

Town of Topsfield

To: Select Board
From: Greg Krom, Water Superintendent
CC: Kevin Harutunian, Town Administrator
Date: June 2, 2022
Re: FY2023 Water Rates

On May 3, 2022, Town Meeting approved the Water Department operating budget for FY2023 in the amount of \$2,247,590. This budget was a net decrease of 1.6% from the previous fiscal year. Despite this decrease, it is my recommendation that the Select Board raise water rates by 1.93% for FY2023 to offset decreases in projected water use. A proposed rate sheet is attached.

The summer of 2022 was one of the wettest on record. Precipitation was so regular that for the first time since 2006, we didn't need a mandatory water restriction. Looking back at the stream flow data collected since 1930, a mandatory restriction would have been required every year except for two – 1938 and 2021. Wet years tend to be more revenue limiting than dry years with water restrictions so it is not surprising that water use at the highest rate last summer was 25% below expectations. This is indicative of a drop in irrigation use and our water use estimates need to be adjusted accordingly.

Our water use forecast tends to be conservative in nature because we try to limit “paper shortfalls” where water revenues fall short of projections but our expenses are covered. What we try to avoid entirely is an actual shortfall. Something very unusual would need to happen, perhaps several unusual things, for us to have an actual shortfall.

Although the Water Department operates as an enterprise system and is funded entirely through water rates, our expenses and revenues factor into the setting of the tax rate. The Massachusetts Department of Revenue reviews and approves the tax rate and that process includes reviewing water revenues and expenses. If projected water revenues and expenses don't balance then either the water rate or tax rate needs to be adjusted. Part of the review also includes the accuracy of our previous revenue projection so if there is a paper shortfall then DOR wants to see how that will be avoided in the future.

It is for these reasons my recommendation is to raise water rates. Included in this packet are a number of documents used to help set the rate and aid your review of the recommendation. These documents include:

1. Draft Water Rates & Fees – this is the rate sheet that shows all of the proposed rate and fee changes.
2. Rate Model Summary – this summary sheet is essentially the water enterprise balance sheet showing expected revenues and expenses.
3. Water Volumes – this spreadsheet shows the actual volume of water sold, projected volume for the year and the percent difference between the two.
4. Rate Scenarios – this sheet shows 5 different options to generate the 1.93% of additional revenue. The options range from just raising the rate per thousand gallons to just increasing the service fee.

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5. Rate Comparison – this table shows how our rates compare to surrounding communities.
 6. Water Rate Setting – a narrative describing some of the details that factor into why the rates are the way they are and how billing frequency and other operational choices affect the rate setting process.



Topsfield Water Department FY2023 Rates and Charges

System Access Fee

\$1,000.00 plus the cost of the meter, including required accessories such as tail pieces, flanges, gaskets and radio.

Fire Sprinkler System Connection

\$300.00 (Per Connection)

Annual Fire Service Maintenance Fee

\$60 per fire service connection

Monthly Water Rates*

Base fee of \$8.00 per 30 days (one month) for active services, prorated over number days in billing cycle.

~~\$17.71~~18.05 per thousand gallons for 0 to 4,000 gallons of water used per month

~~\$20.71~~21.21 per thousand gallons for 4,001 to 8,000 gallons of water used per month

~~\$26.71~~27.23 per thousand gallons for 8,001 gallons of water, and over, used per month

Quarterly Water Rates*

Base fee of \$24.00 per 90 days (one quarter) for active services, prorated over number days in billing cycle.

~~\$17.71~~18.05 per thousand gallons for 0 to 12,000 gallons of water used per quarter

~~\$20.71~~21.21 per thousand gallons for 12,001 to 24,000 gallons of water used per quarter

~~\$26.71~~27.23 per thousand gallons for 24,001 gallons of water, and over, used per quarter

Semi-annual Water Rates*

Base fee of \$48.00 per 180 days (six months) for active services, prorated over number days in billing cycle.

