

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 FY20 base level (Step 1) water rate of \$0.0564 per cubic foot is a 5% increase over the FY19 rate of \$0.0537 per cubic foot. For the average residential customer, the annual increase in the water bill will be \$24.48.
- For FY20, \$1,375,000 is proposed to perform water main replacement within the Peter Spring Road and Prescott Road Neighborhood.
- \$250,000 will be invested in the 1st phase of a system wide Advanced Metering Infrastructure Upgrade which will be performed in conjunction with meter system upgrades planned by the Concord Municipal Light Plant.
- \$13.2 million is slated to be spent in FY20 for the replacement of the Nagog Pond intake structure and to begin a multi-year construction project for the long anticipated Surface Water Filtration Plant.

Expenditure Summary

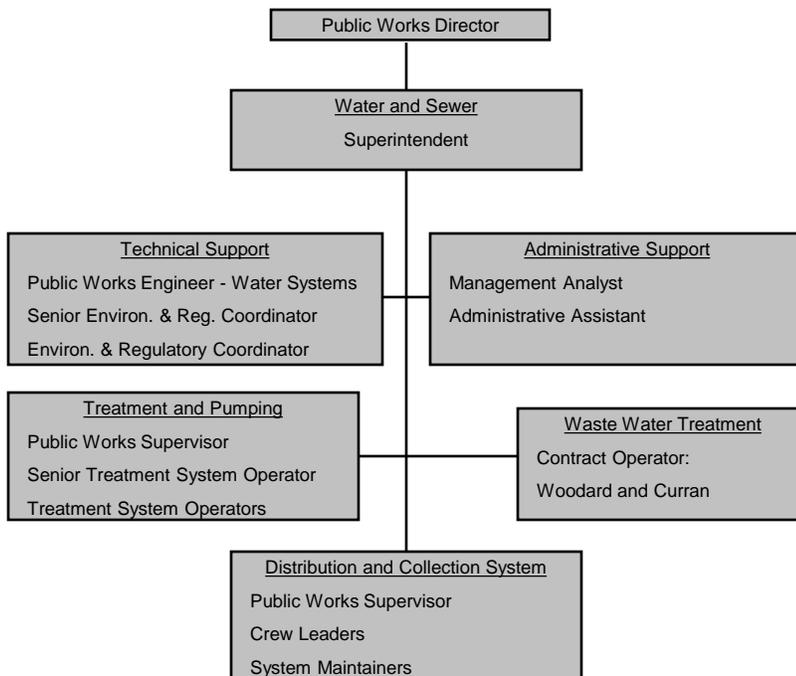
	FY17 Actual	FY18 Actual	FY19 Rev. Budget	FY20 Budget
Operating Income	\$ 1,442,137	\$ 2,144,992	\$ 1,119,132	\$ 740,033
Net Income	\$ 1,419,212	\$ 2,228,949	\$ 1,239,398	\$ 687,514
Cash Position	\$ 8,238,327	\$ 9,544,443	\$ 6,973,924	\$ 2,436,192

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 FY18, the total value of infrastructure assets was approximately \$21.7 million.

There are presently 5,623 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 Meter Repair

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.

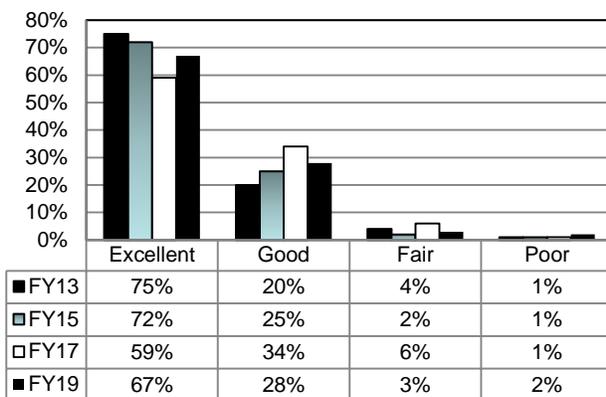
Since the Water Enterprise fund was formally established in 1974, there have been no property tax contributions requested to subsidize annual operations or maintenance of pre-existing infrastructure. Taxpayer contributions would only be sought for major system expansion projects or facility upgrades 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 are the FY19 results of the question, “What is your opinion of the price of water service?” Of those who said they use the service, 15% thought that the price is a Good Bargain and 72% thought that it is Reasonably Priced. From FY13 to FY19, 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 FY20 is \$5,506,000, which represents 96% of total Water Fund revenues.

