

2143

December 13, 2018

Mr. Ronald Miner, Superintendent  
Merrimack Village District  
2 Greens Pond Road  
Merrimack, NH 03054

Re: ***Water Rate Study Update – FY 2018/2019***  
***Merrimack Village District***  
Merrimack, NH

Dear Mr. Miner:

Attached is a revised copy of the rate model dated December 13, 2018. The model has been updated from the draft issued on October 22, 2018. The updates are based on revised PFAS report costs (O&M), questions received from the Board of Commissioners, and a Work Session with staff. The primary differences are:

- Added capital reserve contributions of \$500,000 per year starting in FY 2020. This is based on the recommendations in the 2014 Asset Management Report. Prior to FY 2019, the District has been accumulating \$500,000 plus per year in surpluses, however, as of FY 2020 expenses have increased such that the surpluses do not exist. Much of the increases are due to debt.
- Increased operating expenses for the PFAS systems on Wells #2, #3, #7, and #8. This is essentially changing the estimated GAC life from 2-years to 1-year.

The answers to the Board questions are as follows:

***Question:*** Are costs (new debt) in Options B & D based on GAC treatment, or resin, or both?

***Answer:*** All rate impacts are based on GAC because they are less expensive.

***Question:*** Is the \$840,000 recommended capital reserve contribution included in the rate study?

***Answer:*** This contribution was not included in the October draft. Based on the discussion in the Work Session with MVD staff, a \$500k annual capital reserve contribution was added to the rate study. This is based on the low end of the annual asset management contribution (\$420k) recommended in the asset management report, inflated 3% annually from 2014 to approximately \$500k. See discussion above also.

***Question:*** Option B & D Annual O&M don't match the PFAS cost report. Should they?

**Answer:** O&M costs have been updated to reflect changes to GAC life estimates. Costs in the rate study are the average of the GAC cost range from the PFAS report (Note: PFAS report is currently being updated).

**Question:** Confirm all rate increases in subsequent / consecutive years from 2020, 2021 and 2022 are year to year increases, and are not increases based on today's rate.

**Answer:** That is correct, the rates are compounded. We have provided the compounded rate based on today's rate in the December report.

**Question:** Figure-2: needs a footnote to explain what 14D, 14C, 14B, and 14A refer to, based on the tables in the appendix.

**Answer:** This footnote has been added.

**Question:** Appendix Table 9: what was the new well in account #30735, for \$835,000 with debt issued in 2011, maturing in 2026?

**Answer:** This bond was originally for well #6 blending, but was repurposed for new well development (Mitchel Woods and the Hollis property). Remaining bond funds of ~\$600k are proposed to be put towards the FY 2021 \$1.5M CIP for New Well Site Installation.

**Question:** Appendix Table 10: I assume everything listed on the CIP is included in the rate study? Even the \$700K & \$140K values?

**Answer:** All CIP items on Table 10 are included in the December rate model, except the annual \$840k for asset management, which is included instead at \$500k (low end of asset management recommendation). This is a change from the October draft.

**Question:** What is the rate impact if the Mitchel Woods CIP item is deferred and the \$1.5M for that item was used for PFAS?

**Answer:** If the \$1.5M (\$600k in bond proceeds and \$900k in reserve funds) allocated for New Well Development were instead put towards reducing the PFAS Treatment at Wells #7 & #8 Bond from \$3.6M to \$2.1M, the FY2022 rate increase would be decreased by about 3%. Note that this option only delays the New Well Development project, so additional rate increases may be required in the future to support it.

**Question:** Appendix Tables 11A-D: no table provided for past Fe/Mn treatment at wells 7&8, is that because the debt is already included in this study? Are all tables 11 just for future debt?

**Answer:** Yes, existing debt is in Table 9 including Fe/Mn for #7 and #8.

As a result, the rate model projects the following rate impacts:

FY 2020 – 13% (Operations and Capital Reserve)  
FY 2021 – 13% (Operations and new debt)  
FY 2022 – 12 - 40% (depending on which PFAS option is pursued)



The following table compares rate impacts from the updated (December 13, 2018) report, to the previous draft report (October 22, 2018):

Scenario	Rate Increase FY 2020		Rate Increase FY 2021		Rate Increase FY 2022		Overall Rate Increase		2024 Reserve Fund Balance	
	22-Oct-18	13-Dec-18	22-Oct-18	13-Dec-18	22-Oct-18	13-Dec-18	22-Oct-18	13-Dec-18	22-Oct-18	13-Dec-18
Option A – Baseline	2%	13%	11%	13%	0%	0%	13%	28%	\$4.6M	\$6.5M
Option B – Option A + PFAS Treatment at Wells #7 & #8	2%	13%	11%	13%	10%	12%	25%	43%	\$4.6M	\$6.6M
Option C – Option B + Fe/Mn Treatment at Well #3	2%	13%	11%	13%	21%	21%	37%	55%	\$4.6M	\$6.6M
Option D – Option C + PFAS Treatment at Wells #2 & #3	2%	13%	11%	13%	38%	40%	56%	79%	\$4.6M	\$6.5M

Further details of the rate impacts are shown in the rate model. It should be recognized that the rate projections after FY 2020 are the best estimates and some are based on certain assumptions. Expenses should be reviewed prior to each increase to confirm assumptions as additional information is known. As a result, UE recommends the following:

- Proceed with raising rates for FY 2020 such they can be included in the first quarter bill (that is by July 2019)
- Prior to adjusting the rates in FY 2021 and FY 2022, update the rate projections (expenses and revenues) Fall of 2020 and 2021, respectfully, to confirm the necessary rate impact and adjust as necessary.

It should also be noted that the rate increases recommended in 2014 to support upcoming debt and other increases were not implemented. The last rate increase was in 2011.



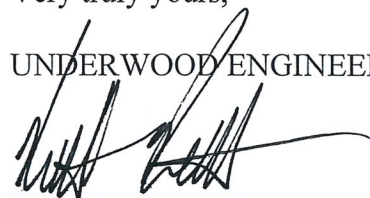
Page 4 of 4  
December 13, 2018  
Mr. Miner

Also note, that per the NHDES Rate Survey, MVD would be at or just below the current State average if all rate adjustments above were implemented (see Table 15 in the Rate Model).

Please call if you have any questions.

Very truly yours,

UNDERWOOD ENGINEERS, INC.



Keith A. Pratt, P.E.  
President



Meagan L. McCowan, E.I.T.  
Project Engineer

KAP/mlm

Enc.



2143

December 13, 2018

Mr. Ronald Miner, Superintendent  
Merrimack Village District  
2 Greens Pond Road  
Merrimack, NH 03054

Re: ***Water Rate Study Update – FY 2018/2019***  
***Merrimack Village District.***  
Merrimack, NH

Dear Mr. Miner:

Underwood Engineers is pleased to provide you with the enclosed Merrimack Water Rate Model Update. In accordance with our scope of work, we have updated the **water rate model** (last updated in April 2014) to project rates for the next 5 years through FY 2024.

The goals of this study included:

- Review and estimate MVD's expenses for the next five years, compare to projected revenues, and provide rate adjustment recommendations.
- Consider rate adjustments needed to support debt for the following potential projects:
  - PFAS Treatment at Wells #7 & #8
  - Fe/Mn Treatment at Well #3
  - PFAS Treatment at Wells #2 & #3

***Rate History & Account Data***

The last rate increase was implemented July 1, 2011. The current consumption rate is \$1.95/100 cubic feet, and the current 5/8" meter charge is \$54/year. Account data is shown in **Table 1**.