~~\$17.71~~18.05 per thousand gallons for 0 to 24,000 gallons of water used per six months

~~\$20.71~~21.21 per thousand gallons for 24,001 to 48,000 gallons of water used per six months

~~\$26.71~~27.23 per thousand gallons for 48,001 gallons of water, and over, used per six months

*Meters serving multiple units

The usage tiers will be multiplied by the number of units served by the meter. For example, the tiers for a meter serving 4 units that are billed monthly will receive 16,000 gallons per tier rather than 4,000. The number of units served is based on Assessor's records.

Bulk Water

Water Customers Only - \$50.00 access fee plus:

~~\$17.71~~18.05 per thousand gallons for 0 to 4,000 gallons of water used per month

~~\$20.71~~21.21 per thousand gallons for 4,001 to 8,000 gallons of water used per month

~~\$26.71~~27.23 per thousand gallons for 8,001 gallons of water, and over, used per month

Late Fees

A late fee will be charged to accounts that have not paid their balance within 30-days of the date of the last billing. The fee will be 5% of the outstanding balance, not to exceed \$50.00, for balances greater than \$50.

An additional fee will be charged to the account if payment is not made within 60 days of the bill date. The fee will be 10% of the outstanding balance, not to exceed \$100.00, for balances greater than \$100.

Shut-Off Fees for Non-Payment of Water Bills

If water is turned off for non-payment the following turn-off/on fee will be charged:

- During normal business hours - \$100.00
- After normal business hours - \$200.00

Water Turn-off and Turn-on

\$50.00 to turn water off. There is no charge to turn water back on.

Service Calls

\$50.00 for the first hour (minimum of \$50.00 for each call) - \$10.00 will be charged for each additional quarter hour after that.

Cellar Valve Replacement

\$50.00 for the first hour - \$10.00 for each additional quarter hour - materials used are at cost.

Frozen Meter Replacement

\$200.00 (5/8" x 3/4")

\$275.00 (1")

All others at cost, plus labor.

Radio Transponder Replacement (MXU)

\$150 per MXU lost due to house residing, etc. where MXU is removed by homeowner/contractor and not saved.

Remove/Install Meter

\$50.00 up to 1"

\$75.00 1 1/2" or larger

The meter installation fee is included in the system access fee for new connections.

Thawing Frozen Services

\$100.00 per hour

Cross Connection Survey Fee

No charge for the initial survey, \$50.00 per visit for subsequent compliance inspections.

Cross Connection Permit Fees

\$50.00 per Cross Connection (one-time fee)

\$100.00 for registration of a Double Check Valve Assembly or Reduced Pressure Backflow Preventer installed without obtaining a permit.

Cross Connection Device Testing Fee

\$50.00 per test including retests due to device.

Special Use Fees

There may be special use fees, for which, upon application, the ~~Board of Water Commissioners~~Select Board will determine the fee schedule.

Fees other than base fees are effective July 1, ~~2020~~2022. Water rates and base fees are effective following the customer's first regular bill of ~~FY2021~~FY2023.