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

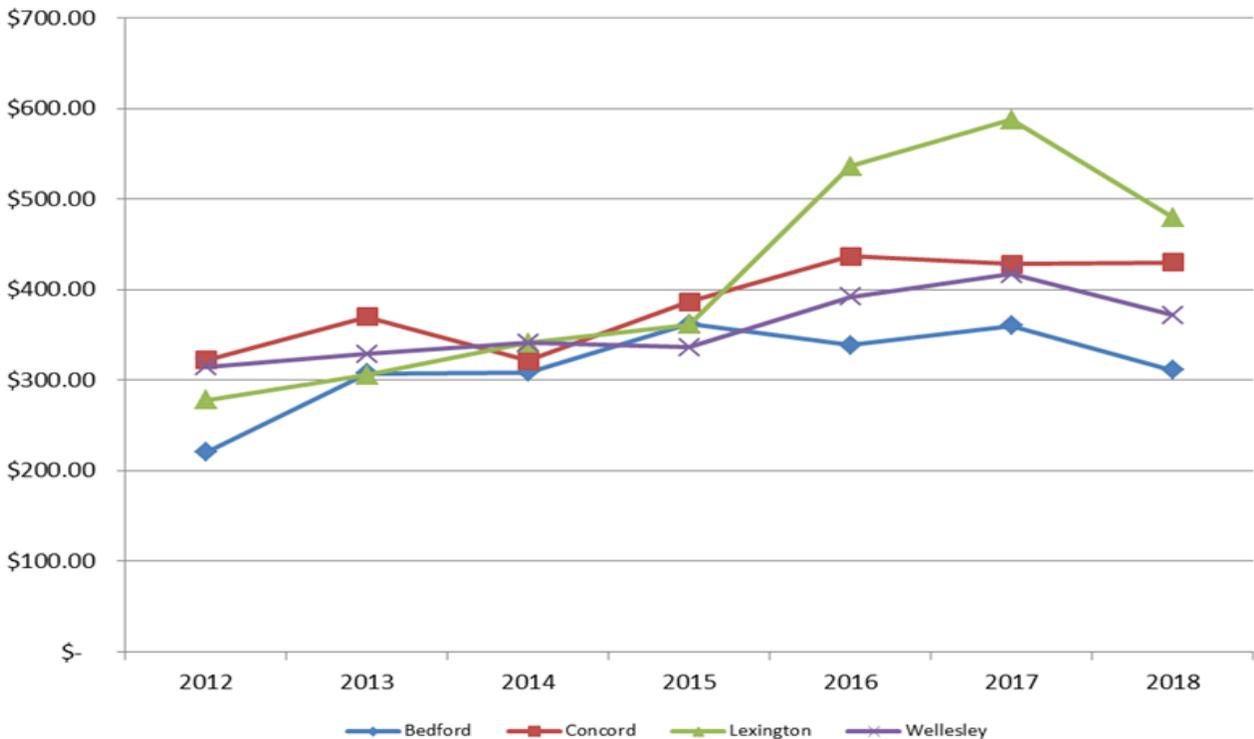
Rates are set each year by the Public Works Commission following a public hearing with the following goals:

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 FY20 proposed Residential Service (step 1) water rate is \$0.0564 per cubic foot (1 cubic foot = 7.48 gallons)

- The FY20 rate of \$0.0564 represents a 5% increase over the FY19 rate of \$0.0537. Since FY 2009, water rates have increased at an average annual rate of 3.8% per year.
- In FY20, the average residential customer is expected to pay a total of \$508 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 Residential 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

Nagog Pond Filtration Avoidance Waiver: Nagog Pond was voluntarily taken off-line temporarily on August 6th for reasons attributable to deteriorating raw water quality measured within the Pond. This action was necessary to maintain a long-standing filtration avoidance waiver. The use of Nagog Pond will continue to be curtailed from time to time until a federally compliant water treatment filtration plant has been constructed. By taking Nagog off-line before the waiver was compromised, Concord maintained control over permitting, design and the construction schedule of the Nagog Pond Filtration project.

Regional Drought Management Planning: The Executive Office of Energy & Environmental Affairs (EEA) established a working group to evaluate drought management preparedness with a focus on public water supply. The group has evaluated state-wide implications associated with various degrees of drought and is in the process of reestablishing drought indices that will trigger regional demand management response actions. These efforts are expected to have direct implications in the frequency and degree of outdoor water use restrictions.

Emerging Water Quality Contaminants: MassDEP recently announced that they will be establishing drinking water standards for a group of five per- and polyfluoroalkyl substances (PFAS). PFAS are a group of man-made chemicals that do not readily break down in either the environment or the human body and, therefore, can build up over time. Studies show that exposure to PFAS can lead to adverse human health effects. PFAS have been used in many consumer products, including firefighting foam, and in a number of industrial processes.

Local 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.

2017 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**

Progress was made with respect to both design and permitting activities associated with a federally compliant drinking water treatment facility. Notable permitting challenges along with direct water rights challenges have been introduced by neighboring communities who have asserted their own interests in drawing water from this valuable water resource. Nagog Pond is Concord's oldest existing supply and is the single most important drinking water resource available to Concord. For this reason, Concord has invested considerable time and effort protecting these interests.

Water System Capacity & Resiliency Planning

Weston & Sampson (Peabody, MA) was hired to develop a water master plan to document the capacity of existing water resources, develop a long range water needs forecast, and evaluate the town's ability to satisfy these needs with consideration of climate change and extreme drought conditions.

Demand Management

Concord's WMA registration and permit presently provides a cap on "authorized" water withdrawals of up to 2.51 million gallons per day (MGD) on average or 916 million gallons per year to meet all residential, commercial, institutional and municipal needs. Conservation limits included in this permit are an allowance of 65 gallons per day per capita (RGPDC) for residences and a 10% allowance for system losses (primarily attributed to leaks). In 2018, the total water production required to meet our system demands was 1.84 million gallons per day or 673 million gallons per year. A peak day demand of 3.18 million gallons was recorded on July 9, 2018. The RGPDC and total system losses (or "unaccounted" for water use) was calculated to be 66 gals/day and 6%, 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 satellite groundwater well (10G) located at the Deaconess well site (performed by Denis L. Maher Company of Ayer, MA), the replacement and rehabilitation of the Hugh Cargill pump and motor assembly (performed by Maher Services of North Reading, MA); the replacement of the original process controller with a new state of the art programmable logic controller (PLC) that is more compatible with the Division's current SCADA platform; replacement of the variable frequency drive unit (VFD) at the White Pond Well (performed by Jasco Electric of Franklin, MA); and the replacement of high capacity chlorine transfer pump at the Deaconess Treatment facility.

