

# MEMORANDUM

**To:** Evan Teich, Unified Manager and the Selectboard  
**From:** Dennis E. Lutz, P.E., Public Works Director  
Aaron Martin, P.E., Utilities Director/Town Engineer  
**Subject:** FYE2020 Water and Sewer Budget and Rates  
**Date:** 11 March 2019

**ISSUE:**

The issue is whether or not the Selectboard will approve the proposed water and sewer budgets including approval of the proposed rate structure for FYE2020, with the new rates to be reflected in the fall 2019 bills, starting with usage after the spring 2019 billings.

**DISCUSSION:**

**WATER RATES:** The FYE2020 proposed water budget has an overall 1.1% increase in budgeted line items and a resulting rate percentage increase of 2.6%. The water rate increases over the past few years are as follows:

<u>Fiscal Year Ending</u>	<u>Rate Increase Over the Previous Year</u>
FYE20	2.6% proposed
FYE19	3.0%
FYE18	2.5%
FYE17	1.4%
FYE16	3.7%
FYE15	6.0%
FYE14	3.3%
FYE13	7.5%
FYE12	7.2%

There is no proposed increase in the water initiation fees; the minimum water rate charge is presented to increase by \$10/year from \$170 to \$180.

The water budget proposed for FYE2020 is impacted to a great degree by only a small number of line items including: the wholesale cost of water from the Champlain Water District (35% of the budget with a 3% increase over FYE2019), salary and benefit costs (31% of the budget), purchase of new meters and new meter software (1.8 % of the budget), the set aside for system replacement costs at or near the system depreciation value (12 % of the budget) and system repairs and maintenance costs (3% of the budget). Other line items associated with the Town water system account for the remaining 17%. Although wages are anticipated to increase up to the contract limit of 3.5%, the line items for salaries and benefits have remained flat or decreased as new employees with different benefit calculations replace retiring employees.

**SEWER RATES:** The FYE2020 proposed sewer budget has an overall 2.2% in budgeted line items and a 2.9 % corresponding increase in rates. The difference is due to the estimated usage as explained in more detail later in this memo and the reduction in application of sewer initiation fees for rate stabilization from \$10,000 in FYE19 to zero in FYE20.

In a manner similar to the water budget, only a small number of line items have a significant impact on the budget including: the wholesale cost of treating wastewater at the Essex Junction Treatment facility (39% of the budget with a 5.72% increase over FYE2019), salary and benefit costs (20% of the budget), debt (20% of the budget), utility costs (4% of the budget), the set aside for system replacement costs at or near the system depreciation value (10 % of the budget) and system repairs and maintenance costs (3% of the budget). Other line items associated with the Town sewer system account for the remaining 4%. Although wages are anticipated to increase up to the contract limit of 3.5%, the line items for salaries and benefits have remained flat or decreased as new employees with different benefit calculations replace retiring employees.

The sewer rate increases over the past few years are as follows:

<u>Fiscal Year Ending</u>	<u>Rate Increase Over the Previous Year</u>
FYE20	2.9% proposed
FYE19	3.2%
FYE18	4.5%
FYE17	6.1%
FYE16	4.6%
FYE15	8.3%
FYE14	6.5%
FYE13	8.8%
FYE12	9.1%

There is no proposed increase in the sewer initiation fees.

The sewer budget changes are primarily due to the increase in Wastewater Treatment Plant costs to operate.

**GENERAL ISSUES (same as in FYE19):**

The major issues that continue to impact the budget are:

- 1) The need to maintain the sewer and water funds on a firm financial basis by setting aside adequate funds for system stabilization (asset replacement).
- 2) The need to continue and attempt to complete the meter replacement program for more accurate verification of usage and billing as well as establishing the groundwork for future administration of accounts and billings.
- 3) The need to go to more billings per year (from two to four) for all customers.
- 4) The need to continue to reduce unaccounted for water.