Topsfield Water Department Rate Analysis				
1-Jun-22				
	2021	2022	2023	2024
	Completed	Active	Budgeted	Projected
Enterprise Rev. & Avail. Funds				
<i>Fiscal Year Offset</i>	(39,440)	(43,240)	(54,440)	(55,696)
<i>Water Rate Revenues</i>				
Tier 1	1,261,788	1,289,129	1,311,918	1,346,623
Tier 2	391,107	401,008	371,687	381,379
Tier 3	487,406	486,149	441,306	452,741
Service Fee	166,500	176,928	177,120	177,312
Total Revenues	2,267,360	2,309,973	2,247,591	2,302,359
Warrant Articles (Cash Portion)	30,000	349,146	25,000	512,500
Warrant Articles (Bond Portion)	-	-	-	-
Bond Issues	-	-	-	-
Other Enterprise Funds	-	-	-	-
Total Available Funds	2,297,360	2,659,119	2,272,591	2,814,859
Expenditures				
Salaries	108,134	109,492	111,664	115,014
Wages	246,535	256,173	285,549	294,115
Other	413,985	434,930	419,550	432,137
Sub Total Operating Budget	768,653	800,595	816,763	841,266
Unanticipated Emergency Reserve Fund	230,000	155,000	125,000	128,750
Base	50,000	125,000	125,000	128,750
Equalization	-	-	-	45,000
Stablization Contribution	-	-	-	-
Sub Total Reserves	280,000	280,000	250,000	302,500
Indirect Costs	161,291	178,046	190,671	197,871
Sub Total Other Expenditures	161,291	178,046	190,671	197,871
Debt				
Existing Debt	1,059,123	1,026,185	990,156	960,721
Future Debt	-	-	-	-
Short Term Debt - Principal	-	-	-	-
Debt Issuance Cost	-	-	-	-
Short Term Debt - Interest	-	-	-	-
Sub Total Debt	1,059,123	1,026,185	990,156	960,721
Budgeted Amount	2,269,067	2,284,826	2,247,590	2,302,358
Cash Expenditures	30,000	349,146	25,000	512,500
Other Funds				
Total Expenditures	2,299,067	2,633,973	2,272,590	2,814,858
Budgeted Amount	2,269,067	2,284,826	2,247,590	2,302,358
Wages	354,668	365,665	397,213	409,129
Expenses	1,753,108	1,741,115	1,659,706	1,695,358
ATM Budget (minus IDC)	2,107,776	2,106,780	2,056,919	2,104,487
Gain/Loss	(1,707)	25,146	1	1
Transfers from other Funds	-	-	-	-
Net Change in Free Cash	(31,707)	(324,000)	(24,999)	(512,499)
Free cash	1,030,215	1,088,465	1,363,466	1,202,717
Reserve Fund Saved	95%	95%	95%	95%
Unanticipated Emergency Saved	75%	50%	50%	50%
Annual Rate Increase	7.6%	0.0%	1.93%	2.9%
Annual Budget Increase	8.1%	0.7%	-1.63%	2.4%

Actual Volumes											
Billing Volumes	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Transition Volumes (Old Rate)											
Tier 1	19.500	18.546	18.878	18.592	18.877	18.639	18.307	17.193	18.301	17.707	
Tier 2	7.400	6.800	6.891	6.828	6.933	6.503	6.002	4.752	7.666	6.016	
Tier 3	7.200	8.855	9.746	8.299	7.522	7.752	6.204	3.373	7.526	4.845	
	34.100	34.201	35.515	33.719	33.332	32.894	30.513	25.318	33.493	28.568	
Normal Volumes (New Rate)											
Tier 1	56.000	56.392	56.274	57.515	57.220	56.127	55.756	56.601	56.788	55.949	
Tier 2	15.200	13.926	13.865	14.495	13.803	13.421	12.496	14.199	15.400	12.831	
Tier 3	13.200	13.661	13.074	15.388	12.314	13.435	11.574	16.236	20.347	11.618	
	84.400	83.979	83.213	87.398	83.337	82.983	79.826	87.036	92.535	80.398	-
Total Volume Billed (millions of gallons)	118.500	118.180	118.728	121.117	116.669	115.877	110.339	112.354	126.028	108.966	
Connections	1,755	1,760	1,789	1,806	1,806	1,820	1,838	1,846	1,847	1,848	
Projected Volumes											
Billing Volumes	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Transition Volumes (Old Rate)											
Tier 1				18.600	18.600	18.550	18.550	18.400	18.111	18.111	17.200
Tier 2				6.800	6.800	6.800	6.500	6.000	6.155	6.155	4.900
Tier 3				8.500	8.500	6.000	6.500	6.200	6.602	6.602	4.800
				33.900	33.900	31.350	31.550	30.600	30.868	30.868	26.900
Normal Volumes (New Rate)											
Tier 1				56.300	56.300	56.000	56.100	56.000	54.680	54.680	55.800
Tier 2				13.800	13.800	13.800	13.500	12.750	13.208	13.208	12.800
Tier 3				12.000	12.000	10.500	11.500	11.500	11.599	11.599	11.500
				82.100	82.100	80.300	81.100	80.250	79.487	79.487	80.100
Total Volume Billed (millions of gallons)				116.000	116.000	111.650	112.650	110.850	110.355	110.355	107.000
Connections				1,806	1,808	1,810	1,825	1,830	1,840	1,843	1,845
Deviations											
Billing Volumes	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	
Transition Volumes (Old Rate)											
Tier 1				-0.04%	1.49%	0.48%	-1.31%	-6.56%	1.05%	-2.23%	
Tier 2				0.41%	1.96%	-4.37%	-7.66%	-20.80%	24.55%	-2.26%	
Tier 3				-2.36%	-11.51%	29.20%	-4.55%	-45.60%	14.00%	-26.61%	
				-0.53%	-1.68%	4.93%	-3.29%	-17.26%	8.50%	-7.45%	
Normal Volumes (New Rate)											
Tier 1				2.16%	1.63%	0.23%	-0.61%	1.07%	3.86%	2.32%	
Tier 2				5.04%	0.02%	-2.75%	-7.44%	11.36%	16.60%	-2.85%	
Tier 3				28.23%	2.62%	27.95%	0.64%	41.18%	75.42%	0.16%	
				6.45%	1.51%	3.34%	-1.57%	8.46%	16.42%	1.15%	
Total Volume Billed (millions of gallons)				5.92%	-0.17%	8.27%	-4.86%	-8.81%	24.92%	1.26%	