**Table 1. Account Data as of 2/17/17**

Meter Size	Number of Meters
5/8"	6,270
3/4"	0
1"	204
1-1/2"	56
2"	118
3"	8
4"	7
8"	2

**Revenue and Consumption History**

Production as measured at the supply wells has remained fairly steady at an average of 2.2 MGD to 2.4 MGD between FY 2014 and FY 2017. Metered consumption has also remained at approximately 2.1 MGD between FY 2014 and FY 2017. Total revenues averaged \$3.34M between FY 2014 and FY 2017, with surpluses ranging from 19% to 27% (average of ~\$640,000 per year). While surpluses have historically been used to increase reserves and/or the fund balance, the surplus dropped to 5% in FY 2018, and projections forward show expenses and revenue are more closely aligned. **Tables 2 and 3** summarize metered consumption history and revenue. **Figure 1** compares historical revenues and expenditures.

This model update assumes consumption for FY 2019 through FY 2024 will remain the same based historical trends. MVD should monitor consumption trends, as this will affect revenues.

**Table 2. Metered Consumption History**

Period	Average Production (MGD)	Metered Consumption, average daily (MGD)
July 13 – June 14	2.2	2.0
July 14 – June 15	2.3	2.0
July 15 – June 16	2.4	2.3
July 16 – June 17	2.3	2.0

July 17 – June 18 Production and Consumption water balance has not yet been finalized

The average consumption per equivalent dwelling unit (EDU) is **206 gpd (2,508 CF/Qtr)**, based on the average domestic revenue and number of domestic single units and condo/multi-units for FY 2015 to FY 2017.

**Table 3. Historical Revenues, Expenses, and Surpluses (Actual)**

Period	Total Revenue	Total Expense	Surplus
July 13 – June 14	\$3.20M	\$2.69M	\$0.51M (19%)
July 14 – June 15	\$3.39M	\$2.66M	\$0.73M (27%)
July 15 – June 16	\$3.52M	\$2.79M	\$0.73M (26%)
July 16 – June 17	\$3.55M	\$2.95M	\$0.60M (20%)
July 17 – June 18*	\$3.48M	\$3.33M	\$0.15M (5%)

\*Actual revenues and expenditures for FY 2018 are not finalized, but no significant changes are anticipated

**Expense History**

Expenses have ranged from \$2.66 to \$3.33M for the previous four years. New debt was bonded in 2016 (NHDES SRF loan of \$4.3M for the new treatment plant at Wells #7 and #8).



### ***Rate Model Updates – 2017/2018***

The current rate model includes the following updates and assumptions:

- Current rates (effective 7/1/2011) Note that rate increases recommended in the 2014 rate model (~5% in FY 2016 and ~5% in FY 2017) were never implemented.
- Metered consumption (revenue water) = 2.1 MGD (based on three-year average of FY 2015-FY 2017), assumed to remain constant through FY 2024
- Total number of meters = 6,665 (increase of 112 since 2014 model update)
- FY 2019 Board of Commissioners recommended budget of \$3.60M (actuals not available until Fall 2019)
- Four bonds were included in the debt payments per the 2017 Annual Report:
  - Bean Road Project
  - New Well Development (Per MVD, this bond was originally taken out to pay for Well #6 blending. This bond money has since been repurposed for New Well Development (Mitchell Woods and the Hollis Property). Remaining bond funds of approximately \$600k are available for use. For this model, the funds are assumed to be put towards the FY 2021 \$1.5M CIP item for New Well Site Installation.)
  - Continental Boulevard Area Mains
  - Wells 7&8 Treatment DWSRF
- Upcoming budgeted debt of \$1.3M for the Turkey Hill Booster Station will have principle of \$65,000 and interest of \$31,000 beginning in FY 2021
- Capital budget expenses per the CIP
- Current reserve account balances (sum as of June, 2018) = \$5,740,000
- Future budgeted expenses increase at 3% per year, except Capital Reserve Contributions, Warrant Articles, CIP Items, and Debt
- Future capital reserve expenditures and debt service per current CIP dated 2/12/2018 and review with MVD

### ***Near Term Capital Needs and Expenses***

Debt service for capital improvements in the near term is shown on **Figure 2**.

- The Iron/Manganese treatment plant for Wells 7 and 8 has used \$4,300,000 in SRF funds. Debt payments began on May 1, 2017 (FY 2017) and will continue through FY 2036. This resulted in a budget increase of approximately \$262,000 per year starting in FY 2018.
- Debt payments for the \$1.3M Turkey Hill Booster Station will begin in FY 2020 and continue through FY 2040. This will result in a budget increase of approximately \$96,000 beginning in FY 2020.
- Other significant budget increases have included health insurance, salaries, pump station maintenance, engineering, and capital budget expenses.



**Capital Reserves**

- Projects assumed to be funded by Capital Reserves in FY 2019 – FY 2024 include:
  - FY 2019: Wells #4 & #5 Treatment - \$405,000 from reserves or outside funding, \$3,755,000 from grants and outside funding (O&M is assumed to be included in this amount).
  - FY 2019: New Backhoe Loader - \$135,000
  - FY 2019: Portable Pressure Pump/High Service - \$70,000
  - FY 2019: Artificial Recharge - \$75,000
  - FY 2019: Wire Road Extension (Add. Alt.) - \$267,000
  - FY 2021: New Well Site Installation - \$900,000 from reserves and \$600,000 from remaining bond proceeds

**Long Term Capital Needs**

The Water System CIP (February 2018) identified CIP items to be funded by the capital reserve fund or bonds. It also recommended additional contributions to capital reserves of \$420,000 - \$840,000 to support asset management based on the 2014 Asset Management Plan. Previously, contributions for asset management were covered by surplus budget, but projections forward show revenues and expenditures to be more closely aligned. Using 3% annual inflation from 2014-present, these capital reserve contributions are estimated to now be \$490,000-\$970,000. Based on these values, the low end of the recommendation (rounded to \$500,000 annually) was included in the rate model to support asset management.

**Revenue Needs**

Projected expenses were compared to projected revenues from existing and proposed rates, assuming water sales at 2.1 MGD.

- Rate increase of 13% in FY 2020 and 13% in FY 2021 are needed to match revenues to expenditures, including the capital reserve contributions for asset management.
- While MVD has historically generated an annual surplus revenue of approximately \$640,000, MVD expenses have gone up such that it is no longer generating additional revenue. Therefore, surplus revenue was not considered an option to offset rate increases for this evaluation.

**Rate Scenarios**

Rate scenarios were evaluated under current (baseline) revenue needs, and also to consider the addition of three additional projects in FY 2022. These projects were separated into four options for evaluation in the rate model (note that O&M for PFAS treatment is based on using granular activated carbon (GAC) only, not resin):

- Option A – Baseline
  - Budget, assumed to increase 3% annually
  - Existing debt
  - Capital Reserves Expenditures for budgeted CIP
  - \$500,000 annual Capital Reserve contribution, beginning in FY 2020





- New Turkey Hill Booster Station debt, ~\$96,000 beginning in FY 2020
- Option B – Option A + PFAS Treatment at Wells #7 & #8
  - New debt, ~277,000 beginning in FY 2022
  - Annual O&M of \$192,500
- Option C – Option B + Fe/Mn Treatment at Well #3
  - New debt, ~347,000 beginning in FY 2022
  - Annual O&M of \$50,000
- Option D – Option C + PFAS Treatment at Wells #2 & #3
  - New debt, ~493,000 beginning in FY 2022
  - Annual O&M of \$332,500

Note that using current rates (no increases) and baseline revenue needs, shortfalls are projected annually ranging from \$84,000 to \$941,000 between FY 2019 and FY 2024, with an ending reserve balance of \$2.5M (down \$3.2M)

**Table 4** shows rate increases needed for each scenario. Note that each option is cumulative and includes the preceding options. Cumulative debt payments as each option is added are shown on **Figure 2**.

