

Section IV

Water Fund

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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.

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Water Fund Highlights

- The proposed FY19 base level (Step 1) water rate of \$0.0537 per cubic foot is a 4% increase over the FY18 rate of \$0.0516 per cubic foot. For the average residential customer, the annual increase in the water bill will be \$18.90.
- For FY19, \$1,760,000 is proposed to perform water main replacement along the Cambridge Turnpike, Sandy Pond Road and Independence/Alcott Road.
- A Lead Service Line Awareness and Replacement program has been established to provide impacted residents with a timely and cost effective mitigation plan.
- At the 2016 Town Meeting (Article 28), the Town authorized \$15.4 M for construction and construction services for the Nagog Treatment Plant and Intake. Construction has been delayed until FY20 due to ongoing permitting challenges.

Expenditure Summary

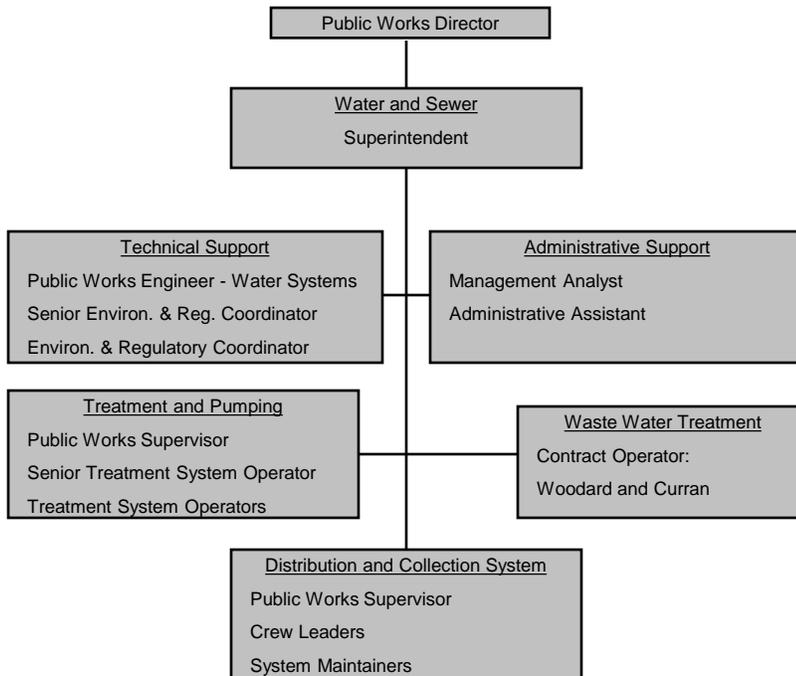
	FY16 Actual	FY17 Actual	FY18 Rev. Budget	FY19 Budget
Operating Income	\$ 2,486,391	\$ 1,442,137	\$ 1,136,263	\$ 946,778
Net Income	\$ 2,328,659	\$ 1,419,212	\$ 1,112,088	\$ 933,748
Fund Balance	\$ 8,399,192	\$ 8,798,161	\$ 8,384,070	\$ 6,152,257

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 134 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 FY17, the total value of infrastructure assets was approximately \$21.9 million.

There are presently 5,605 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).



Alcott School Water Fountain Installation

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.

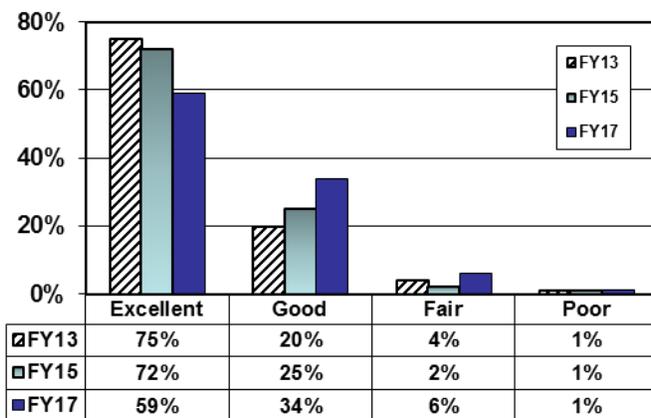
Since the Water Enterprise fund was formally established in 1974, there have been no property tax contributions requested to subsidize annual operations or maintenance of pre-existing infrastructure. Taxpayer contributions would only be sought for major system expansion projects or facility upgrades 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 Rate Highlights

Water Rates

The total revenue projected to be raised through water user fees in FY19 is \$5,157,949, which represents 96% 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.

The FY19 proposed Residential Service (step 1) water rate is \$0.0537 per cubic foot (1 cubic foot = 7.48 gallons)

- The FY19 rate of \$0.0537 represents a 4% increase over the FY18 rate of \$0.0516. Since FY 2008, water rates have increased at an average annual rate of 3.4% per year.
- In FY19, the average residential customer is expected to pay a total of \$483 in water use over the course of the year. The average residential customer is assumed to use 750 cubic feet per month. Customers who consume more than 1,200 cubic feet of water per month 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 operations and maintenance (O & M), depreciation and long-term investment needs. Concord is one of only 7% of systems within Massachusetts which have adopted a seasonal ascending-block conservation rate structure. (From Tighe and Bond Survey, 2012).

Program Highlights

Concord Water functions in an increasingly complex and highly regulated environment. Its operations are regulated by federal, state and local government agencies. These laws and regulations directly inform daily operations, capital investments and budget plans required to maintain compliance with related 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 the 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

Water Management Act (WMA) Permit Renewal Update: The Massachusetts Department of Environmental Protection (MassDEP) affirmed that Concord's 20 year WMA permit and registration rights, originally scheduled to be renewed prior to June 30, 2017, have been administratively deferred until December 31, 2021, in accordance with that State imposed Permit Extension Act. In a related matter, MassDEP recently re-affirmed their position that they are not prepared to impose water conservation and use restriction "conditions" on registered systems in response to a petition to do so received from the Massachusetts Rivers Alliance.