Customer Care Service and Billing Software Improvements

Staff from the Water Division, Finance Department, and Municipal Light Plant have collaborated to improve administrative efficiencies and work flow relating to customer billing and service efforts. These efforts have helped streamline workflow among these departments while increasing customer response capabilities of our direct line customer service group. The same management team has used this experience as an opportunity to work effectively towards the integration of a new customer care and billing software platform.

Meter Technology Upgrade/Assessment

Staff have participated in the evaluation of compatible smart meter technology that will allow for improved customer service and management opportunities. Recent concept discussions have focused on developing a plan that will allow for a rapid deployment of new meter reading equipment that will be compatible with the meter reading technology that will also be used by the Municipal Light Plant. This initiative is expected to be completed within one or two years.

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 2018, crews responded to only four (4) emergency repairs required at the following locations: Sandy Pond Road (January 5, 2018), Sudbury Road (January 17, 2018), Potter Street (June 19, 2018), and Oxbow Road (September 10, 2018). This past year, notable work included:



White Pond Well – Pump Service

- Alcott/Independence Road Neighborhood:** Fenton & Sons General Contracting (Acton, MA), sub-contractor to Lazaro Paving Corp, performed water main and stormwater system replacement and upgrades within the Alcott/Independence Road neighborhood. The scope of water main work included the replacement of approximately 5,000 ft. of 8-inch transite water main (circa 1938) with 8-inch cement-lined ductile iron pipe (class 52), nine hydrants and fifty-six service laterals. A new three-way 8x12x12-inch gate valve assembly was also installed at the intersection of Lexington Road and Alcott Road.
- Warner Street – Water Main Extension:** Johnson Excavating was authorized to install approximately 565 ft. of 8-inch CLDI water main along Warner Street to create water main frontage for a previously existing single family lot. The plan of work involved the installation of one new water service, one new hydrant, two new 8-inch gate valves and one 8-inch tapping sleeve on an existing 12-inch main located on Laws Brook Road – resulting in a new water main loop to customers along Warner Street.
- Cambridge Turnpike Water Main Project:** J. Tropeano Inc. (North Andover, MA) is performing phased underground utilities replacement/installation work along Cambridge Turnpike, including the scheduled replacement of approximately 5,000 ft. of 12-inch cast iron water main (circa 1947) with 8-inch cement-lined ductile iron pipe (class 52) from the intersection of Lexington Road to Sandy Pond Road..

Lead Service Line Awareness and Replacement Program

Concord water entered into its second year offering of a customer-friendly lead service line replacement program to customers with known or suspected lead water service lines. Considerable administrative effort continues to be made in combing through old service records in an attempt to identify potential lead service lines that may not have been accurately captured when the Division first transitioned from paper files to an electronic, geographically linked service database. The replacement program has been tailored to allow for replacement of all private lead service lines identified at a very competitive rate.

Program Implementation

The proposed FY20 budget projects operating income of \$740,033 and a net income of \$687,514.

Depreciation expense reflects the cost imposed by the annual use, or wear-and-tear, of the Water Division's approximately \$17.6 million worth of depreciable infrastructure (net value as of the end of FY18). The budgeted FY20 depreciation expense, totaling \$1,568,209, represents a depreciation of roughly 9% of these capital assets.

Personnel Services are budgeted at \$1,438,839 in FY20, a 7.4% increase from the revised FY19 total of \$1,339,849. There is no change in staffing or overtime hours.

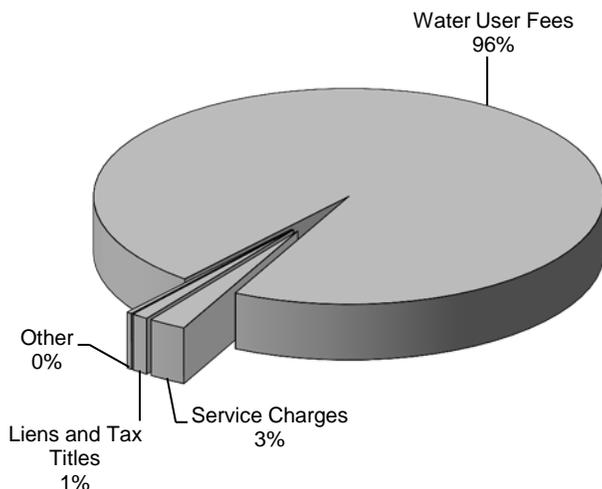
The next largest expense categories are for electricity (\$308,998) and chemicals (\$160,558); these consumables vary widely from year-to-year based on the demand for water. Budgets for these accounts are based on anticipating a relatively strong demand for water. This demand is directly affected by weather trends as well as the water conservation behavior of customers.

The FY20 Budget also includes \$64,046 for water quality testing at 7 pumping stations, 2 reservoirs and throughout the distribution system.