**Table 4. Rate Scenarios and Required Rates**

Scenario	Rate Increase FY 2020	Rate Increase FY 2021	Rate Increase FY 2022	Overall Rate Increase <sup>1</sup>	FY 2024 Reserve Fund Balance <sup>2</sup>
Option A – Baseline	13%	13%	0%	28%	\$6.5M
Option B – Option A + PFAS Treatment at Wells #7 & #8	13%	13%	12% (PFAS = 12%)	43%	\$6.6M
Option C – Option B + Fe/Mn Treatment at Well #3	13%	13%	21% (PFAS = 12%)	55%	\$6.6M
Option D – Option C + PFAS Treatment at Wells #2 & #3	13%	13%	40% (PFAS = 31%)	79%	\$6.5M

<sup>1</sup>Rates increases are compounded. The Overall Rate Increase column indicates that final overall increase based on the increases in FY 2020, FY 2021 and FY 2022.

<sup>2</sup>For the purposes of this rate model, FY 2024 reserves were held at the same value for each option. This allows for an “apples to apples” comparison of each rate option.



Based on the FY 2022 rate increases shown in Table 4, the following rate increases are assumed to be PFAS related:

- Option A – 0%
- Option B – 12% (FY 2022, following baseline rate increases)
- Option C – 12% (FY 2022, following baseline rate increases)
- Option D – 31% (FY 2022, following baseline rate increases)

If option D is selected, 12% of the rate impact for PFAS is due to wells #7 & #8, and 19% is due to wells #2 & #3.

See Table 15 in the rate model for sample bills (annual costs) for each option.

If the \$1.5M (\$600k in bond proceeds and \$900k in reserve funds) allocated for New Well Development were instead put towards reducing the PFAS Treatment at Wells #7 & #8 Bond from \$3.6M to \$2.1M, the following FY 2022 rate increases would be necessary (FY 2020 13% increase and FY 2021 13% rate increase remain the same):

- Option A: 0% (overall = 28%)
- Option B: 9% (PFAS related = 9%, overall increase = 39%)
- Option C: 18% (PFAS related = 9%, overall increase = 51%)
- Option D: 37% (PFAS related = 28%, overall increase = 75%)

Please note that this option only delays the New Well Development project, so additional rate increases may be required in the future to support the New Well Development project. A vote of the users would be required in order to reallocate bond proceeds to PFAS treatment.

### ***Conclusions***

- Metered consumption has remained relatively consistent at approximately 2.1 MGD between FY 2014 and FY 2017.
- Revenue surpluses have ranged from 19% to 27% in FY 2014 – FY 2017 (average of ~\$640,000 per year), but dropped to 5% in FY 2018. Projections forward show expenses and revenue are more closely aligned, therefore the \$500,000 annual capital reserve fund contribution was included in the model.
- Operating expenses are assumed to increase each year by 3%.
- Debt service increased by ~\$262,000 per year in FY 2018 (wells #7 & #8 Fe/Mn treatment)
- Without rate increases, shortfalls ranging between \$84,000 and \$941,000 will occur between FY 2019 and FY 2024 for the baseline budget only.
- A 13% rate increase in FY 2020 and a 13% rate increase in FY 2021 are needed for all options to match revenues to expenditures based on baseline needs. These increases are directly related to budget and asset needs, and or not related to the PFAS projects at wells #7 & #8 and #2 & #3.



- Additional rate increases of either 12%, 21% or 40% in FY 2022 should be considered if the Town plans to implement Options B, C, or D.


***Recommendations***


- Increase rates in FY 2020
- Update rate model in Fall 2019 to support recommended FY 2021 rate increase
- Update rate model in Fall 2020 to support FY 2022 rate increases for either Option B, C or D if/when pursued.
- Rate increases for Options B, C and D are based off of Capital and O&M costs as calculated in UE's Technical Memorandum for the Evaluation of PFAS Treatment for Wells 2, 3, 7, & 8. Design life of the GAC has a significant impact on rates, and longer GAC life may reduce the FY 2022 rate impacts. Therefore, it is recommended that the rate adjustments be reviewed during preliminary design as well as during operation of earlier projects to confirm future costs and needed revenues.
- UE typically recommends that 3-6 months of operating expenditures be available in reserves for emergencies. Depending on the selected option, MVD may want to consider maintaining at least \$3M in reserves for emergencies. Note that this amount does not include reserves for asset renewal or CIP. UE recommends building reserves in order to cover CIP and asset management along with emergency funds. The asset management plan should be the basis for capital reserve contributions.
- As noted above, the need for rate adjustments should be reviewed in 1 to 2 years based on CIP spending and actual water sales.
- In future rate evaluations, consider options for hydrant charges. It may be appropriate to incorporate them into the meter charge.

Please call if you have any questions.

Very truly yours,

UNDERWOOD ENGINEERS, INC.