Water Testing: All routine and non-routine water quality testing activities are performed in accordance with MassDEP 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.

Lead and Copper Testing: In accordance with the federal Lead and Copper Rule (commonly referred to as the LCR), Concord performed lead and copper testing at 30 designated sample sites located throughout the water distribution system. Two (2) schools were also included in this sampling effort. Findings confirmed that source water quality treatment efforts continue to reduce risks of lead and copper leaching from private service lines and plumbing fixtures. The actual compliance limit based upon the 90th percentile value (concentration) for lead and copper were calculated as 0.0033 ppm and 0.278 ppm – well below the action levels of 0.015 ppm and 1.3 ppm, respectively, established by EPA.

2016 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 backflow of water that has been tainted by industrial/commercial processes, rendering the water undrinkable.

Program Highlights (continued)**Nagog Pond: Filtration Plant Update**

In early 2017, the Acton Board of Selectmen issued Concord a Use Special Permit and Site Plan Special Permit for a proposed drinking water filtration facility to be constructed at Nagog Pond. The final permit included conditions that were determined to be detrimental to Concord's short and long-term interests. Concord appealed this decision to the Commonwealth of Massachusetts Land Court. Despite having been placed on a "fast" track review schedule and despite engaging in exhaustive negotiations and settlements with Acton, Concord's concerns and interests remain unresolved. This unanticipated and complex permitting process has significantly and adversely impacted Concord's design and construction schedule.

Watershed Protection Plan Update:

In 1991, a Nagog Pond Watershed Resource Protection Plan (WRPP) was developed as a companion document to a drinking water filtration waiver issued by the EPA. The plan identified all existing land uses within the watershed with associated contamination threats that could impact the quality of this unfiltered water supply. As a condition of this long-standing waiver, and to ensure land-use changes within the watershed are both characterized and mitigated effectively, the plan is required to be updated every three years. In accordance with this obligation, the Division submitted an update to this plan that was developed in accordance with MassDEP's guidance.

Demand Management

Concord's Water Management Act registration and permit provides a cap on "authorized" water withdrawals from all supplies of up to 2.51 million gallons per day (MGD) on average or 916 million gallons per year. This allowance must meet all residential, commercial, institutional and municipal needs. Conservation limits are also called out in this permit and include 65 gallons per day per capita (RGPDC) for residences and a 10% allowance for system losses (primarily attributed to leaks). In 2017, the total water production required to meet our system demands was 1.80 million gallons per day or 673 million gallons per year. A peak day demand of 3.04 million gallons was recorded on July 21, 2017. The RGPDC and total system losses (or "unaccounted" for water use) was calculated to be 65 gal/day and 9%, respectively.

Water Station Improvements

Division crews continued to perform routine operation and maintenance of the seven water production facilities and related treatment systems which make up our total water supply. In addition to these routine inspection and service activities, capital upgrades are also planned and performed on the millions of dollars of assets including associated mechanical, electrical, plumbing and instrumentation and control systems housed within these facilities. Notable improvements performed within the past year include: the rehabilitation of a groundwater well located at the Deaconess well site (performed by Denis L. Maher Company of Ayer, MA), the installation of a modified "temporary" ozone generation system at the existing ozone facility at Nagog Pond (furnished by Pinnacle Ozone Solutions of Cocoa, FL), the re-alignment of the high lift booster pump located inside the Route 2A pump station (Hayes Pump of Concord, MA), and external building improvements performed at the Hugh Cargill pumping station including painting/replacement of deteriorating trim, cupola and doors.

Public Water Fountains:

Division staff collaborated with Concord on Tap to increase the availability of public drinking water fountains throughout Town. Concord on Tap obtained funding for these new fountains via the Town's Community Preservation Act program and Division personnel procured and installed these units at the following sites: the Ripley School, Thoreau School, Sanborn School, Alcott School, Peabody School, and South Meadow Field.

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. One of the most meaningful measures 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) reports 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, 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 134 miles of water main. Over the past decade, the Water Division typically responds to approximately 5-10 breaks per year. In 2017, crews responded to only two breaks, one occurred on Bedford Street and the other on Arrow Head Road. This past year, notable work included:



Lead Service Line Replacement

- **Whit's End Road** - Fenton and Son (Acton, MA), sub-contractor to Lazaro Paving Corp (responsible for 2018 Roads Program), performed water main replacement activities along Whit's End. Their scope of work included the replacement of approximately 800 LF of 8-inch transite main with new 8-inch cement-lined ductile iron (CLDI) water main, the replacement of 7 active service connections (within the right-of-way up to the private property line) and the replacement of 2 hydrants.
- **Sweet Birch (PRD) – Water Main Extension:** Patriot Excavating (Acton, MA) installed a new 8-inch CLDI water main approximately 1,073 feet into a new 12-lot residential development. Their plan of work involved the installation of new water service laterals, one new hydrant, and two in-line gate valves to connect to an existing 12-inch water main located in Forest Ridge Road.
- **Bruce Freeman Rail Trail** - D.W. White (Acushnet, MA), serving as a subcontractor to the Massachusetts Department of Transportation performed the relay of approximately 180 LF of 12-inch CLDI main along Powder Mill Road in conjunction with overpass/tunnel work associated with the new Bruce Freeman Rail Trail project.