**1) System Stabilization/Elimination of Past Deficits:**

The funds budgeted for system stabilization in both accounts for FYE2020 are slightly in excess of actual depreciation amounts identified in the Town audits. A comparison of budgeted system stabilization in each account versus actual expenditure is reflected in the following data:

System Stabilization Accounts

<u>Year</u>	<u>Water Budgeted</u>	<u>Water Actual</u>	<u>Sewer Budgeted</u>	<u>Sewer Actual</u>
FYE2011	\$50,000	\$139,475	\$45,000	\$139,475
FYE2012	\$97,500	\$147,864	\$97,500	\$147,864
FYE2013	\$136,000	\$148,000	\$138,000	\$147,966
FYE2014	\$148,000	\$145,834	\$148,000	\$145,834
FYE2015	\$138,000	\$138,000	\$158,000	\$158,000
FYE2016	\$138,000	\$138,000	\$158,000	\$158,000
FYE2017	\$130,000	\$150,000	\$150,000	\$150,000
FYE2018	\$125,000	\$150,000	\$175,000	\$150,000
FYE2019	\$150,000	\$150,000	\$150,000	\$150,000
FYE2020	\$158,000	\$150,000 (est)	\$158,000	\$150,000

The sewer and water accounts operated in a deficit for many years, dating back to the change in the rate structure done in 2004. At that time, the Town went away from a combination fixed charge/user fee rate system to a pure user rate system based on metered flow. With the metered flow type of billing and with the variability in water and sewer usage on a yearly basis, the sewer/water funds did not keep up with actual expenses. It has taken some time to correct the problem, but the accounts have been solvent since FYE2015. An indicator of the past problem is found under the actual interest payments for recently completed financial years under both accounts as noted:

<u>Fiscal Year</u>	<u>Sum of Interest on Deficits Paid in Water and Sewer</u>
FYE2019	\$ 0
FYE2018	\$ 0
FYE2017	\$ 0
FYE2016	\$ 0
FYE2015	\$ 0
FYE2014	\$ 773
FYE2013	\$ 84
FYE2012	\$1,060
FYE2011	\$2,104
FYE2010	\$4,730

**2. Continuation and Completion of the Meter Replacement Program**

Meter replacements are budgeted in the FYE2020 budget at a cost of \$41,620, slightly more than in the previous year. This is due to a request to purchase new software to enhance the customer service capability of the newly installed meters. There are still approximately 319 meters that need to be replaced. Changing over to the new meters was previously approved by the Selectboard. The new meters provide for more accurate readings and billings, greatly reduced meter reading time and associated administrative costs. They also increase the potential for billing to all users more often than twice a year. The larger meter uses are now being billed four times per year.

**Retail Sale of Water/Sewage**

The loss rate calculated for the budget represents an economic loss rate and not the actual loss of unaccounted for water or sewage.

In water, the amount purchased from CWD is based on monthly readings which provide very close to a 365 day average. The customer-billed water usage for 2018 is based on 352 days between readings and has been adjusted to reflect the fewer days. The difference in flows approximates the difference between water purchased and water sold during the 12 months. Within this “revenue” lost stream there is water used for firefighting and hydrant flushing – losses which are identified but not quantified. These uses represent revenue loss. The actual amount of “unaccounted for water” is likely less than the 17% reported – probably in the 10% range.

In wastewater, a similar effect occurs with respect to billing periods. The wastewater billed flows have also been adjusted by the 352 day billing period.

System loss is an issue that will be continually monitored by Public Works to reduce the loss rate over time.

**WATER**

<u>Period</u>	<u>Purchased from</u> <u>CWD</u>	<u>Billed</u>	<u>Loss</u>	<u>Percentage of Loss</u>
Jan18-Dec18	765,889 gpd	633,412 gpd	132,477 gpd	17%
Jan17-Dec17	757,565 gpd	679,677 gpd	77,888 gpd	10%
Jan16-Dec16	774,413 gpd	649,414 gpd	124,999 gpd	16%
Jan15-Dec15	762,425 gpd	624,253 gpd	138,172 gpd	18%
Jan14-Dec14	773,891 gpd	633,356 gpd	140,535 gpd	18%
Jan 13-Dec13	749,682 gpd	633,035 gpd	116,647 gpd	15%
Jan 12-Dec12	746,609 gpd	683,709 gpd	62,900 gpd	8.4%
Jan11-Dec11	777,621 gpd	654,000 gpd	123,621 gpd	16%
Jan10-Dec10	772,953 gpd	630,206 gpd	142,747 gpd	18.5%
Jan09-Dec09	692,058 gpd	634,102 gpd	57,956 gpd	8.4%
Jan08-Dec08	760,035 gpd	665,067 gpd	94,968 gpd	12%
Jan07-Dec07	745,371 gpd	657,548 gpd	87,823 gpd	12%
Jan06-Dec06	827,938 gpd	669,000 gpd	158,938 gpd	19%
Jan05-Dec05	843,507 gpd	672,000 gpd	171,507 gpd	20%
Jan04-Dec04	825,137 gpd	705,000 gpd	120,137 gpd	15%
Jan03- Dec03	924,482 gpd	673,382 gpd	251,100 gpd	27%
Jan02-Dec02	882,521 gpd	728,024 gpd	154,497 gpd	18%