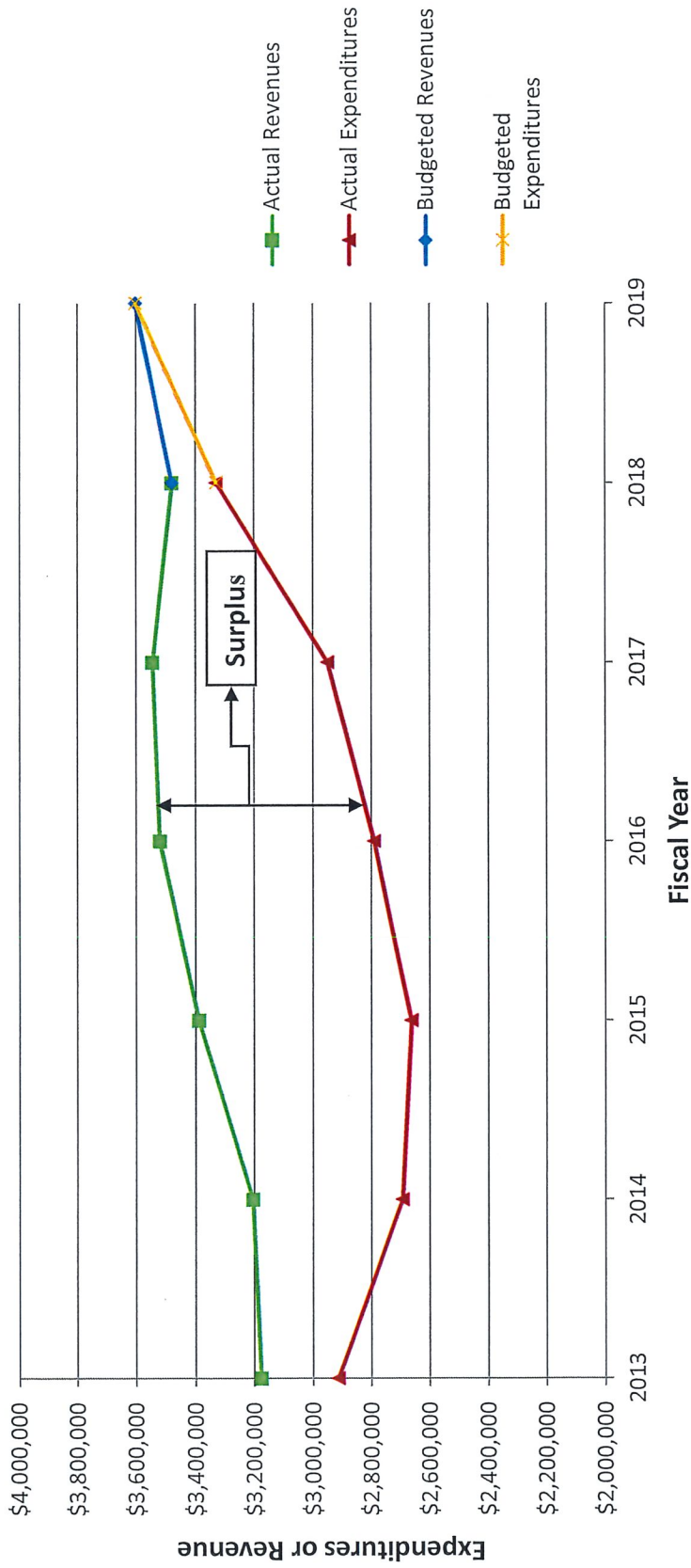
  
Keith A. Pratt, P.E.  
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Project Engineer

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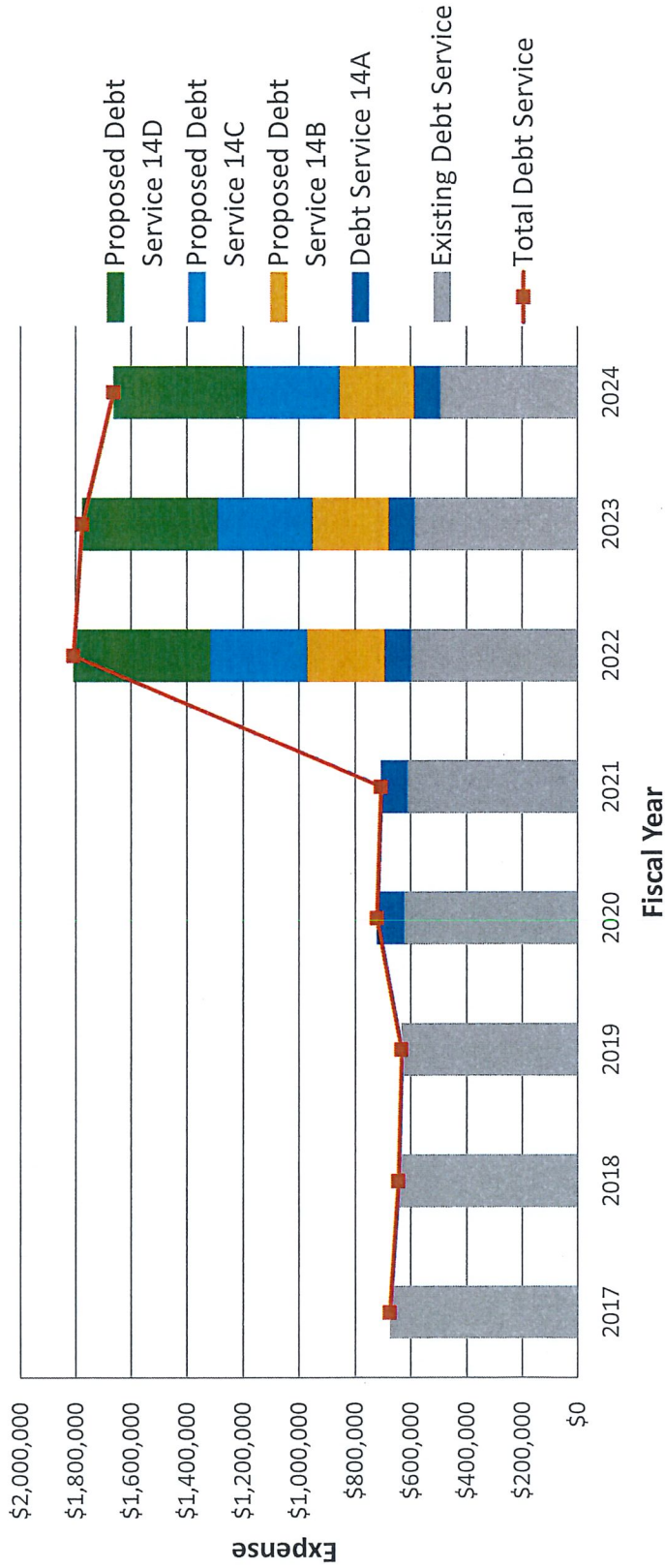


**Figure 1. Revenues and Expenditures  
MVD Rate Evaluation**



Note: FY 2018 actual revenues and expenditures not finalized

**Figure 2: Proposed Debt Service  
MVD Rate Evaluation**



Note: Options 14A – 14D correspond with the following debt scenarios:

- Option A – Existing debt + new annual Turkey Hill Booster Station debt, ~\$96,000 beginning in FY 2020
- Option B – Option A debt + new annual PFAS Treatment at Wells #7 & #8 debt, ~\$277,000 beginning in FY2022
- Option C – Option B debt + new annual Fe/Mn Treatment at Well #3 debt, ~\$347,000 beginning in FY2022
- Option D – Option C debt + new annual PFAS Treatment at Wells #2 & #3 debt, ~\$493,000 beginning in FY2022

# **WATER RATE STUDY**

**FOR**

**Merrimack Village District**

PREPARED BY:

UNDERWOOD ENGINEERS, INC.  
25 Vaughan Mall  
Portsmouth, NH 03801  
603-436-6192

**December 18, 2006**  
**Revised: February 16, 2007**  
**Revised: February 26, 2007**  
**Revised: April 10, 2007**  
**Revised: February 4, 2010**  
**Revised: May 11, 2010**  
**Revised: May 2011**  
**Revised: April 2014**  
**Revised: December 2018**

Printed  
December 13, 2018

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# 1. Conclusions and Notes

## MERRIMACK VILLAGE DISTRICT RATE STUDY

DRAFT

December-18



## 2. REVISION INFORMATION

### MERRIMACK VILLAGE DISTRICT RATE STUDY

**Original Creation:**

Thomas G. Page, Keith A. Pratt  
 Underwood Engineers, Inc., Portsmouth, NH  
 603-436-6192

December-18

**Revision Made:**

Description of Revision	Made By:	Date:
1 Update account data, production, and current billing Based on discussions with MVD	UEI	February 16, 2007
2 Minor updates based on meeting with MVD on 2/22/07	UEI	February 26, 2007
3 Revised rate schedules Rate Schedule A = UEI recommendation (corrected) Rate Schedule B = MVD final proposed rate increase	UEI	April 10, 2007
4 Updated Rate Study for current rates and new CIP	UEI	February 4, 2010
5 Updated Rate Study for approved 2010 bond votes and 2-step rate setting option (Option C)	UEI	May 11, 2010
6 Updated Rate Model for 2011 Rate Review	UEI	May 12, 2011
7 Updated Rate Model for 2014 Rate Review	UEI	April 4, 2014
8 Updated Rate Model for 2018 Rate Review	UEI	December 13, 2018
9		
10		


### **3. INSTRUCTIONS**

#### **MERRIMACK VILLAGE DISTRICT RATE STUDY**

The following are directions for use of this rate setting program.