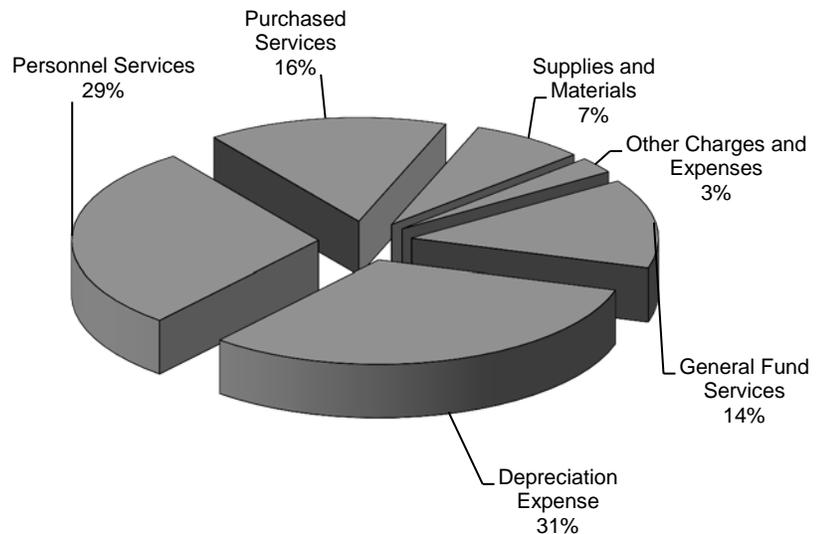
In addition, the FY20 budget includes \$57,200 for inspection services, including leak detection covering half of the entire system (the entire system is checked every two years) and testing of backflow prevention devices at commercial facilities. The budget also includes \$46,215 for electrical, instrumentation 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.

FY20 Operating Revenues
Totaling \$5,722,000



FY20 Operating Expenditures
Total \$4,981,967



OPERATING REVENUES

	FY17 Actual	FY18 Actual	FY19 Revised	FY20 Proposed
Water User Fees	\$ 4,848,197	\$ 5,632,620	\$ 5,264,000	\$ 5,506,000
Service Charges	261,759	271,585	135,000	136,000
Liens and Tax Titles	58,051	99,765	60,000	60,000
Other	15,785	23,586	20,000	20,000
Operating Revenues Total	\$ 5,183,792	\$ 6,027,556	\$ 5,479,000	\$ 5,722,000

OPERATING EXPENSES

	FY17 Actual	FY18 Actual	FY19 Revised	FY20 Proposed
<u>Personnel Services</u>				
Personnel Expenses	\$ 1,220,377	\$ 1,326,918	\$ 1,339,849	\$ 1,438,839
Audit Adjustment	23,496		-	-
Subtotal	\$ 1,243,873	\$ 1,326,918	\$ 1,339,849	\$ 1,438,839
<u>Non-Personnel Services</u>				
Purchased Services	554,475	528,919	709,056	784,142
Supplies & Materials	330,059	342,981	375,995	374,005
Other Charges & Expenses	69,311	82,132	121,103	124,928
Audit Adjustment	(24,355)		-	-
Subtotal	\$ 929,491	\$ 954,033	\$ 1,206,154	\$ 1,283,075
<u>Other</u>				
General Fund Services	638,482	654,229	680,328	691,844
Depreciation Expense	929,809	947,385	1,133,537	1,568,209
Subtotal	\$ 1,568,291	\$ 1,601,614	\$ 1,813,865	\$ 2,260,053
Total Operating Expense	\$ 3,741,655	\$ 3,882,564	\$ 4,359,868	\$ 4,981,967

RETIREMENT AND OPEB ASSESSMENT

<i>For Informational Purposes Only</i>				
	FY17 Actual	FY18 Actual	FY19 Revised	FY20 Proposed
<u>Personnel Services</u>				
Retirement Assessment	\$ 86,179	\$ 82,117	\$ 98,164	\$ 146,719
OPEB Assessment	21,264	25,000	25,000	19,148
Total Assessment	\$ 107,443	\$ 107,117	\$ 123,164	\$ 165,867

AUTHORIZED POSITIONS

	FY19 Revised		FY20 Proposed	
	\$ Amount	Position/Hours	\$ Amount	Position/Hours
Regular Staff				
Water and Sewer Superintendent	0.75 FTEs	\$ 88,342	0.75 FTEs	\$ 88,342
Public Works Engineer	0.25	21,966	0.25	21,966
Assistant to Superintendent	0.00	-	0.00	-
Management Analyst	8.00	59,331	8.00	59,331
Sr. Environ. & Regulatory. Coord.	0.75	69,522	0.75	69,522
Environ. & Regulatory. Coord.	0.75	46,383	0.75	46,383
Administrative Assistant	0.75	51,807	0.75	51,807
Public Works Supervisor	1.50	142,285	1.50	142,285
Crew Leader	1.50	116,426	1.50	116,426
Senior Treatment Systems Operator	0.75	60,696	0.75	60,696
Treatment System Operator	1.50	104,932	1.50	104,932
System Maintainer	3.75	208,995	3.75	208,995
Standby Pay (5111)	N/A	16,122	N/A	16,122
Charges to Snow Account	N/A	(4,328)	N/A	(4,328)
Charges to Capital Projects	N/A	(21,599)	N/A	(21,599)
Salary Increase	N/A	-	N/A	40,756
Subtotal	20.25 FTEs	\$ 960,880	20.25 FTEs	\$ 1,001,637
Part-Time Staff				
Watershed Patrol	460 hrs.	\$ 5,060	460 hrs.	\$ 5,865
Environmental Technology Intern	700 hrs.	7,700	700 hrs.	8,925
GIS Project Specialist	0 hrs.	-	0 hrs.	-
Subtotal	0.56 FTEs	\$ 12,760	0.56 FTEs	\$ 14,790
Employee Benefits				
Group Insurance	N/A	\$ 86,835	N/A	\$ 94,914
Retirement Contribution	N/A	98,164	N/A	146,719
OPEB Contribution	N/A	25,000	N/A	19,148
Subtotal	N/A	\$ 209,999	N/A	\$ 260,781
Payroll Taxes				
Medicare Tax	N/A	\$ 13,925	N/A	\$ 14,280
Social Security Contribution	N/A	-	N/A	-
Subtotal	N/A	\$ 13,925	N/A	\$ 14,280
Other Personnel Costs				
Overtime (5130)	1900 hrs.	\$ 109,471	1900 hrs.	\$ 109,471
Overtime Adjustments (5130)	N/A	2,189	N/A	4,379
Police Overtime (5131)	185 hrs.	7,400	185 hrs.	7,400
Mobile Phone Allowance	N/A	3,840	N/A	3,840
IT Salary (5111)	N/A	19,385	N/A	22,261
Subtotal	N/A	\$ 142,285	N/A	\$ 147,351
Total Personnel Costs	20.81 FTEs	\$ 1,339,849	20.81 FTEs	\$ 1,438,839