Long-term average = 16%

## SEWER

<u>Period</u>	<u>Metered Flow to EJWWTF</u>	<u>Billed to Users</u>	<u>Difference</u>	<u>Unaccounted Percentage</u>
Jan 18- Dec 18	449,033 gpd	427,493 gpd	21,540 gpd	4.8%
Jan 17- Dec 17	432,501 gpd	422,267 gpd	10,234 gpd	2.4%
Jan 16- Dec16	423,233 gpd	422,267 gpd	966 gpd	1%
Jan 15-Dec15	428,502 gpd	412,390 gpd	16,112 gpd	4%
Jan 14-Dec14	462,942 gpd	411,826 gpd	51,116 gpd	11%
Jan13- Dec13	529,133 gpd	415,756 gpd	113,376 gpd	21%
Jan12- Dec12	475,047 gpd	438,086 gpd	43,124 gpd	9%
Jan11-Dec11	487,584 gpd	429,000 gpd	58,584 gpd	12%
Jan10-Dec10	446,119 gpd	419,528 gpd	26,591 gpd	6%
Jan09-Dec09	511,155 gpd	433,090 gpd	78,065 gpd	15%
Jan08-Dec08	532,301 gpd	435,816 gpd	96,485 gpd	18%
Jan07- Dec07	559,056 gpd	442,160 gpd	116,892 gpd	20%
Jan06- Dec06	624,004 gpd	447,192 gpd	176,812 gpd	28%
Jan05-Dec05	579,498 gpd	447,271 gpd	132,227 gpd	23%
Jan04-Dec04	589,883 gpd	439,049 gpd	150,834 gpd	26%
Jan03- Dec03	540,658 gpd	433,225 gpd	107,433 gpd	20%
Jan02-Dec02	532,056 gpd	437,660 gpd	94,396 gpd	18%

Long-term average = 14%

Last 10 year average = 8.6%

Last 5 year average = 4.6%

As stated in the budgets of previous years, both the water and sewer loss percentage numbers should be in the 15% range recognized nationally for a reasonably "tight" system.

## BUDGET ANALYSIS

The proposed budgets for FYE2020 compared to the current FYE2019 budgets are as follows:

Table 1. Budget Comparison

	<u>FYE2019</u>	<u>FYE2020</u>	<u>Increase/Decrease</u>
Water (all but CWD)	\$511,947	\$502,873	-1.7%
Water (Depreciation)	\$150,000	\$158,000	+5.3%
Water (CWD Water Purchase)	<u>\$651,265</u>	<u>\$667,245</u>	<u>+2.5%</u>
Total	\$1,313,212	\$1,328,118	+1.1%
Sewer (all but Village + Bradford)	\$476,854	\$481,481	close to 1%
Sewer (Depreciation)	\$150,000	\$158,000	+ 5.3%
Sewer (Bond Payments)	\$ 33,815	\$ 31,200	-7.7%
Sewer (Village Treatment)	\$557,000	\$580,000	+4.1%
Sewer Village Bond)	<u>\$263,457</u>	<u>\$263,457</u>	<u>0%</u>
Total	\$1,481,126	\$1,514,138	+2.2%

## PROPOSED RATES

	<u>Existing</u>	<u>Proposed</u>
Water Operating	\$5.42/1000 gal.	\$5.56/1000 gal.
Water Initiation Fee	\$1,000 base fee per connection +\$5.73/gpd of capacity	\$1,000 base fee per connection + \$5.73/gpd of capacity
Minimum Water Charge Per Year	\$170	\$180
Sewer Operating	\$9.27/1000 gal.	\$9.54/1000 gal.
Sewer Initiation Fee	\$1000 base +\$10.30/gpd of capacity	\$1000 base+\$10.30/gpd of capacity

## METHODOLOGY FOR RATES

For previous fiscal years dating back to 1998, it was determined that the budgets would be split into the following categories:

1. Shared water and sewer costs (primarily fixed costs)
2. Water only costs
3. Sewer only costs

## History of Shared Costs Splits

	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	to	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>
Water	60	61	55	55		55	53	53	53	54	58	58	58	58	57
Sewer	40	39	45	45		45	47	47	47	46	42	42	42	42	43

The first estimates for splitting of costs between water and sewer were based on a 50% water/50% sewer ratio (1998). The ratio was changed to a 55%/45% split in 2005 and remained at that level until 2011. In FYE2012, the percentage shifted to 53% water and 47% sewer and the proposed budget for FYE2014 retained this percentage split. The split in FYE2016 through FYE19 was set at 58%/42%.