- 1 Values should only be entered in cells that contain numbers... they are indicated as follows:

**12 Blue Text**

 Yellow shading is critical to the rate setting

Information important to the table (i.e., the basis of a calculation) are highlighted as follows:

 Blue shading

- 2 Confirm that the cell does not contain a formula before entering text or numbers.
- 3 The rate study is set up to enter baseline (existing) information first.
- 4 The second step is to enter projected information such as expenditures.
- 5 The last step is entering the proposed rates such that it meets proposed budgets (expenditures).  
Rates are sufficiently high if total of account balances is maintained.

## 4. WATER ACCOUNT DATA

### MERRIMACK VILLAGE DISTRICT RATE STUDY

#### 4.1 Service Connections (single unit)

		Remarks
Domestic	6246	As of 2/17/2017, per MVD
Mercantile	452	
Industrial	23	
<b>Total</b>	<b>6721</b>	increased from 6618 in 2014 Rate model

#### 4.2 Service connections (Condo/Multi-Unit Customers)

		Remarks
Dwelling Units	2191	As of 2/17/2017, per MVD
Connections	210	As of 12/31/16, per MVD Billing Reports Assume 2191-210 = 1981 = # of minimum meter charges
<b>Average # units/connection</b>	<b>10.4</b>	

#### 4.3 Sprinklers

Size	Number	Remarks
2"	33	As of 2/24/2017 per MVD
4"	31	
6"	72	
8"	21	
10"	4	
12"	1	
<b>Total</b>	<b>162</b>	

#### 4.4 Summary of Customers

	Meters (est.)	Units	Remarks
Single Unit Connections	6629	6721	
Multi-Unit Connections	210	2191	
Sprinklers	0	0	
Hydrant Only	n/a	510	As of 2/17/2017, per MVD
<b>Total</b>	<b>6839</b>	<b>9422</b>	from billing reports (Oct-Dec 2016) from MVD summary (2017)

#### 4.5 Hydrant Only (No service connection but within 600' of a hydrant)

		Remarks
Domestic	482	As of 2/17/2017, per MVD
Mercantile	26	
Industrial	2	
<b>Total</b>	<b>510</b>	

#### 4.6 Summary of Hydrant Charges (Assume all Service Connections plus Hydrant Only Customers)

		Remarks
Domestic	6728	Table 4.1 plus Table 4.5
Mercantile	478	
Industrial	25	
Multi-unit/Condo	2191	
<b>Total</b>	<b>9422</b>	approx.

#### 4.7 Meters

Size	Number	Remarks	Used in 2014 Study
As of 2/17/2017, per MVD Customer List			
5/8"	6,270	w58	6,165
3/4"	0		0
1"	204	w1	200
1 1/2"	56	w15	55
2"	118	w2	117
3"	8	w3	8
4"	7	w4	6
6"	0	w6	0
8"	2	w8	2
10"	0		0
12"	0		0
<b>Total</b>	<b>6,665</b>		<b>6,553</b>

#### 4.8 HIGHEST WATER USER

Name  
District's Largest Customer

Average GPD

Notes:

**5. WATER CONSUMPTION RECORDS**  
**MERRIMACK VILLAGE DISTRICT RATE STUDY**

Water Billing, Merrimack Village Water Department (Cubic Feet)  
 Based on Meter Records from Department