Lead Service Line Awareness and Replacement Program:

As the challenge of lead service line identification and replacement issues continue to be debated across the country, Concord has moved forward on an innovative and customer-friendly lead service line notification and pilot replacement program. This program not only informs but provides targeted support services to customers with known or suspected lead water service lines. While less than 5% of all private water service lines within Concord's system are suspected of being made of lead, the Division is reviewing all records to confirm this. Based on the number of services involved, it is expected that the outreach and replacement program may take several years to complete, depending on receptiveness of our customers. In addition to targeted notification, customers with known or suspected lead service lines are eligible to receive water quality confirmation testing, guidance materials detailing potential health risks and service management recommendations, and a special lead service line replacement assistance program. The replacement program has been tailored to allow for replacement of these private service lines at a very competitive rate (well below market rate).

Program Implementation

The proposed FY19 budget projects operating income of \$946,778 and a net income of \$933,748.

Depreciation expense reflects the cost imposed by the annual use, or wear-and-tear, of the Water Division’s approximately \$18 million worth of depreciable infrastructure (net value as of the end of FY17). The budgeted FY19 depreciation expense, totaling \$1,166,699, represents a depreciation of roughly 7% of these capital assets.

Personnel Services are budgeted to total \$1,357,711 in FY19, a 1.6% increase from the revised FY18 total of \$1,336,322. There is no change in staffing or overtime hours.

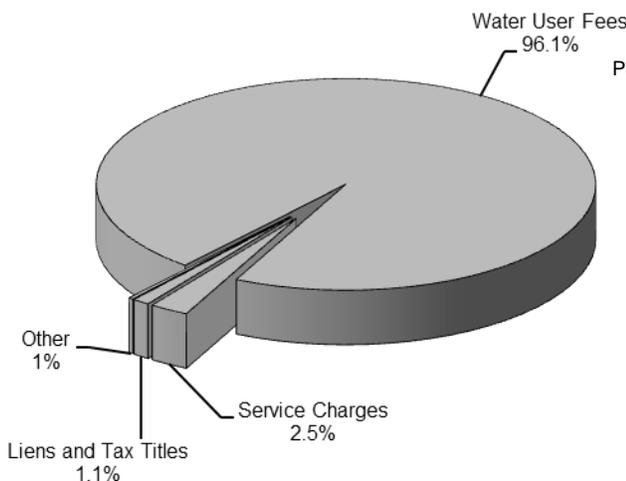
The next largest expense categories are for electricity (\$302,940) and chemicals (\$164,186); these consumables vary widely from year-to-year based on the demand for water. Budgets for these accounts are based on anticipating a relatively strong demand for water. This demand is directly affected by weather trends as well as the water conservation behavior of customers.

The FY19 Budget also includes \$62,181 for water quality testing at 7 pumping stations, 2 reservoirs and throughout the distribution system.

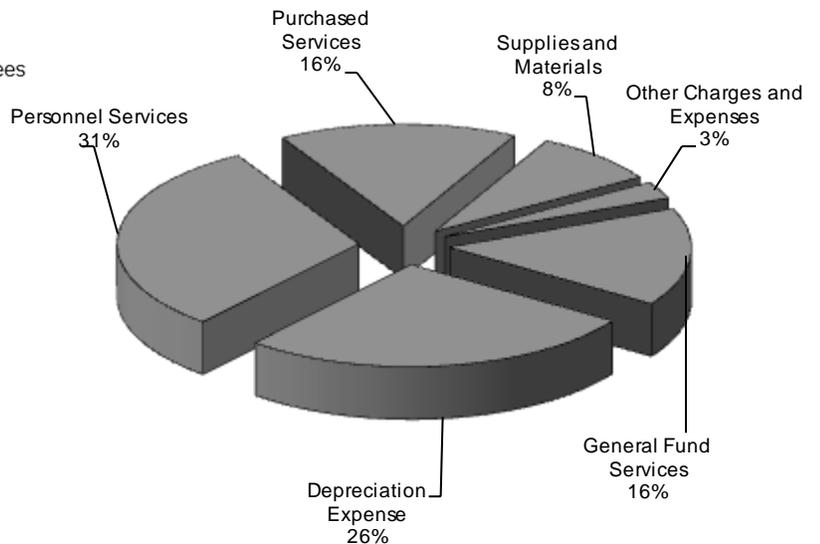
In addition, the FY19 budget includes \$56,200 for inspection services, including leak detection covering half of the entire system (the entire system is checked every two years) and testing of backflow prevention devices at commercial facilities. The budget also includes \$40,111 for electrical, instrumentation and other maintenance and support services at the pumping stations and reservoirs.

During the development of the FY19 budget, the Division reviewed long-standing cost sharing allocation assumptions between water and sewer operating expenses assigned to each enterprise. The results indicate the historical split of 80% water and 20% sewer no longer accurately reflected where resources were spent. Following this review, the split of labor, and shared goods and services has been adjusted from 80% water and 20% sewer to 75% and 25%, respectively. The sewer budget is readily able to absorb this cost shift. The additional time spent on the sewer system reflects expanded preventative maintenance, and the upkeep of pumping stations added since the last cost allocation review. The shift makes cost increases in the operations and maintenance portions of the sewer budget a little larger than usual with a corresponding lowering of the usual cost increases anticipated within the water portion of the budget.