NET INCOME

	FY17 Actual	FY18 Actual	FY19 Revised	FY20 Proposed
Statement of Net Income:				
Operating Revenues	\$ 5,183,792	\$ 6,027,556	\$ 5,479,000	\$ 5,722,000
Less Operating Expenses	(3,741,655)	(3,882,564)	(4,359,868)	(4,981,967)
Operating Income	\$ 1,442,137	\$ 2,144,992	\$ 1,119,132	\$ 740,033
Nonoperating Revenues (Expenses)				
Add Investment Income	\$ 64,309	\$ 130,256	\$ 214,701	\$ 145,841
Add Other Revenue/Expense		\$ 47,000		
Less Interest Expense	(87,234)	(93,300)	(94,435)	(187,485)
Less Issuance Expense	-	-	-	(10,875)
Nonoperating Income	\$ (22,925)	\$ 83,956	\$ 120,266	\$ (52,519)
Net Income	\$ 1,419,212	\$ 2,228,949	\$ 1,239,398	\$ 687,514

AVAILABLE RESOURCES

Resources Available from Current Operations for Replacement & Renewal of Facility:				
	FY17 Actual	FY18 Actual	FY19 Revised	FY20 Proposed
Capital Purposes				
Add Depreciation Expense	\$ 929,809	\$ 947,385	\$ 1,133,537	\$ 1,568,209
Add Net Income	1,419,212	2,228,949	1,239,398	687,514
Add Debt Financing	753,000	-	-	10,875,000
Less Bonds Payable	(456,442)	(580,242)	(485,000)	(485,000)
Net Available for Capital	\$ 2,645,579	\$ 2,596,092	\$ 1,887,935	\$ 12,645,723

CASH POSITION AND FUND BALANCE FORECAST

	FY19		FY20	
	Credits	Debits	Credits	Debits
Cash at Year Opening				
Cash on July 1st		\$ 9,544,443		\$ 6,973,924
Add Receivables		1,573,139		1,573,139
Add Inventory & Other Assets		110,598		110,598
Less Cash held for Liabilities		(738,432)		(738,432)
Deferred Outflows (Inflows)		(53,226)		(53,226)
Fund Balance on July 1st		\$ 10,436,522		\$ 7,866,003
Fund Balance Details (projected)	Credits	Debits	Credits	Debits
Net Income	1,239,398		687,514	
Bond Principal Repayment		(485,000)		(485,000)
BAN and Bond Proceeds			10,875,000	
Capital Borrowing				(10,875,000)
Capital Outlay (non-borrowing)		(4,458,454)		(6,308,455)
Add Depreciation Expense	1,133,537		1,568,209	
Balance Projected at June 30th	2,372,935	(4,943,454)	13,130,723	(17,668,455)
Fund Balance on June 30th		\$ 7,866,003		\$ 3,328,271
Cash at Year End (projected)				
Fund Balance on June 30th		\$ 7,866,003		\$ 3,328,271
Less Receivables		(1,573,139)		(1,573,139)
Less Inventory & Other Assets		(110,598)		(110,598)
Add Cash Held for Liabilities		738,432		738,432
Add Cash Held for Deferred Inflows		53,226		53,226
Projected Cash at June 30th		\$ 6,973,924		\$ 2,436,192

DEBT SERVICE

	FY17	FY18	FY19	FY20
	Actual	Actual	Revised	Proposed
Long-Term Debt Repayment				
Principal	\$ 441,200	\$ 565,000	\$ 485,000	\$ 485,000
Interest	94,730	105,871	94,435	78,735
Debt Issuance Expense	-	-	-	-
Total	\$ 535,930	\$ 670,871	\$ 579,435	\$ 563,735