Month	Well Pumpage Reading (CF)	Consumption Route 101	Monthly Avg Route 101	Consumption Route 201	Monthly Avg Route 201	Consumption Route 301	Monthly Avg Route 301	Monthly Totals <sup>3</sup>	Lost Water (CF)	Lost Water (%)
Jul-12	17,054,024	14,316,663	4,772,221	7,670,254	2,556,751	4,392,667	4,392,667	11,721,639	5,332,385	31.3%
Aug-12	13,616,417	11,113,182	2,503,235	7,670,254	2,556,751	4,392,667	4,392,667	11,663,385	1,932,832	14.3%
Sep-12	11,054,947	9,681,121	1,373,826	13,176,000	1,765,222	4,392,667	4,392,667	10,872,056	182,891	1.7%
Oct-12	7,637,447	6,414,167	1,223,280	5,295,666	1,765,222	2,812,242	2,812,242	9,291,631	(1,604,184)	-20.9%
Nov-12	6,242,701	4,933,648	1,309,053	5,295,666	1,765,222	2,812,242	2,812,242	7,431,112	(1,188,411)	-19.0%
Dec-12	6,570,936	4,853,648	1,717,288	8,436,725	1,093,515	2,812,242	2,812,242	6,759,405	(238,469)	-3.7%
Jan-13	6,489,291	4,853,648	1,635,643	3,280,545	1,093,515	2,947,620	2,947,620	6,894,783	(405,492)	-6.2%
Feb-13	5,786,591	4,147,882	1,638,710	3,280,545	1,093,515	2,947,620	2,947,620	6,189,017	(402,446)	-7.0%
Mar-13	6,481,176	4,147,882	2,333,294	8,842,860	1,441,303	2,947,620	2,947,620	6,536,804	(65,628)	-0.9%
Apr-13	7,301,283	4,147,882	3,153,401	8,842,860	1,441,303	3,542,688	3,542,688	7,131,872	169,411	2.3%
May-13	11,889,693	4,472,595	7,417,098	4,323,908	1,441,303	3,542,688	3,542,688	10,286,644	2,433,107	20.5%
Jun-13	11,802,219	4,472,595	7,329,624	10,628,064	3,542,688	10,628,064	10,628,064	10,286,644	1,515,575	12.8%
Jul-13	12,984,599	4,472,595	8,511,999	6,814,083	2,271,361	4,321,751	4,321,751	11,065,707	1,918,892	14.8%
Aug-13	13,165,681	4,068,826	9,096,855	6,814,083	2,271,361	4,321,751	4,321,751	10,661,938	2,503,743	19.0%
Sep-13	11,077,860	4,068,826	7,009,034	12,965,252	4,231,751	12,965,252	12,965,252	9,850,387	1,227,473	11.1%
Oct-13	8,563,288	2,860,344	5,702,944	4,379,431	1,459,810	2,647,845	2,647,845	8,176,482	386,806	4.5%
Nov-13	6,384,439	2,860,344	3,524,095	4,379,431	1,459,810	2,647,845	2,647,845	6,968,000	(583,561)	-9.1%
Dec-13	6,686,791	2,860,344	3,826,447	7,943,536	1,170,000	2,647,845	2,647,845	6,678,190	8,601	0.1%
Jan-14	6,665,468	2,860,344	3,805,124	3,510,000	1,170,000	2,491,667	2,491,667	6,522,011	143,457	2.2%
Feb-14	5,789,683	2,493,333	3,296,350	3,510,000	1,170,000	2,491,667	2,491,667	6,155,000	(365,317)	-6.3%
Mar-14	6,719,987	2,493,333	4,226,654	7,475,000	2,491,667	2,491,667	2,491,667	6,528,283	191,704	2.9%
Apr-14	7,000,762	2,493,333	4,507,429	4,629,850	1,543,283	3,318,480	3,318,480	7,355,097	(354,335)	-5.1%
May-14	9,191,096	4,207,605	4,983,491	4,629,850	1,543,283	3,318,480	3,318,480	9,069,369	121,727	1.3%
Jun-14	13,389,051	4,207,605	9,181,446	9,955,441	3,318,480	9,955,441	9,955,441	9,894,559	3,494,492	26.1%
Jul-14	13,567,193	4,207,605	9,360,588	7,105,421	2,368,474	14,091,474	14,091,474	11,273,237	2,293,956	16.9%
Aug-14	12,696,925	3,626,013	9,070,912	7,105,421	2,368,474	14,091,474	14,091,474	10,691,644	2,005,281	15.8%
Sep-14	11,111,364	3,626,013	7,485,351	10,091,474	1,401,700	4,697,158	4,697,158	9,724,871	1,386,483	12.5%
Oct-14	7,723,209	3,626,013	4,097,196	4,205,100	1,401,700	2,521,366	2,521,366	7,569,079	174,130	2.3%
Nov-14	6,433,262	2,466,286	3,966,976	4,205,100	1,088,724	2,521,366	2,521,366	6,389,352	43,910	0.7%
Dec-14	6,730,495	2,466,286	4,264,209	4,205,100	1,088,724	7,564,098	7,564,098	6,076,376	654,119	9.7%
Jan-15	6,912,727	2,466,286	4,446,441	3,266,173	1,088,724	6,714,688	6,714,688	5,793,239	1,119,488	16.2%
Feb-15	6,097,072	2,037,182	4,059,890	3,266,173	1,088,724	2,238,229	2,238,229	5,364,136	732,936	12.0%
Mar-15	7,076,537	2,037,182	5,039,355	4,581,184	1,527,061	6,714,688	6,714,688	5,802,473	1,274,064	18.0%
Apr-15	6,919,960	2,037,182	4,882,778	4,581,184	1,527,061	6,714,688	6,714,688	7,580,874	(660,914)	-9.6%
May-15	14,251,324	5,574,379	8,676,945	4,581,184	1,527,061	12,049,891	12,049,891	11,118,070	3,133,253	22.0%
Jun-15	13,014,639	5,574,379	7,440,260	4,581,184	1,527,061	12,049,891	12,049,891	12,201,249	813,390	6.2%
Jul-15	13,908,463	5,574,379	8,334,084	7,830,721	2,610,240	15,366,077	15,366,077	13,306,645	601,818	4.3%
Aug-15	15,902,659	4,851,380	11,051,279	7,830,721	2,610,240	15,366,077	15,366,077	12,583,646	3,318,413	20.9%
Sep-15	14,164,505	4,851,380	9,313,125	9,417,133	1,805,711	15,366,077	15,366,077	11,779,116	2,385,389	16.8%
Oct-15	8,608,476	4,851,380	3,757,096	9,417,133	1,805,711	7,614,317	7,614,317	9,195,196	(586,720)	-6.8%
Nov-15	6,511,698	3,188,181	3,323,517	9,417,133	1,805,711	7,614,317	7,614,317	7,531,998	(1,020,300)	-15.7%
Dec-15	6,599,479	3,188,181	3,411,298	3,053,368	1,017,789	7,614,317	7,614,317	6,744,076	(144,598)	-2.2%
Jan-16	6,148,717	3,188,181	2,960,536	3,053,368	1,017,789	7,614,317	7,614,317	6,622,638	(22,919)	-0.3%
Feb-16	6,148,717	2,146,809	4,001,908	3,053,368	2,025,048	7,250,002	7,250,002	5,581,266	567,451	9.2%
Mar-16	6,493,195	2,146,809	4,346,386	6,975,144	2,025,048	7,250,002	7,250,002	6,588,524	(95,329)	-1.5%
Apr-16	7,015,307	2,146,809	4,868,498	6,975,144	2,025,048	7,250,002	7,250,002	8,074,221	(1,058,914)	-15.1%
May-16	11,424,345	5,175,345	6,249,000	6,975,144	2,025,048	11,707,092	11,707,092	11,102,757	321,588	2.8%
Jun-16	15,943,957	5,175,345	10,768,612	6,975,144	2,025,048	11,707,092	11,707,092	12,310,590	3,633,567	22.8%
Jul-16	16,486,217	5,175,345	11,310,872	9,695,943	3,232,681	15,572,097	15,572,097	13,598,725	2,887,491	17.5%
Aug-16	15,359,599	4,540,685	10,818,914	9,695,943	3,232,681	15,572,097	15,572,097	12,964,065	2,395,534	15.6%
Sep-16	12,319,439	4,540,685	7,778,754	4,651,859	1,550,617	15,572,097	15,572,097	11,282,001	1,037,438	8.4%
Oct-16	7,426,283	4,540,685	2,885,598	4,651,859	1,550,617	7,406,681	7,406,681	8,560,196	(1,133,912)	-15.3%
Nov-16	6,228,583	2,473,157	3,755,426	4,651,859	1,550,617	7,406,681	7,406,681	6,492,668	(264,085)	-4.2%
Dec-16	6,551,979	2,473,157	4,078,822	7,419,472	1,007,642	7,406,681	7,406,681	5,949,693	602,286	9.2%
Jan-17	7,419,472	2,473,157	4,946,315	3,022,926	1,007,642	7,406,681	7,406,681			
Feb-17		2,473,157		3,022,926	1,007,642					

## 5. WATER CONSUMPTION RECORDS MERRIMACK VILLAGE DISTRICT RATE STUDY

Water Billing, Merrimack Village Water Department (Cubic Feet)  
Based on Meter Records from Department

Break Provided - MVD implemented a new tracking system so the 2017 numbers would cause errors in spreadsheet calculations if continued in the same manner. 2017 numbers left above correspond with the values submitted in the 2016 Water Balance. 2017 Water Balance calculated from numbers below.

	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	2016 Water Balance	2017 Water Balance	% Change
	6,497,259	5,973,329	6,435,601	6,412,272	11,775,989	13,128,235	13,127,487	11,023,061	8,693,209	6,410,896	6,361,217	6,990,735				2,145,200	2,471,536	13.4%
																2,145,200	2,471,536	9.4%
																6,435,601	7,414,608	9.4%
																2,137,424	2,256,977	17.3%
																2,137,424	2,256,977	16.7%
																6,412,272	6,770,932	29.4%
																2,137,424	3,034,494	30.9%
																3,877,510	3,034,494	29.3%
																3,877,510	3,034,494	20.4%
																11,632,531	10,455,251	3.1%
																2,374,215	4,203,526	-14.3%
																2,374,215	4,203,526	-28.8%
																7,122,646	8,258,929	2.1%
																1,626,191	2,525,878	34.2%
																1,626,191	2,525,878	
																4,878,574	4,599,932	
																6,222,161	7,577,634	