FY19 Operating Revenues
 Totaling \$5,366,785



FY19 Operating Expenditures
 Totaling \$4,420,007



OPERATING REVENUES

	FY16 Actual	FY17 Actual	Rev. FY18 Budget	FY19 Budget
Water User Fees	\$ 5,541,962	\$ 4,848,197	\$ 4,977,949	\$ 5,157,949
Service Charges	380,585	261,759	225,000	135,000
Liens and Tax Titles	44,716	58,051	58,051	58,051
Other	19,428	15,785	15,785	15,785
Operating Revenues Total	\$ 5,986,690	\$ 5,183,792	\$ 5,276,785	\$ 5,366,785

OPERATING EXPENSES

	FY16 Actual	FY17 Actual	Rev. FY18 Budget	FY19 Budget
<u>Personnel Services</u>				
Personnel Expenses	\$ 1,056,618	\$ 1,220,377	\$ 1,336,322	\$ 1,357,711
Audit Adjustment	-	23,496	-	-
Subtotal	\$ 1,056,618	\$ 1,243,873	\$ 1,336,322	\$ 1,357,711
<u>Non-Personnel Services</u>				
Purchased Services	521,301	554,475	649,134	709,056
Supplies & Materials	361,513	330,059	385,561	375,995
Other Charges & Expenses	62,819	69,311	115,785	121,103
Audit Adjustment		(24,355)	-	-
Subtotal	\$ 945,634	\$ 929,491	\$ 1,150,480	\$ 1,206,154
<u>Other</u>				
General Fund Services	613,901	638,482	654,229	689,443
Depreciation Expense	884,146	929,809	999,491	1,166,699
Subtotal	\$ 1,498,047	\$ 1,568,291	\$ 1,653,720	\$ 1,856,142
Total Operating Expense	\$ 3,500,299	\$ 3,741,655	\$ 4,140,522	\$ 4,420,007

RETIREMENT AND OPEB ASSESSMENT

For Informational Purposes Only

	FY16 Actual	FY17 Actual	Rev. FY18 Budget	FY19 Budget
<u>Personnel Services</u>				
Retirement Assessment	\$ 72,280	\$ 86,179	\$ 82,117	\$ 98,164
OPEB Assessment	19,981	21,264	25,000	25,000
Total Assessment	\$ 92,261	\$ 107,443	\$ 107,117	\$ 123,164

AUTHORIZED POSITIONS

Regular Staff	FY18 Revised Budget		FY19 Initial Budget	
	\$ Amount	Position/Hours	\$ Amount	Position/Hours
Water and Sewer Superintendent	\$ 95,038	0.80 FTEs	\$ 86,286	0.75 FTEs
Public Works Engineer	16,730	0.20	20,912	0.25
Assistant to Superintendent	48,902	0.80	-	0.00
Management Analyst	34,990	0.80	59,156	8.00
Sr. Environ. & Regulatory. Coord.	71,300	0.80	66,844	0.75
Environ. & Regulatory. Coord.	47,124	0.80	44,179	0.75
Administrative Assistant	53,914	0.80	51,781	0.75
Public Works Supervisor	145,824	1.60	138,341	1.50
Crew Leader	119,814	1.60	112,626	1.50
Senior Treatment Systems Operator	61,632	0.80	58,983	0.75
Treatment System Operator	105,915	1.60	101,360	1.50
System Maintainer	210,804	4.00	202,279	3.75
Standby Pay (5111)	15,546	N/A	16,122	N/A
Charges to Snow Account	(4,328)	N/A	(4,328)	N/A
Charges to Capital Projects	(20,937)	N/A	(20,937)	N/A
Merit Increase	N/A	N/A	12,346	N/A
Structure Increase	N/A	N/A	13,543	N/A
Subtotal	\$ 1,002,268	14.60 FTEs	\$ 959,493	20.25 FTEs
Part-Time Staff				
Watershed Patrol	\$ 5,060	460 hrs.	\$ 5,060	460 hrs.
Environmental Technology Intern	7,700	700 hrs.	7,700	700 hrs.
GIS Project Specialist	-	0 hrs.	-	0 hrs.
Subtotal	\$ 12,760	0.56 FTEs	\$ 12,760	0.56 FTEs
Employee Benefits				
Health Insurance	\$ 70,000	N/A	\$ 107,553	N/A
Life Insurance	-	N/A	-	N/A
Dental Insurance	-	N/A	-	N/A
Retirement Contribution	82,117	N/A	98,164	N/A
OPEB Contribution	25,000	N/A	25,000	N/A
Subtotal	\$ 177,117	N/A	\$ 230,717	N/A
Payroll Taxes				
Medicare Tax	\$ 12,000	N/A	\$ 12,625	N/A
Social Security Contribution	1,250	N/A	1,300	N/A
Subtotal	\$ 13,250	N/A	\$ 13,925	N/A
Other Personnel Costs				
Overtime (5130)	\$ 102,398	1900 hrs.	\$ 109,471	1900 hrs.
Overtime Adjustments (5130)	2,048	N/A	2,189	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)	15,242	N/A	17,915	N/A
Subtotal	\$ 130,928	N/A	\$ 140,815	N/A
Total Personnel Costs	\$ 1,336,323	15.16 FTEs	\$ 1,357,710	20.81 FTEs

NET INCOME

	FY16 Actual	FY17 Actual	Rev. FY18 Budget	FY19 Budget
Statement of Net Income:				
Operating Revenues	\$ 5,986,690	\$ 5,183,792	\$ 5,276,785	\$ 5,366,785
Less Operating Expenses	(3,500,299)	(3,741,655)	(4,140,522)	(4,420,007)
Operating Income	\$ 2,486,391	\$ 1,442,137	\$ 1,136,263	\$ 946,778
Nonoperating Revenues (Expenses)				
Add Investment Income	\$ 31,175	\$ 64,309	\$ 81,721	\$ 84,401
Add Other Revenue/Expense				
Less Interest Expense	(188,907)	(87,234)	(105,871)	(94,623)
Less Issuance Expense	-	-	(25)	(2,808)
Nonoperating Income	\$ (157,732)	\$ (22,925)	\$ (24,175)	\$ (13,030)
Net Income	\$ 2,328,659	\$ 1,419,212	\$ 1,112,088	\$ 933,748