**Topsfield Water Department
FY2023 Rate Options**

Water Volumes

Transition	
Tier I	17.200
Tier II	4.900
Tier III	4.800
	<hr/>
	26.900
Normal	
Tier I	55.800
Tier II	12.800
Tier III	11.500
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	80.100
Water Sold	107.000
Connections	1,845
Budget	2,247,590

Rate Options

Source	FY2022		FY2023 Rate Options				
Transition	Rate	All Rate	Fixed	Mixed	Capped	All Fee	
Tier II	17.71	17.71	17.71	17.71	17.71	17.71	17.71
Tier II	20.71	20.71	20.71	20.71	20.71	20.71	20.71
Tier III	26.71	26.71	26.71	26.71	26.71	26.71	26.71
Fee	24.00	24.00	24.00	24.00	24.00	24.00	24.00
Normal							
Tier II	17.71	18.05	18.09	17.86	17.88	17.71	17.71
Tier II	20.71	21.11	21.09	20.89	20.88	20.71	20.71
Tier III	26.71	27.23	27.09	26.94	26.88	26.71	26.71
Fee	24.00	24.00	24.00	27.00	27.00	29.45	29.45
Increase							
Rate		1.9%	1.9%	0.9%	0.9%	0.0%	0.0%
Fee		0.0%	0.0%	12.5%	12.5%	22.7%	22.7%

Revenue

Other		(54,440)	(54,440)	(54,440)	(54,440)	(54,440)
Water	2,094,770	2,124,911	2,124,911	2,108,306	2,108,306	2,094,770
Fee	177,120	177,120	177,120	193,725	193,725	207,261
Total	2,271,890	2,247,591	2,247,591	2,247,591	2,247,591	2,247,591
Net		1	1	1	1	1

- All Rate** Additional revenue generated by water rate only, multiplying rates by required percentage increase.
- Fixed** Revenue generated by rate change only. However, tier rates are linked - Tier II is \$3 more than Tier I and Tier III \$6 more than Tier II.
- Mixed** Combination of rate and service fee change.
- Capped** Combination of linked rates and service fee change.
- All Fee** Rates per thousand gallons remains the same, fee adjusted accordingly.

