756	1,321,922	1,567,502	1,726,948	1,738,972	1,750,839	1,794,205	1,802,389	1,837,222	1,862,908	16,525,664
subtotal	3,212,805	2,556,988	2,305,610	2,286,970	2,089,551	1,662,864	1,866,571	2,010,099	2,157,286	2,308,850	2,468,446	2,636,477	21,792,724
Bond proceeds	0	800,000	0	16,500,000	16,500,000	500,000	500,000	0	0	0	0	0	17,000,000
Loan proceeds	0	0	2,808,000	5,362,500	8,670,500	0	0	0	0	0	0	0	16,841,000
LESS: Principal repayments													
Existing Debt	631,800	441,200	410,000	335,000	335,000	335,000	225,000	225,000	220,000	217,000	215,000	155,000	2,672,000
New Debt	0	0	53,333	53,333	53,333	878,333	928,333	928,333	928,333	928,333	928,333	928,333	6,608,330
BAN Repayment	0	0	0	16,500,000	16,500,000	500,000	0	0	0	0	0	0	17,000,000
<b>Net Available for Capital Purposes</b>	2,581,005	2,915,788	4,650,277	7,261,137	10,371,718	449,531	713,238	856,766	1,008,953	1,163,517	1,325,113	1,553,144	29,353,395
<b>Capital Plan</b>	1,424,516	3,203,935	5,303,930	6,743,933	10,253,680	1,500,730	1,043,500	1,136,290	1,295,500	1,224,640	1,097,800	1,174,480	30,774,483
<b>Cash Position</b>													
Beginning balance	6,919,413	7,656,721	7,368,574	6,714,921	7,232,125	7,350,163	6,298,964	5,968,703	5,689,179	5,402,632	5,341,509	5,568,821	
ADD: Net available	2,581,005	2,915,788	4,650,277	7,261,137	10,371,718	449,531	713,238	856,766	1,008,953	1,163,517	1,325,113	1,553,144	
LESS: Planned Capital	1,424,516	3,203,935	5,303,930	6,743,933	10,253,680	1,500,730	1,043,500	1,136,290	1,295,500	1,224,640	1,097,800	1,174,480	
Changes in assets & liabilities	-419,181												
Ending balance	7,656,721	7,368,574	6,714,921	7,232,125	7,350,163	6,298,964	5,968,703	5,689,179	5,402,632	5,341,509	5,568,821	5,947,485	