AVAILABLE RESOURCES

Resources Available from Current Operations for Replacement & Renewal of Facility:				
	FY16 Actual	FY17 Actual	Rev. FY18 Budget	FY19 Budget
Capital Purposes				
Add Depreciation Expense	\$ 884,146	\$ 929,809	\$ 999,491	\$ 1,166,699
Add Net Income	2,328,659	1,419,212	1,112,088	933,748
Add Debt Financing	-	753,000	25,000	2,808,000
Less Bonds Payable	(631,800)	(456,442)	(565,000)	(485,000)
Net Available for Capital	\$ 2,581,005	\$ 2,645,579	\$ 1,571,579	\$ 4,423,447

CASH POSITION AND FUND BALANCE FORECAST

Cash at Year Opening	FY18		FY19	
Cash on July 1st	\$ 8,405,994		\$ 7,991,903	
Add Receivables	1,028,545		1,028,545	
Add Inventory & Other Assets	157,800		157,800	
Less Cash held for Liabilities	(962,879)		(962,879)	
Deferred Outflows (Inflows)	168,701		168,701	
Fund Balance on July 1st	\$ 8,798,161		\$ 8,384,070	
Fund Balance Details (projected)	Operating Fund	Depreciation Fund	Operating Fund	Depreciation Fund
Fund Balance on July 1st	\$ 7,124,926	\$ 1,673,235	\$ 7,672,014	\$ 712,056
Net Income	1,112,088		933,748	
Bond Principal Repayment	(565,000)		(485,000)	
BAN and Bond Proceeds	25,000		2,808,000	
Capital Borrowing	(25,000)		(2,808,000)	
Capital Outlay (non-borrowing)		(1,960,670)		(3,847,260)
Add Depreciation Expense		999,491		1,166,699
Balance Projected at June 30th	7,672,014	712,056	8,120,762	(1,968,505)
Fund Balance on June 30th	\$ 8,384,070		\$ 6,152,257	
Cash at Year End (projected)				
Fund Balance on June 30th	\$ 8,384,070		\$ 6,152,257	
Less Receivables	(1,028,545)		(1,028,545)	
Less Inventory & Other Assets	(157,800)		(157,800)	
Add Cash Held for Liabilities	962,879		962,879	
Add Cash Held for Deferred Inflows	(168,701)		(168,701)	
Projected Cash at June 30th	\$ 7,991,903		\$ 5,760,091	

DEBT SERVICE

	FY16	FY17	Rev. FY18	FY19
	Actual	Actual	Budget	Budget
Long-Term Debt Repayment				
Principal	\$ 631,800	\$ 441,200	\$ 565,000	\$ 485,000
Interest	188,907	94,730	105,871	94,435
Debt Issuance Expense	-	-	-	25
Total	\$ 820,707	\$ 535,930	\$ 670,871	\$ 579,460

PAYMENTS TO THE GENERAL FUND

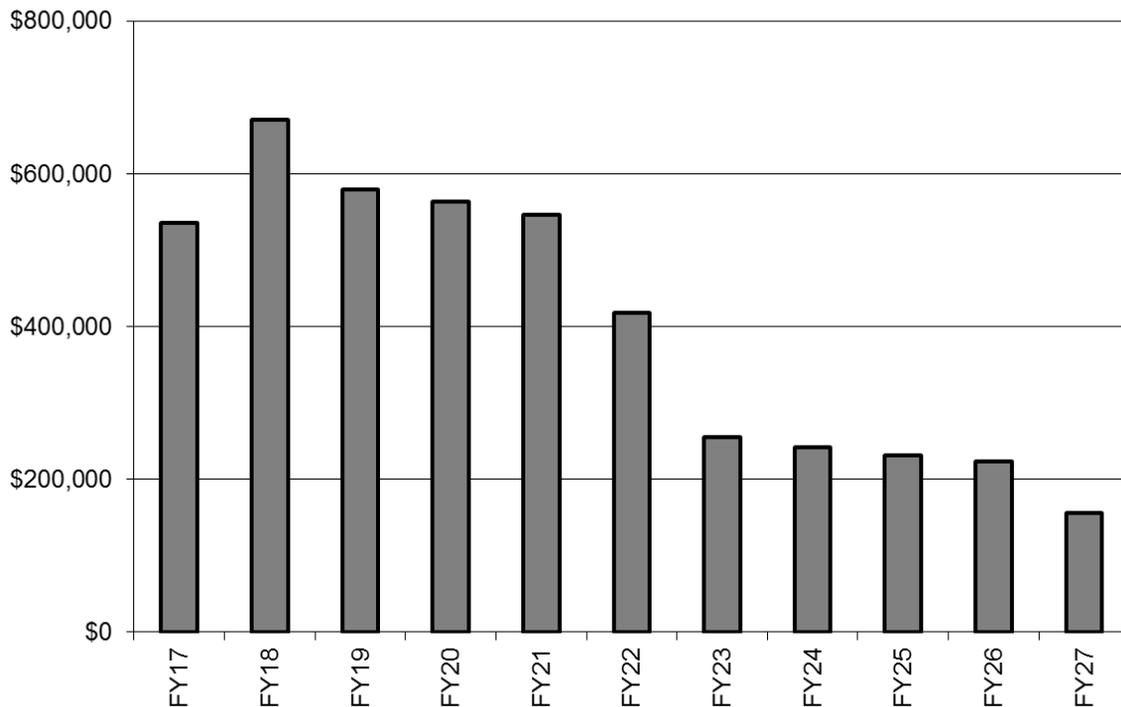
	FY16	FY17	Rev. FY18	FY19
	Actual	Actual	Budget	Budget
<u>Management & Engineering</u>				
Highway Maintenance	\$ 19,110	\$ 19,618	\$ 19,634	\$ 19,634
133/135 Keyes Road	49,782	50,440	51,410	52,601
Public Works Engineering	87,820	89,128	90,796	89,493
Public Works Administration	88,002	92,930	95,427	95,737
Subtotal	\$ 244,714	\$ 252,116	\$ 257,267	\$ 257,465
<u>Finance & Administrative</u>				
Town Manager	\$ 58,973	\$ 62,218	\$ 63,591	\$ 63,957
Human Resources	19,190	19,998	21,847	22,561
Town Accountant				
Accounting Services	50,980	53,625	56,711	60,105
Audit Services	6,000	6,000	6,000	6,000
Treasurer-Collector	53,051	54,789	55,915	53,887
Finance Administration	75,048	81,121	78,154	89,943
Town House Facility	6,759	7,016	7,514	7,506
Subtotal	\$ 270,001	\$ 284,767	\$ 289,732	\$ 303,959
<u>Natural Resources</u>				
Planning Administration	\$ 44,611	\$ 45,840	\$ 48,088	\$ 47,658
Natural Resource Protection	26,047	26,508	28,365	27,070
Health Department Services	28,528	29,251	30,777	31,299
Subtotal	\$ 99,186	\$ 101,599	\$ 107,230	\$ 106,027
Salary Reserve	-	-	-	21,992
Audit Adjustments	-	-	-	-
Totals	\$ 613,901	\$ 638,482	\$ 654,229	\$ 689,443