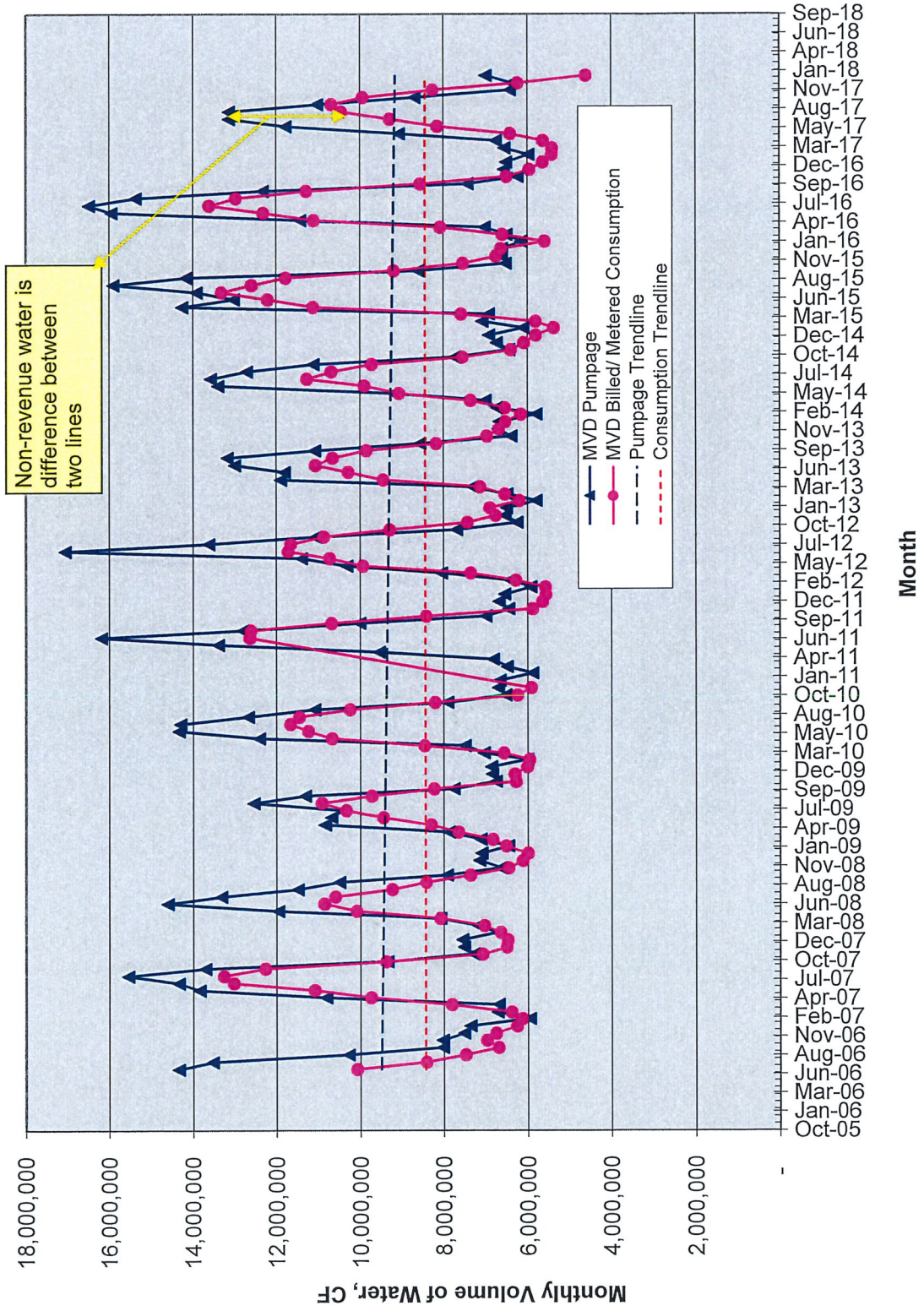
	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015	Fiscal Year 2016	Fiscal Year 2017	3-Year AVG
Avg Daily Pumpage	306,649	294,846	308,314	326,904	304,038	313,086
Cubic Feet per Day =	2,293,731	2,205,446	2,306,191	2,445,241	2,274,207	2,341,880
Gallons per Day =	285,576	271,027	272,780	305,262	261,513	279,851
Avg Daily Consumption	2,136,106	2,027,285	2,040,392	2,283,357	1,956,116	2,093,288

	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015	Fiscal Year 2016	Fiscal Year 2017	3-Year AVG
Non-Revenue Water (GPD) =	157,625	178,161	265,798	161,885	318,091	248,591
Non-Revenue Water (%) =	6.9%	8.1%	11.5%	6.6%	14.0%	11%
Flushing (FY total gal)*	2,889,522	2,140,416	16,111,011	14,359,800	14,559,800	14,943,537
Flushing (GPD ave)	7,916	57,919	44,140	39,342	39,342	40,941
Unaccounted For Water (Non-Revenue - flushing %)	6.5%	5.5%	9.6%	5.0%	12.3%	9%

	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015	Fiscal Year 2016	Fiscal Year 2017	3-Year AVG
Domestic water sales	\$1,667,472	\$1,411,140	\$1,575,815	\$1,723,265	\$1,650,798	1,649,959
Water rate, \$/100 CF	\$1.95	\$1.95	\$1.95	\$1.95	\$1.95	\$1.95
Estimated GPD domestic consumption <sup>3</sup>	1,752,398	1,483,010	1,656,073	1,811,032	1,734,874	1,733,993
Number of domestic single unit connections	6,144	6,144	6,246	6,246	6,246	6,246
Number of condo and multi - units	2,191	2,191	2,191	2,191	2,191	2,191
Total number of units	8,335	8,335	8,437	8,437	8,437	8,437
Estimated GPD per dwelling unit	210	178	196	215	206	206
CF/Quarter	2,565	2,171	2,395	2,619	2,508	2,507

**Notes:**  
<sup>1</sup>Denotes monthly flushing performed  
<sup>2</sup>Denotes totalizer water loss - Well #8  
<sup>3</sup>Monthly consumption data for Jan Feb Mar Apr May Jun 2011 was not available  
<sup>4</sup>Flushing Water per email from Jill dated 4/20/17, 2017 assumed similar to 2016  
<sup>5</sup>Domestic consumption from domestic water sales (Annual Reports)

# Merrimack Village District System Pumpage



## 6. CURRENT RATE STRUCTURE

### MERRIMACK VILLAGE DISTRICT RATE STUDY

Date: December-18

Code	Description	Unit	Previous Rates	Current Rates <sup>2</sup>	% Change	Approx. Quantity	
			9/1/2010 Yearly	7/1/2011 Yearly	%	Ratio	2/17/2017 - No. of Meters
<b>CONSUMPTION/USAGE CHARGES<sup>1</sup></b>							
	All services	per 100 CF	\$1.80	\$1.95	8.3%		
<b>METER CHARGES</b>							
	5/8" meter	CF	\$50.00	\$54.00	8.0%	1.0	6,270
	3/4" meter	CF	\$50.00	\$54.00	8.0%	1.0	0
	1" meter	CF	\$89.00	\$96.00	7.9%	1.8	204
	1 1/2" meter	CF	\$137.00	\$148.00	8.0%	2.7	56
	2" meter	CF	\$203.00	\$219.00	7.9%	4.1	118
	3" meter	CF	\$307.00	\$332.00	8.1%	6.1	8
	4" meter	CF	\$476.00	\$514.00	8.0%	9.5	7
	6" meter	CF	\$902.00	\$921.00	2.1%	17.1	0
	8" meter	CF	\$1,382.00	\$1,493.00	8.0%	27.6	2
	10" meter	CF	\$1,949.00	\$2,105.00	8.0%	39.0	0
	12" meter	CF	\$3,468.00	\$3,745.00	8.0%	69.4	0
<b>TOTAL METERS</b>							<b>6665</b>
<b>SPRINKLER CHARGES</b>							
	2" sprinkler		\$174.00	\$188.00	8.0%	1.0	33
	4" sprinkler		\$348.00	\$376.00	8.0%	2.0	31
	6" sprinkler		\$782.00	\$845.00	8.1%	4.5	72
	8" sprinkler		\$1,391.00	\$1,502.00	8.0%	8.0	21
	10" sprinkler		\$2,411.00	\$2,604.00	8.0%	13.9	4
	12" sprinkler		\$3,130.00	\$3,380.00	8.0%	18.0	1
<b>TOTAL SPRINKLER CONNECTIONS</b>							<b>162</b>
<b>HYDRANT CHARGES</b>							
	Domestic		\$60.00	\$65.00	8.3%	1.0	482
	Mercantile		\$121.00	\$131.00	8.3%	2.0	26
	Industrial		\$302.00	\$326.00	7.9%	5.0	2
<b>TOTAL HYDRANT ONLY</b>							<b>510</b>
<b>Cost comparison to Other Communities (annual)</b>							
MVD <sup>3</sup>	206	GPD/EDU		\$315			
PWW (6b)	206	GPD/EDU		\$602	91%		
MWW (6c)	206	GPD/EDU		\$253	-20%		
Aquarion 6d)	206	GPD/EDU		\$642	104%		

**Notes:**

<sup>1</sup>There is currently no "free" water included in the meter minimum charge.