Topsfield Water Department
Water Rate Comparison
2-Jun-22

		Quarterly Bill Amount							Average Annual Use 4 bills @ 18
		No Use 0	Tier 1 Boundary 12	Average Bill 18	Tier 2 Boundary 24	Medium Use 50	Large Use 100	Single Meter High Use 600	
Quarterly Bill Volume (thousands of gallons) ->		0	12	18	24	50	100	600	4 bills @ 18
Surrounding Cities & Towns	Beverly - 2019	-	65.29	97.94	130.59	272.06	544.12	3,264.71	391.76
	Danvers (2021)	17.00	137.85	219.71	306.10	680.46	1,400.38	8,599.58	878.85
	Essex - 2020	107.42	171.82	227.02	282.22	521.42	981.42	5,581.42	908.08
	Georgetown - 2020	60.00	170.42	241.92	317.08	749.62	1,710.19	11,315.80	967.69
	Groveland - 2016	72.50	119.12	181.20	280.35	709.97	1,536.18	9,798.21	724.81
	Hamilton - 2020	80.00	147.27	185.13	222.99	498.80	1,164.80	8,552.80	740.52
	Ipswich - 2021	-	248.26	372.39	496.52	1,034.43	2,068.85	12,413.10	1,489.57
	North Andover	-	60.96	98.56	143.07	335.99	706.98	4,416.87	394.22
	North Reading - 2018	5.00	128.26	212.14	303.66	799.48	1,752.98	11,287.98	848.56
	Manchester - 2021	-	102.89	158.64	214.39	470.49	983.72	6,744.51	634.56
	Peabody	-	73.21	105.84	105.84	105.84	105.84	105.84	423.37
	Rowley - 2020	-	252.00	384.00	516.00	1,148.00	2,398.00	14,898.00	1,536.00
	Wenham - 2020	45.00	72.30	95.70	119.10	240.50	653.00	1,065.50	382.80
		Maximum	107.42	252.00	384.00	516.00	1,148.00	2,398.00	14,898.00
	Minimum	-	60.96	95.70	105.84	105.84	105.84	105.84	382.80
	Median	5.00	128.26	185.13	280.35	521.42	1,164.80	8,552.80	740.52
	Average	29.76	134.59	198.48	264.45	582.08	1,231.26	7,541.87	793.91
FY2022	Topsfield - Current Rates	24.00	236.52	360.78	485.04	1,179.50	2,515.00	15,870.00	1,443.12
	Topsfield - Rank	60%	90%	91%	91%	#N/A	#N/A	#N/A	91%
FY2023	Topsfield - Proposed Rates	24.00	240.60	367.26	493.92	1,201.90	2,563.40	16,178.40	1,469.04
	Topsfield - Rank	60%	91%	91%	92%	#N/A	#N/A	#N/A	91%
Increase		-	4.08	6.48	8.88	22.40	48.40	308.40	25.92
		0.00%	1.73%	1.80%	1.83%	1.90%	1.92%	1.94%	1.80%

Water Rates

The setting of water rates is the final step in preparation for the new fiscal year. The budget and capital planning process determines the anticipated expenses for the coming year. The water rate hearing and resulting rate structure determines how the expenses will be distributed across the customer base.

Water rates are blunt instruments in that it is nearly impossible to accommodate every policy goal. Inevitably some will be charged slightly more than one would like and some less. In general rates that have the fewest exceptions or special cases tend to be the most just. Most communities in the area use some form of an increasing block rate structure.

Over the years we've had several different rate structures. In the 1980s we charged a flat fee that included a fixed volume of water with an overage charge per thousand gallons in excess of the allotted volume. In the 1990s this was changed to a simple rate per thousand gallons. In the early 2000s the increasing block rate structure was implemented.

Our current rates are based on an increasing block rate designed to make water more expensive on a per gallon basis as consumption increases, promoting conservation. It has some advantages and disadvantages. The primary benefit is it creates economic pressure to reduce water use, particularly irrigation use. The structure also shifts some of the financial burden from low volume users to high volume users thereby lowering the cost of water for low volume users which often include vulnerable populations such as the elderly, etc. The primary disadvantage is the rate structure can't differentiate between a single person that irrigates and a large family so the pressure to reduce consumption sometimes applies to the wrong customers. Also, high-volume nonresidential accounts served by a single meter tend to have some of the highest bills because the bulk of their water use is charged at the highest rate.

Volume Projections

One of the main components in setting the rate is the water sales forecast. This tends to be a conservative estimate to avoid shortfalls but it isn't a worst-case scenario. We expect paper shortfalls will occur on occasion and adjustments will be made. If rates were based on the worst case, then most years would have excessive profits.