DEBT SERVICE SCHEDULE

(Issued through June 30, 2017)

<u>Fiscal Year</u>	<u>Principal</u>	<u>Interest</u>	<u>Total</u>
FY17	441,200	94,730	535,930
FY18	565,000	105,871	670,871
FY19	485,000	94,435	579,435
FY20	485,000	78,735	563,735
FY21	485,000	61,535	546,535
FY22	373,000	44,335	417,335
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>1,550</u>	<u>156,550</u>
Totals	\$ 4,498,000	\$ 745,123	\$ 5,243,123

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 FY19 includes a rental of a temporary ozone generation units as well as completion of design and permitting of full-scale surface water treatment facility. Construction presently planned to span FY2020 and FY2021 at an estimated cost of \$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): \$1,760,000 - 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 134 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 FY19 includes the replacement of over 5,000 feet of water main along Cambridge Turnpike, 1,000 feet along Sandy Pond Road, and 5,000 feet within the Independence and Alcott Road neighborhood. These 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: \$39,000 - 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: \$1,315,000 – 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: \$210,000 - Annual capital outlay for improvements and replacement of station structures. Planned work includes chemical storage improvements at the 2nd Division well site and the rehabilitation of two of the nine groundwater wells.

Pumping Station Equipment: \$253,000 - 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. Planned work includes installation of enhanced security systems, and major upgrade of Supervisory Control and Data Acquisition (SCADA) system.

GENERAL PLANT

Keyes Road Facility: \$615,000 - Capital outlay for improvements to Water/Sewer administrative office and garage facilities. Budget includes allowance for new emergency generator, electrical system upgrade and design of a covered storage facility for rolling stock presently exposed to the elements.

Vehicles/Construction Equipment: \$20,000 – 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	FY17	FY18	FY19	FY20	FY21	FY22	FY23	Total	FY19-23
Distribution System										
Water Mains	433,702	740,000	1,760,000	1,000,000	1,030,000	618,000	637,000	5,045,000		
Meter Replacements	44,442	100,000	151,000	105,000	114,000	126,000	118,000	614,000		
Hydrants	31,540	38,000	39,000	40,000	41,000	42,000	43,000	205,000		
Subtotal	509,684	878,000	1,950,000	1,145,000	1,185,000	786,000	798,000	5,864,000		
Pumping Stations/Treatment										
Structures	40,989	177,000	210,000	50,000	52,000	56,000	56,000	422,000		
Equipment	36,329	206,000	253,000	50,000	52,000	56,000	56,000	465,000		
Reservoir Improvements (debt)			958,000					958,000		
Reservoir Improvements	53,476	130,000	357,000	200,000	200,000					
Nagog Improvements	725,203	320,000	400,000	0	0	0				
Route 2A Station and Filtration				5,362,500	8,170,500					13,533,000
Dam Reconstruction										
Nagog Intake	16,338	25,000	1,850,000							
Subtotal	872,335	858,000	4,028,000	5,662,500	8,274,500	108,000	112,000	15,378,000		
General Plant										
Keyes Road CPW Facility	0	25,000	615,000	27,000	500,000	29,000	30,000	1,201,000		
Vehicles	40,539	120,000	20,000	44,000	83,200	69,600	132,000	348,800		
Utility Software Upgrade	4,959	10,000	10,000	10,300	10,600	10,900	11,200	53,000		
Miscellaneous Equipment	19,093	19,670	20,260	20,870	21,500	22,150	22,810	107,590		
Depreciable Personnel Services	64,591	174,670	665,260	102,170	615,300	131,650	196,010	1,710,390		
Subtotal										
Supply and Capacity										
Source Protection	0	75,000	12,000	12,400	12,800	13,200	13,600	64,000		
Land Acquisition	800,000									
New Source Permitting, Design	0							0		
Subtotal	800,000	75,000	12,000	12,400	12,800	13,200	13,600	64,000		
Total Capital Uses	2,246,610	1,985,670	6,655,260	6,922,070	10,087,600	1,038,850	1,119,610	23,016,390		
Funding the Capital Plan										
From Debt	816,338	25,000	2,808,000	5,362,500	8,670,500	-	-	16,841,000		
From Water Fund Resources	1,430,272	1,960,670	3,847,260	1,559,570	1,417,100	1,038,850	1,119,610	8,982,390		
Total Capital Sources	2,246,610	1,985,670	6,655,260	6,922,070	10,087,600	1,038,850	1,119,610	25,823,390		