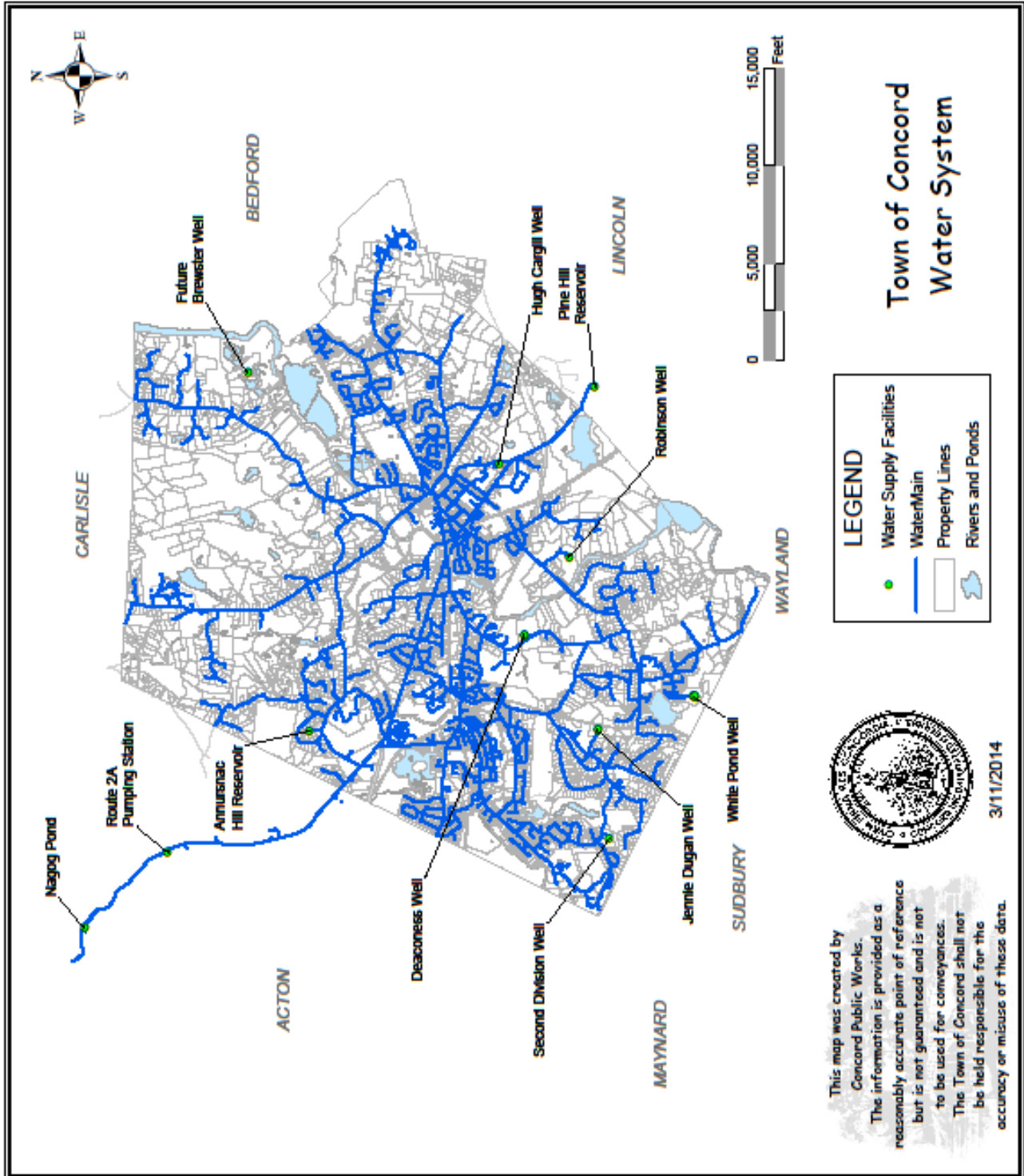
**WATER RATES**

(Per Cubic Foot)

<b>W-17 Class of Customer</b>	<b>Current FY17</b>	<b>Effective 6/1/17</b>		<b>%Chg.</b>
<b>1 &amp; 2 Residential Service</b>	(1 cubic foot = 7.48 gallons)			
1st Step: (all year)	\$ 0.0496	\$ 0.0516	**	4.0%
Conservation Step*: (2400-4800 cu ft)	\$ 0.0992	\$ 0.1084		9.3%
Conservation Step*: (over 4800 cu ft)	\$ 0.1240	\$ 0.1367		10.2%
*May 1st through October 31st				
<b>3 General Service</b>				
1st Step: (all year)	\$ 0.0496	\$ 0.0516		4.0%
2nd Step: (all year) (over 5000 cu ft bimonthly)	\$ 0.0630	\$ 0.0655		4.0%
<b>4 Municipal Service</b>				
1st Step: (all year)	\$ 0.0489	\$ 0.0509		4.1%
Interruptible Outdoor Irrigation use				
<b>5 Second Meter Service</b>				
A. Irrigation/Pool or Accessory use:				
1st Step: (all year)	\$ 0.0992	\$ 0.1084		9.3%
Conservation Step: (over 4800 cu ft bimonthly, May 1st through October 31st)	\$ 0.1240	\$ 0.1367		10.2%
B. Non-Irrigation Commercial/Industrial	\$ 0.0630	\$ 0.0655		4.0%

\*\*A 50% discount on Step 1 water consumption, up to a maximum of 2,400 cubic feet in a bimonthly billing period, is provided for customers of record who meet certain age and income eligibility criteria.

<b>Sample Impacts</b>	<b>Current Annual</b>	<b>New Annual</b>	<b>Annual Change</b>	<b>Monthly Change</b>	<b>% Chg.</b>
<b>1a Average Residential Customer</b> (1,500 cu ft bimonthly) <i>Approximately two-thirds of residential customers normally use less than the Conservation step threshold.</i>	\$ 446	\$ 464	\$ 18.00	\$ 1.50	4.0%
<b>1b Large Summertime Residential Customer</b> (4,000 cu ft bimonthly during summer; 2,500 cu ft bimonthly rest of year)	\$ 1,205	\$ 1,279	\$ 73.56	\$ 6.13	6.1%
<b>3a Small Commercial Customer</b> (2,500 cu ft bimonthly) <i>Approximately two-thirds of commercial/institutional/Gov't customers normally use less than than the 2nd step threshold.</i>	\$ 744	\$ 774	\$ 30.00	\$ 2.50	4.0%
<b>3b Large Commercial Customer</b> (30,000 cu ft bimonthly)	\$ 10,938	\$ 11,373	\$ 435	\$ 36.25	4.0%
<b>5a Small Municipal Customer</b> (4,500 cu ft bimonthly)	\$ 1,320	\$ 1,374	\$ 54	\$ 4.50	4.1%
<b>5b Large Municipal Customer</b> (60,000 cu ft bimonthly)	\$ 17,604	\$ 18,324	\$ 720	\$ 60.00	4.1%



---

**THIS PAGE INTENTIONALLY LEFT BLANK**