PAYMENTS TO THE GENERAL FUND

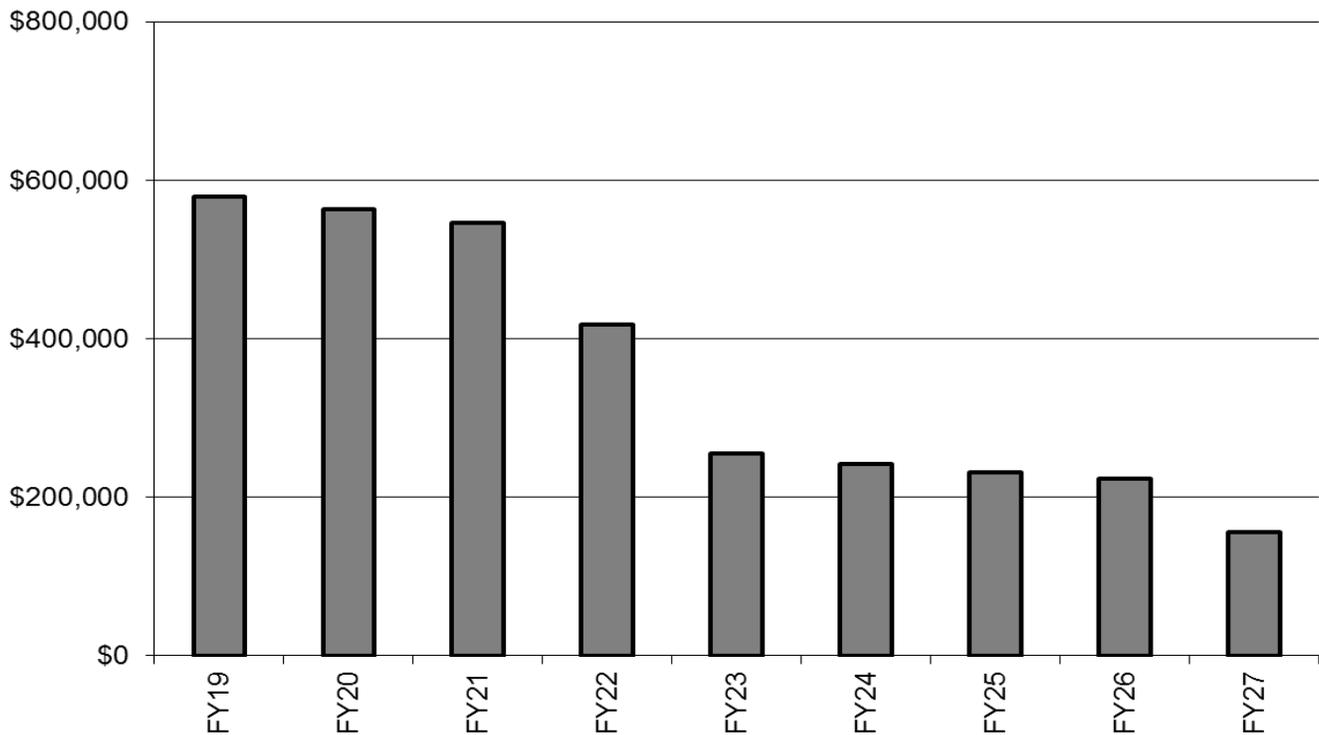
	FY17	FY18	FY19	FY20
	Actual	Budget	Revised	Proposed
<u>Management & Engineering</u>				
Public Works Administration	92,930	95,427	98,075	98,170
Public Works Engineering	89,128	90,796	87,870	86,001
Highway Maintenance	\$ 19,618	\$ 19,634	\$ 19,701	\$ 18,502
133/135 Keyes Road	50,440	51,410	49,313	49,070
Subtotal	\$ 252,116	\$ 257,267	\$ 254,959	\$ 251,743
<u>Finance & Administrative</u>				
Town Manager	\$ 62,218	\$ 63,591	\$ 67,541	\$ 69,598
Human Resources	19,998	21,847	23,059	23,152
Finance Administration	81,121	78,154	92,852	92,093
Treasurer-Collector	54,789	55,915	55,281	54,384
Town Accountant				
Accounting Services	53,625	56,711	62,376	50,210
Audit Services	6,000	6,000	6,000	6,000
Town House Facility	7,016	7,514	7,801	8,359
Subtotal	\$ 284,767	\$ 289,732	\$ 314,910	\$ 303,796
<u>Natural Resources</u>				
Planning Administration	\$ 45,840	\$ 48,088	\$ 49,699	\$ 52,623
Natural Resource Protection	26,508	28,365	28,367	29,103
Health Department Services	29,251	30,777	32,393	32,546
Subtotal	\$ 101,599	\$ 107,230	\$ 110,459	\$ 114,272
Salary Reserve	-	-	-	22,033
Audit Adjustments	-	-	-	-
Totals	\$ 638,482	\$ 654,229	\$ 680,328	\$ 691,844

DEBT SERVICE SCHEDULE

(Issued through June 30, 2018)

<u>Fiscal Year</u>	<u>Principal</u>	<u>Interest</u>	<u>Total</u>
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: \$11,010,275 - Project to construct a facility that would comply with EPA's surface water treatment rule has been delayed until FY20 based upon local permitting challenges. Outlay planned for FY20 includes rental of temporary ozone generation units as well as the completion of design and permitting of the full-scale surface water treatment facility. The delay has resulted in escalating construction estimates that will be incurred during FY20 and FY21. Present estimates for the entire project is \$19 M for construction, engineering and construction administration services.

Nagog Intake: \$2,209,450 - 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): \$1,375,000 - Annual capital outlay for improvements and extension to distribution system including water services within the right-of-way. The replacement/rehabilitation program has been developed with consideration of age, material and condition of mains. The water main replacement/rehabilitation plan for FY20 includes the replacement of approximately 7,000 ft. of 8-inch of transite water main (circa 1950s) located in the Peter Spring, Prescott Rd, Minuteman Drive and Arrow Head Rd neighborhood and approximately 1,000 ft. of cast iron water main (circa 1930s) along Potter Street.

Water Meter Replacement Program: \$250,000 - Water Fund portion of costs associated with system-wide meter maintenance and replacement efforts to include the rapid deployment of new meter reading equipment that will be compatible with meter reading technology that will also be used by the Municipal Light Plant.