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	10 years FY 19-28
Water Fund: Plan and Projection													
Operating Revenue													
User Fees	4,848,197	4,977,949	5,157,949	5,339,949	5,527,949	5,724,949	5,930,949	6,144,949	6,365,949	6,593,949	6,830,949	7,075,949	60,693,490
Other	335,595	298,836	208,836	209,836	210,836	211,836	212,836	213,836	214,836	215,836	216,836	217,836	2,133,360
Subtotal	5,183,792	5,276,785	5,366,785	5,549,785	5,738,785	5,936,785	6,143,785	6,358,785	6,580,785	6,809,785	7,047,785	7,293,785	62,826,850
Operating Expense													
O & M	2,811,846	3,141,031	3,253,308	3,351,907	3,586,147	3,694,877	3,806,948	3,922,467	4,041,544	4,164,291	4,290,825	4,421,268	38,533,584
Depreciation	929,809	999,491	1,166,699	1,350,960	1,614,415	1,768,006	1,787,457	1,801,349	1,839,067	1,870,901	1,899,136	1,911,753	17,039,743
Subtotal	3,741,655	4,140,522	4,420,007	4,732,867	5,200,563	5,462,883	5,594,405	5,723,817	5,880,611	6,035,192	6,189,961	6,333,021	55,573,327
Operating Income	1,442,137	1,136,263	946,778	816,918	538,222	473,902	549,380	634,968	700,174	774,593	857,824	960,764	7,253,523
ADD: Interest Income	64,309	81,581	84,401	84,218	84,202	76,840	65,800	57,700	51,140	48,280	75,738	51,795	680,115
Miscellaneous Non-Operating Income	0	0	0	0	0	0	0	0	0	0	0	0	0
LESS: Interest Expense													
Existing Debt	87,234	105,871	94,435	78,735	61,535	44,335	30,015	21,715	14,995	8,300	1,500	0	355,565
Future Debt	0	0	0	0	0	680,000	646,000	612,000	578,000	544,000	510,000	476,000	4,046,000
Bond Anticipation Notes (BANs)	0	0	188	28,080	53,625	193,955	0	0	0	0	0	0	275,848
Issuance expense (Premium)	0	25	2,808	5,363	178,671	0	0	0	0	0	0	0	186,841
Net Income	1,419,212	1,111,948	933,748	788,958	328,594	-367,547	-60,835	58,954	158,319	270,573	422,061	536,559	3,069,384
Available Resources from:													
Net income	1,419,212	1,111,948	933,748	788,958	328,594	-367,547	-60,835	58,954	158,319	270,573	422,061	536,559	3,069,384
Depreciation expense	929,809	999,491	1,166,699	1,380,960	1,614,415	1,768,006	1,787,457	1,801,349	1,839,067	1,870,901	1,899,136	1,911,753	17,039,743
subtotal	2,349,021	2,111,439	2,100,447	2,169,918	1,943,009	1,400,459	1,726,622	1,860,303	1,997,386	2,141,474	2,321,197	2,448,312	20,109,128
Bond proceeds	753,000	0	2,808,000	5,362,500	8,670,500	17,000,000	17,000,000	17,000,000	17,000,000	17,000,000	17,000,000	17,000,000	17,000,000
Loan proceeds	0	25,000	2,808,000	5,362,500	8,670,500	8,670,500	8,670,500	8,670,500	8,670,500	8,670,500	8,670,500	8,670,500	16,841,000
LESS: Principal repayments													
Existing Debt	456,442	565,000	485,000	485,000	485,000	373,000	225,000	220,000	217,000	215,000	155,000	0	2,860,000
New Debt	0	0	0	0	0	850,000	850,000	850,000	850,000	850,000	850,000	850,000	5,950,000
BAN Repayment	0	0	0	0	17,000,000	17,000,000	17,000,000	17,000,000	17,000,000	17,000,000	17,000,000	17,000,000	17,000,000
Net Available for Capital Purposes	2,645,579	1,571,440	4,423,447	7,047,418	10,128,509	177,459	651,622	790,303	930,386	1,076,474	1,316,197	1,598,312	28,140,128
Capital Plan	2,246,610	1,985,670	6,655,260	6,922,070	10,087,600	1,038,850	1,119,610	1,278,790	1,207,790	1,080,920	1,157,470	1,191,140	31,739,500
Cash Position													
Beginning balance	7,656,721	8,405,994	7,991,764	5,759,951	5,885,299	5,926,208	5,064,817	4,596,829	4,108,342	3,830,938	3,826,492	3,985,220	
ADD: Net available	2,645,579	1,571,440	4,423,447	7,047,418	10,128,509	177,459	651,622	790,303	930,386	1,076,474	1,316,197	1,598,312	
LESS: Planned Capital	2,246,610	1,985,670	6,655,260	6,922,070	10,087,600	1,038,850	1,119,610	1,278,790	1,207,790	1,080,920	1,157,470	1,191,140	
Changes in assets & liabilities	350,304												
Ending balance	8,405,994	7,991,764	5,759,951	5,885,299	5,926,208	5,064,817	4,596,829	4,108,342	3,830,938	3,826,492	3,985,220	4,392,391	