When reviewing the volume projections, you may notice that there are two different types of volumes – transition volumes and normal volumes. This is due to how our customers are billed. Some of our customers, about 10%, are billed monthly and the remainder are billed quarterly. The quarterly customers are not billed at the same time. Roughly one-third of them are billed each month. So, every month about 40% of our customers receives a bill.

This billing schedule was chosen years ago when we switched from semi-annual to quarterly billing. Just prior to making the switch, the Town changed from semi-annual tax billing to quarterly billing. We looked at ways to schedule our bills so they wouldn't coincide with the tax billing schedule and overwhelm the Collector's Office with payments. Having greater flexibility than the tax billing process, we decided to evenly distribute our bills over the year and in many ways the schedule works very well. Cash flow is steady and there are no surges in operations. However, it does add a wrinkle to rate setting.

The wrinkle is that everyone isn't billed at the same time and so any rate changes have to be phased in over a 3 month period. This means that the first normal bill a customer receives in FY2023 will be

charged at the FY2022 rate because some or all of the water was used during FY2022. This also ensures that every customer gets 12 months at the FY2022 rate and twelve months at the FY2023 rate, etc.

Hence, transition volumes are the expected volume of water to be billed at the old water rate in the new fiscal year. There are additional ramifications related to transition volumes that affect the amount of the rate increase. The volumes billed at the previous rate are used during the summer months so we're charging a lower rate for part of the year when consumption is at its peak. This requires a higher rate increase, percentage wise, to make up the difference during the remaining months.

Fees

Some of our revenue comes from fees including the base fee and fire service connection fee. The base fee, also known as the service fee, is the minimum bill amount that is charged regardless of how much water is used. The reasoning for this is that if a service is active there are benefits given and expenses incurred even if no water is used – pressure is maintained, the meter is provided, bills are sent, water quality reports are mailed, etc. Fire services are typically large diameter pipes usually around six or eight inches in diameter. This fire service fee was implemented to offset the higher cost of maintaining these larger connections.

Rate Options

A number of rate options are presented. This year there isn't much difference between each option for two reasons. The main reason is the rate option selected by the Board of Water Commissioners at the last rate hearing in June 2020 increased base fee from \$22.50 to \$24 per quarter and the tiered rates were fixed – the tier II rate was \$3 more than tier I and tier III was set at \$6 more than tier II. This option was selected to correct for the spreading out of the rates over time. Prior rate adjustments were applied to just the tiered rates, multiplying each by the required percent increase. This caused the rates to diverge and they had gotten too far apart. This adjustment coupled with this year's modest rate increase led to rate options that are very similar to each other.

Rate Comparisons

A comparison of water rates in surrounding communities is provided for reference purposes. Communities immediately adjacent to Topsfield and communities adjacent to those were selected for comparison. Water rates are sometimes used to compare systems but there is quite a bit of detail that underlies the rates that may not be apparent.

- Some of the systems are not run on an enterprise basis. An example of this is Peabody. Their water system is subsidized by taxes to keep water rates low.
- One of the systems, Rowley, recently built water treatment plants and has a large debt burden similar to ours.
- A couple of systems have unusual rate structures that make a direct comparison to ours more difficult. For example, Ipswich has a summer rate (\$18.57) and a winter rate (\$12.38).
- Scale is a major advantage for Beverly, Danvers and Peabody. The higher population density and vibrant commercial sectors of these cities allows for more efficient distribution systems and greater sharing of large capital expenses.

We are the highest in the medium and large use categories. This factored into the rate option selected at the last rate hearing. Bringing the rates closer together actually lowered the highest rate by a few cents, preventing further divergence from other systems in the medium and large use categories.

Billing vs. Revenues

In the rate model there is a fiscal year offset. This adjustment is used to correct for the difference between what is billed and what is collected in a given fiscal year. The issue is there is a lag between what is billed and what is collected. The volumes used for the rate calculations are based on what we expect to bill during a given fiscal year and is more or less predictable. The timing of the revenue generated by the bills is less predictable so the offset is estimated to correct for the difference between commitments and revenues and is typically the amount transferred to tax liens each year.