Hydrants: \$13,000 - 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: \$440,000 - Rehabilitation of Annursnac Hill Reservoir, a 2.5 million gallon storage structure, including the patching of existing concrete floor. The original plan to perform a long-term rehabilitation effort was significantly scaled back due to escalating construction costs and competing capital investment needs. The FY20 budget will also allow for some minor improvements to the access ports associated with the 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: \$100,000 - 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 expansion of enhanced security systems, and ongoing upgrades required for the Supervisory Control and Data Acquisition (SCADA) system.

GENERAL PLANT

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

Vehicles/Construction Equipment: \$107,000 - 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 and a backhoe.

GIS and Miscellaneous Equipment: \$10,300 - Miscellaneous equipment not included in 5-year capital plan.

SUPPLY/CAPACITY

Source Protection: \$20,000 - Funds for ongoing implementation of groundwater and surface water resource protection programs.

CAPITAL SPENDING PLAN								
	Actual							Total
	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY20-24
<u>Distribution System</u>								
Water Mains	132,435	2,070,000	1,375,000	1,370,000	618,000	637,000	653,000	4,653,000
Meter Replacements	12,758	151,000	250,000	250,000	111,000	114,000	117,000	842,000
Hydrants	12,580	13,000	13,000	13,000	13,000	13,000	13,000	65,000
Subtotal	157,773	2,234,000	1,638,000	1,633,000	742,000	764,000	783,000	5,560,000
<u>Pumping Stations/Treatment</u>								
Structures	36,160	65,000	210,000	50,000	51,000	52,000	53,000	416,000
Equipment	63,155	253,000	100,000	52,000	53,000	54,000	55,000	314,000
Reservoir Improvements		128,000	440,000					440,000
Nagog Improvements								
Temporary Ozone		202,650	176,050	163,000	113,000			
Route 2A Station and Filtration			7,500,000	7,000,000				14,500,000
- Design, Constr Admin, Legal	403,554	1,223,550	3,334,225	1,473,075				4,807,300
Dam Reconstruction								
Nagog Intake			2,000,000					2,000,000
	11,957	121,875	209,450					
			1,301,000					
Subtotal	514,826	1,994,075	15,270,725	8,738,075	217,000	106,000	108,000	22,477,300
<u>General Plant</u>								
Keyes Road CPW Facility	17,181	25,000	115,000	27,000	28,000	29,000	30,000	229,000
Vehicles	10,400	132,500	107,000	83,200	69,600	132,000	260,800	652,600
Utility Software Upgrade								0
Miscellaneous Equipment	0	10,000	10,300	10,600	10,900	11,200	11,500	54,500
Depreciable Personnel Services	20,032	21,879	22,430	22,990	23,560	24,150	24,750	117,880
Subtotal	47,613	189,379	254,730	143,790	132,060	196,350	327,050	1,053,980
<u>Supply and Capacity</u>								
Source Protection		41,000	20,000	20,500	21,000	21,500	22,000	105,000
Land Acquisition								
New Source Permitting, Design								0
Subtotal	-	41,000	20,000	20,500	21,000	21,500	22,000	105,000
Total Capital Uses	720,212	4,458,454	17,183,455	10,535,365	1,112,060	1,087,850	1,240,050	29,196,280
Funding the Capital Plan								
From Debt	-	-	10,875,000	8,370,000	618,000	637,000	-	20,500,000
From Water Fund Resources	720,212	4,458,454	6,308,455	2,165,365	494,060	450,850	1,240,050	10,658,780
Total Capital Sources	720,212	4,458,454	17,183,455	10,535,365	1,112,060	1,087,850	1,240,050	31,158,780