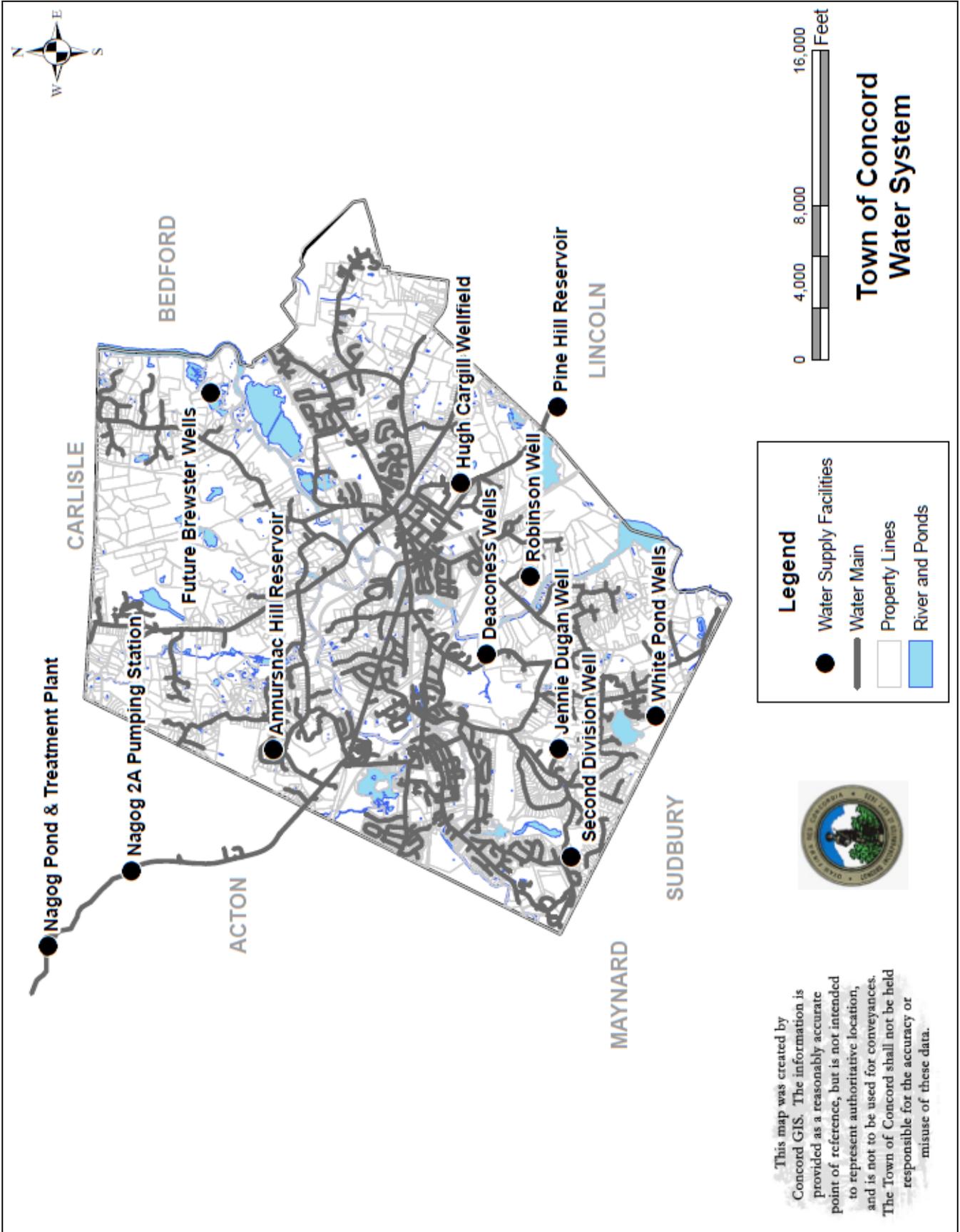
WATER RATES

(Per Cubic Foot)

W-18 Class of Customer	Current FY18	Effective 6/1/18		%Chg.
1 & 2 Residential Service	(1 cubic foot = 7.48 gallons)			
1st Step: (all year)	\$ 0.0516	\$ 0.0537	**	4.0%
Conservation Step*: (1200-2400 cu ft/mo)	\$ 0.1084	\$ 0.1128		4.0%
Conservation Step*: (over 2400 cu ft/mo) *May 1st through October 31st	\$ 0.1367	\$ 0.1423		4.1%
3 General Service				
1st Step: (all year)	\$ 0.0516	\$ 0.0537		4.0%
2nd Step: (all year) (over 2500 cu ft/mo)	\$ 0.0655	\$ 0.0681		4.0%
4 Municipal Service				
1st Step: (all year)	\$ 0.0509	\$ 0.0529		4.0%
Interruptible Outdoor Irrigation use				
5 Second Meter Service				
A. Irrigation/Pool or Accessory use:				
1st Step: (all year)	\$ 0.1084	\$ 0.1128		4.0%
Conservation Step: (over 2400 cu ft/mo) May 1st through October 31st	\$ 0.1367	\$ 0.1423		4.1%
B. Non-Irrigation Commercial/Industrial	\$ 0.0655	\$ 0.0681		4.0%

**A 50% discount on Step 1 water consumption, up to a maximum of 1,200 cubic feet per month, is provided for customers of record who meet certain age and income eligibility criteria.

Sample Impacts	Current Annual	New Annual	Annual Change	Monthly Change	% Chg.
1a Average Residential Customer (750 cu ft/mo) <i>Approximately two-thirds of residential customers normally use less than the Conservation step threshold.</i>	\$ 464	\$ 483	\$ 18.72	\$ 1.56	4.0%
1b Large Summertime Residential Customer (2,000 cu ft/mo during summer; 1,250 cu ft/mo for rest of year)	\$ 1,279	\$ 1,330	\$ 51.60	\$ 4.30	4.0%
3a Small Commercial Customer (1,250 cu ft/mo) <i>Approximately two-thirds of commercial/institutional/Gov't customers normally use less than than the 2nd step threshold.</i>	\$ 774	\$ 805	\$ 31.20	\$ 2.60	4.0%
3b Large Commercial Customer (15,000 cu ft/mo)	\$ 11,373	\$ 11,825	\$ 452	\$ 37.70	4.0%
5a Small Municipal Customer (2,250 cu ft/mo)	\$ 1,374	\$ 1,429	\$ 55	\$ 4.57	4.0%
5b Large Municipal Customer (30,000 cu ft/mo)	\$ 18,324	\$ 19,055	\$ 731	\$ 60.90	4.0%



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