Using the calculations on rate setting later in this memo, a 57% water/43% sewer split was utilized. This closely approximates real shared costs percentages but also recognizes that the water and sewer bills should in a general sense reflect all costs including the costs increases for wholesale purchase of water and wholesale treatment of wastewater.

It is proposed for FYE2020 that the split be on a 57% water/43% sewer basis.

<b>DEVELOPMENT OF WATER RATE</b>
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<u>Assumptions:</u>	1.	Water Budget = \$1,328,118
	2.	No Direct Debt - debt through CWD line item 51.43201.411 for the west end tank in Colchester.
	3.	Billed Water Usage
		2004                      705,000 gpd
		2005                      672,000 gpd -
		2006                      669,000 gpd
		2007                      658,000 gpd
		2008                      665,067 gpd
		2009                      637,000 gpd
		2010                      630,206 gpd
		2011                      654,000 gpd
		2012                      683,000 gpd
		2013                      633,035 gpd
		2014                      633,356 gpd
		2015                      624,653 gpd
		2016                      649,414 gpd
		2017                      649,414gpd
		2018                      633,412gpd
		2019                      658,000gpd (estimated)
		2020                      655,000gpd (est/proposed)

Calculation of Rate: Water budget = \$1,328,118

1.  $\frac{\$1,328,118}{365 \text{ days} \times 655,000 \text{ gpd}} = \$5.56/1,000 \text{ gallons}$

The current rate is \$5.42/1,000 gal.; recommend an increase to \$5.56/gallons (2.6% increase in rates).

2. The minimum water charge was kept level from FYE2016 through FYE2018. In earlier years, the minimum was equal to approximately 50% of the average daily family usage which would be 100 gpd. Based on discussions from the FY2019 budget, the minimum is recommended to increase from \$170 per year to \$180 per year.

Year	Minimum Charge	Water rate per 1000 gallons	Minimum if 100 gpd was used	Actual minimum as a % of 100 gpd
2013	\$160	\$4.45	\$162	99%
2014	\$165	\$4.60	\$168	98%
2015	\$165	\$4.88	\$178	93%
2016	\$165	\$5.06	\$184	90%
2017	\$165	\$5.13	\$187	87%
2018	\$165	\$5.24	\$191	86%
2019	\$170	\$5.42	\$198	86%
2020	\$180	\$5.56	\$203	89%

## DEVELOPMENT OF SEWER RATE

Assumptions:

1. Sewer Budget Operating = \$1,514,138

2. Sewer Usage (billed)

FYE2004	439,049 gpd
FYE2005	447,271 gpd
FYE2006	447,192 gpd
FYE2007	442,160 gpd
FYE2008	435,816 gpd
FYE2009	433,090 gpd
FYE2010	419,528 gpd
FYE2011	429,000 gpd
FYE2012	438,086 gpd
FYE2013	415,716 gpd
FYE2014	411,826 gpd
FYE2015	412,390 gpd
FYE2016	422,467 gpd
FYE2017	422,268 gpd
FYE2018	427,493 gpd
FYE2019	435,000 gpd (estimated)
FYE2020	435,000 gpd (estimated/proposed)

Calculation of Rate: Sewer Operating Budget: \$1,514,138

1.

$$\frac{\$1,514,138}{365 \text{ days} \times 435,000 \text{ gpd}} = \$9.54/1,000 \text{ gal}$$

2. The current rate is \$9.27/1,000 gal; increase the proposed rate to \$9.54/1000 gal. (2.9% increase).

**COSTS:**

The proposed budget totals for FYE2020 are shown on Page 12. Page 13 shows the differences between FYE2019 and FYE2020 on shared budget items (51.43200 accounts). Page 45 shows the differences between FYE2019 and FYE2020 for the water only accounts (51.43201 accounts). Page 61 shows the differences between FYE2019 and FYE2020 for the sewer accounts only (51.43202 accounts).