Water Fund

Pro-forma

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 20-29
Water Fund: Plan and Projection													
Operating Revenue													
User Fees	5,632,620	5,264,000	5,506,000	5,758,000	6,026,000	6,302,000	6,594,000	6,829,000	7,044,000	7,265,000	7,494,000	7,730,000	66,548,000
Other	394,936	215,000	216,000	217,000	218,000	219,000	220,000	221,000	222,000	223,000	224,000	225,000	2,205,000
Subtotal	6,027,556	5,479,000	5,722,000	5,975,000	6,244,000	6,521,000	6,814,000	7,050,000	7,266,000	7,488,000	7,718,000	7,955,000	68,753,000
Operating Expense													
O & M	2,935,179	3,226,331	3,413,758	3,632,577	3,724,313	3,818,407	3,914,923	4,013,926	4,115,482	4,219,662	4,326,538	4,436,182	39,615,768
Depreciation	947,385	1,133,537	1,568,209	1,535,044	1,798,196	2,093,720	2,158,146	2,223,703	2,268,302	2,297,498	2,319,091	2,379,005	20,640,914
Subtotal	3,882,564	4,359,868	4,981,967	5,167,621	5,522,509	5,912,127	6,073,069	6,237,628	6,383,784	6,517,160	6,645,629	6,815,187	60,256,682
Operating Income	2,144,992	1,119,132	740,033	807,379	721,491	608,873	740,931	812,372	882,216	970,840	1,072,371	1,139,813	8,496,318
ADD: Interest Income	130,256	214,701	145,841	67,725	71,732	88,608	84,748	81,093	78,396	90,779	106,935	125,450	941,307
Other Non-Operating Income	47,000	0	0	0	0	0	0	0	0	0	0	0	0
LESS: Interest Expense													
Existing Debt	93,300	94,435	78,735	61,535	44,335	30,015	21,715	14,995	8,300	1,500	0	0	261,130
Future Debt	0	0	0	0	135,000	763,050	724,560	736,270	695,270	654,270	613,270	572,270	4,893,960
Bond Anticipation Notes (BANs)	0	0	108,750	301,200	323,580	18,730	12,740	0	0	0	0	0	765,000
Issuance expense (Premium)	0	0	10,875	42,120	159,318	637	12,550	0	0	0	0	0	225,500
Net Income	2,228,948	1,239,398	687,514	470,250	130,989	-114,951	54,115	142,200	257,042	405,849	566,035	692,994	3,292,036
Available Resources from:													
Net income	2,228,948	1,239,398	687,514	470,250	130,989	-114,951	54,115	142,200	257,042	405,849	566,035	692,994	3,292,036
Depreciation expense	947,385	1,133,537	1,568,209	1,535,044	1,798,196	2,093,720	2,158,146	2,223,703	2,268,302	2,297,498	2,319,091	2,379,005	20,640,914
subtotal	3,176,333	2,372,935	2,255,723	2,005,294	1,929,186	1,978,769	2,212,260	2,365,903	2,525,344	2,703,347	2,885,127	3,071,999	23,932,950
Bond proceeds	0	0	10,875,000	3,375,000	15,870,000	637,000	1,255,000	0	0	0	0	0	20,500,000
Loan proceeds	0	0	10,875,000	8,370,000	618,000	637,000	0	0	0	0	0	0	20,500,000
LESS: Principal repayments													
Existing Debt	580,242	485,000	485,000	485,000	373,000	225,000	220,000	217,000	215,000	155,000	0	0	2,375,000
New Debt	0	0	0	0	168,750	962,250	962,250	1,025,000	1,025,000	1,025,000	1,025,000	1,025,000	7,218,250
BAN Repayment	0	0	0	3,375,000	15,870,000	637,000	1,255,000	0	0	0	0	0	20,500,000
Net Available for Capital Purposes	2,596,091	1,887,935	12,645,723	9,890,294	2,005,436	1,428,519	1,030,010	1,123,903	1,285,344	1,523,347	1,860,127	2,046,999	34,839,700
Capital Plan	720,212	4,458,454	17,183,455	10,535,365	1,112,060	1,087,850	1,240,050	1,161,170	1,027,300	1,095,850	1,121,420	1,447,000	37,011,520
Cash Position													
Beginning balance	8,405,994	9,544,443	6,973,924	2,436,192	1,791,120	2,684,496	3,025,165	2,815,125	2,777,857	3,035,901	3,463,398	4,202,105	33,205,283
ADD: Net available	2,596,091	1,887,935	12,645,723	9,890,294	2,005,436	1,428,519	1,030,010	1,123,903	1,285,344	1,523,347	1,860,127	2,046,999	34,839,700
LESS: Planned Capital	720,212	4,458,454	17,183,455	10,535,365	1,112,060	1,087,850	1,240,050	1,161,170	1,027,300	1,095,850	1,121,420	1,447,000	37,011,520
Changes in assets & liabilities	-737,430												
Ending balance	9,544,443	6,973,924	2,436,192	1,791,120	2,684,496	3,025,165	2,815,125	2,777,857	3,035,901	3,463,398	4,202,105	4,802,104	31,033,463

WATER RATES

(Per Cubic Foot)

W-19 Class of Customer	Current FY19	Effective 6/1/19	%Chg.
1 & 2 Residential Service	(1 cubic foot = 7.48 gallons)		
1st Step: (all year)	\$ 0.0537	\$ 0.0564 **	5.1%
Conservation Step*: (1200-2400 cu ft/mo)	\$ 0.1128	\$ 0.1184	5.0%
Conservation Step*: (over 2400 cu ft/mo)	\$ 0.1423	\$ 0.1495	5.1%
*May 1st through October 31st			
3 General Service			
1st Step: (all year)	\$ 0.0537	\$ 0.0564	5.1%
2nd Step: (all year) (over 2500 cu ft/mo)	\$ 0.0681	\$ 0.0715	5.0%
4 Municipal Service			
1st Step: (all year)	\$ 0.0529	\$ 0.0555	4.9%
Interruptible Outdoor Irrigation use			
5 Second Meter Service			
A. Irrigation/Pool or Accessory use:			
1st Step: (all year)	\$ 0.1128	\$ 0.1184	5.0%
Conservation Step: (over 2400 cu ft/mo)	\$ 0.1423	\$ 0.1495	5.1%
May 1st through October 31st			
B. Non-Irrigation Commercial/Industrial			
	\$ 0.0681	\$ 0.0715	5.0%

**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>	\$ 483	\$ 508	\$ 24.48	\$ 2.04	5.1%
1b Large Summertime Residential Customer (2,000 cu ft/mo during summer; 1,250 cu ft/mo for rest of year)	\$ 1,330	\$ 1,397	\$ 66.96	\$ 5.58	5.0%
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>	\$ 805	\$ 846	\$ 40.80	\$ 3.40	5.1%
3b Large Commercial Customer (15,000 cu ft/mo)	\$ 11,825	\$ 12,417	\$ 592	\$ 49.30	5.0%
5a Small Municipal Customer (2,250 cu ft/mo)	\$ 1,429	\$ 1,499	\$ 69	\$ 5.78	4.9%
5b Large Municipal Customer (30,000 cu ft/mo)	\$ 19,055	\$ 19,980	\$ 925	\$ 77.10	4.9%



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