**EFFECT OF RATE CHANGE ON THE CURRENT USERS:**

An average residential household would see the following change in costs on an annual basis:

Annual Usage: 200 gpd x 365 days per year = 73,000 gpd/year

Existing Water bill: \$398.58      Water Bill with Rate Change: \$405.88 (\$7.30 yearly increase)

Existing Sewer bill: \$676.71      Sewer Bill with Rate Change: \$696.42 (\$19.71) yearly increase

TOTAL      \$1,075.29                              TOTAL      \$1,102.30 (\$27.01 yearly increase)

Net increase: A \$27.01 increase in both the water and sewer bill equates to a 2.5% total increase in residential charge for the year or a \$2.25/month increase. In addition, the monthly water cost for an average residential dwelling will be \$33.82 and \$58.04 for sewer. For the availability of clean drinking water and flushing toilets, this is a very low-cost utility charge compared to other utility costs.

**COMPARISON RATES TO OTHER COMMUNITIES:**

Most other communities are in the process of setting rates at this time. The charts provided reflect existing rates as of December 2018 unless noted otherwise. Also, many municipalities have adopted a combined fixed and usage rate. In those cases, the rate numbers were adjusted based on an average 200 gpd usage.

Municipality	Water Rate per 1,000 Gallons
Shelburne	\$ 6.65
Milton	\$ 6.48
Burlington	\$ 5.76
<b>Essex</b> (Proposed \$5.56)	<b>\$ 5.42</b>
<b>Average</b>	<b>\$ 5.21</b>
Williston	\$ 5.18
Winooski	\$ 5.17
Colchester FD #3	\$ 5.01
Colchester FD #2	\$ 4.58
South Burlington	\$ 3.98
Essex Junction	\$ 3.86

Municipality	Sewer Rate per 1,000 Gallons
Shelburne	\$ 13.15
Colchester	\$ 9.97
<b>Essex</b> (Proposed \$9.54)	<b>\$ 9.27</b>
<b>AVERAGE</b>	<b>\$ 8.00</b>
Milton	\$ 8.03
Burlington	\$ 7.78
Williston	\$ 7.26
Winooski	\$ 6.49
South Burlington	\$ 5.38
Essex Junction	\$ 4.76

In discussions with other utilities, some of the communities with lower rates do not appear to be accurately reflecting depreciation or replacement asset costs in their rates. Over a long period of time, systems will have to be replaced and the costs of replacements will most likely be paid for by greater costs of indebtedness.

**SUMMARY:**

The budget and rate development outlined in this memorandum follows the methods used in previous years. It uses the water meter as the only means of establishing usage and rates (except in a very few unique cases).

Billings are currently twice per year for all customers. In the FYE16 Budget, it was recommended that billings for larger users (meter sizes in excess of 1-inch meters) be billed quarterly with the remaining smaller meters billed every six months. With consolidation of services in administration, financing and public works, the first quarterly billing for large users occurred in the late summer of 2018. Expanding this to all customers It is still a very high priority and will occur as soon as staff can manage the change effectively.

The Town is currently embarking on a number of significant changes involving consolidation of services with the Village. With these issues consuming a significant amount of staff time as well

as Selectboard time, the issue of making significant changes to the method of billing should be postponed to a later date.

The staff believes that an alternative billing system to the 100% metered system should continue to be investigated for the future. Work will continue on this effort between the Finance Department and Public Works.

**RECOMMENDATION:**

It is recommended that:

- 1) This memorandum be placed on the Town website after the Budget is introduced at the 1 April 2019 Selectboard Meeting and
- 2) A review of the proposed Budget occur at the Selectboard meeting on 15 April 2019, and
- 3) A public hearing be warned on the proposed Budget for 6 May 2019 and
- 4) A Water/Sewer Budget be adopted by the Selectboard following the Public Hearing.

It is further recommended that, following the Public Hearing, the Selectboard approve the proposed budget as submitted, resulting in the following changes to the rate structure:

**Water Rates/Fees:**

- 1) increase the water rate from \$5.42/1,000 gallons to \$5.56/1,000 gallons
- 2) maintain the water initiation fee at \$1000 base fee per connection plus \$5.73/gpd of capacity
- 3) set the water minimum charge per year at \$180.
- 4) bill water users four (4) times per year as soon as the system of billing can be effectively put into operation

**Sewer Rates/Fees:**

- 1) increase the sewer operating fee from \$9.27/1,000 gallons to \$9.54/1,000 gallons
- 2) maintain the sewer initiation fee at \$1,000 base fee per connection plus \$10.30/gpd of capacity.
- 3) bill sewer users four (4) times per year as soon as the system of billing can be effectively put into operation.

Also, the rate change would go into effect on all water/sewer usage with the billing period starting after the spring 2019 billings.