<sup>2</sup>Rates last changed 7/1/2011 effective

<sup>3</sup>Note that the MVD annual cost includes the \$65 hydrant fee

## 6B. PENNICHUCK WATER WORKS WATER RATES

### MERRIMACK VILLAGE DISTRICT RATE STUDY

Date Updated: October-18

<u>Current Rates</u>				
Code	Description	Type	Min. Per Year	Rate per 100 CF
<b>GENERAL METER CHARGES</b>				
	5/8" meter	CF	\$270.96	\$3.30
	3/4" meter	CF	\$390.00	\$3.30
	1" meter	CF	\$628.20	\$3.30
	1 1/2 " meter	CF	\$1,224.24	\$3.30
	2" meter	CF	\$2,004.24	\$3.30
	3" meter	CF	\$3,675.36	\$3.30
	4" meter	CF	\$6,061.80	\$3.30
	6" meter	CF	\$12,028.20	\$3.30
	8" meter	CF	\$19,189.80	\$3.30
	10" meter	CF	\$27,542.64	\$3.30
	12" meter	CF	NA	NA
Code	Description		Min. Per Year	
<b>SPRINKLER CHARGES</b>				
	4" connection		\$744.36	
	6" connection		\$1,248.96	
	8" connection		\$1,839.00	

*Notes:*

- 1 These rates are the "Pennichuck Water Core Rates."
- 2 **Typical PWW Consumer 5/8" meter**
  - 206 gpd
  - \$331.12 variable charge/year
  - \$270.96 fixed meter charge/year
  - \$602.08 Total charge/year**



## 6C. MANCHESTER WATER WORKS WATER RATES MERRIMACK VILLAGE DISTRICT RATE STUDY

Date Updated: **October-18**

<b>Current Rates</b>				
Code	Description	Type	Min. Per Year	Rate per 100 CF
<b>QUARTERLY METER CHARGES</b>				
	5/8" meter	CF	<b>\$101.20</b>	<b>\$1.508</b>
	3/4" meter	CF	<b>\$130.08</b>	<b>\$1.508</b>
	1" meter	CF	<b>\$153.44</b>	<b>\$1.508</b>
	1 1/2 " meter	CF	<b>\$256.84</b>	<b>\$1.508</b>
	2" meter	CF	<b>\$347.56</b>	<b>\$1.508</b>
	3" meter	CF	<b>\$468.16</b>	<b>\$1.508</b>
	4" meter	CF	<b>\$693.16</b>	<b>\$1.508</b>
	6" meter	CF	<b>\$1,195.32</b>	<b>\$1.508</b>
	8" meter	CF	<b>\$2,069.52</b>	<b>\$1.508</b>
	10" meter	CF	<b>\$3,451.88</b>	<b>\$1.508</b>
	12" meter	CF	<b>NA</b>	<b>NA</b>

*Notes:*

- 1 These rates are for metered retail service inside the City of Manchester, NH
- 2 Quarterly rates are for first 60,000 CF, over 60,000 CF = \$1.450/100CF
- 3 Monthly rates are for first 20,000 CF, over 20,000 CF = \$1.450/100CF
- 4 **Typical MWW Consumer 5/8" meter**
  - 206 gpd
  - 2508 CF/qtr
  - \$151.31 variable charge/year
  - \$101.20 fixed meter charge/year
  - \$252.51 Total charge/year**

## 6D. AQUARION WATER CO. WATER RATES MERRIMACK VILLAGE DISTRICT RATE STUDY

Date Updated: **October-18**

<u>Current Rates</u>				
Code	Description	Type	Min. Per Year	Rate per 100 CF
<b>QUARTERLY METER CHARGES</b>				
	5/8" meter	CF	<b>\$187.20</b>	<b>\$4.536</b>
	3/4" meter	CF	<b>\$280.80</b>	<b>\$4.536</b>
	1" meter	CF	<b>\$468.12</b>	<b>\$4.536</b>
	1 1/2 " meter	CF	<b>\$936.60</b>	<b>\$4.536</b>
	2" meter	CF	<b>\$1,498.44</b>	<b>\$4.536</b>
	3" meter	CF	<b>\$2,808.00</b>	<b>\$4.536</b>
	4" meter	CF	<b>\$4,680.00</b>	<b>\$4.536</b>
	6" meter	CF	<b>\$9,360.00</b>	<b>\$4.536</b>
	8" meter	CF	<b>\$14,976.00</b>	<b>\$4.536</b>
	10" meter	CF	<b>\$21,528.00</b>	<b>\$4.536</b>
	12" meter	CF	<b>NA</b>	<b>NA</b>
Code	Description		Min. Per Year	
<b>HYDRANT CHARGES</b>				
	Municipal Hydrant		<b>\$1,740.41</b>	
	3" or less connection		<b>\$441.14</b>	
	4" connection		<b>\$751.67</b>	
	6" connection		<b>\$1,793.24</b>	
	8" connection		<b>\$3,188.69</b>	
	10" connection		<b>\$4,983.70</b>	
	12" connection		<b>\$7,041.20</b>	

*Notes:*

- 1 These rates are for Aquarion Water Co. who provides water to the Town's of Hampton, North Hampton, and Rye, NH.
- 2 Hydrants listed according to size are for private fire service.
- 3 **Typical Aquarion Consumer 5/8" meter**
  - 206 gpd
  - \$455.14 variable charge/year
  - \$187.20 fixed meter charge/year
  - \$642.34 Total charge/year**

## 7. PRIOR WATER DEPT REVENUE & ACCOUNT BALANCE

Description	Actual FY 2014	Actual FY 2015	Actual FY 2016	Approved FY 2017	Actual FY 2017	Approved FY 2018	BOC Projected FY 2019
<b>REVENUES<sup>1</sup></b>							
Domestic Water Sales	\$1,411,140	\$1,575,815	\$1,723,265	\$1,441,600	\$1,650,798	\$1,604,669	\$1,699,500
Mercantile Water Sales	\$188,448	\$199,119	\$220,286	\$183,900	\$214,711	\$206,101	\$291,272
Industrial Water Sales	\$93,798	\$84,864	\$89,804	\$88,834	\$69,018	\$102,085	\$33,950
Meter Charges	\$539,656	\$540,270	\$519,446	\$530,690	\$539,144	\$533,924	\$543,650
Fines	\$23,921	\$23,593	\$22,919	\$23,215	\$24,894	\$27,849	\$24,550
Transfer Fee	\$9,050	\$10,930	\$11,820	\$9,500	\$11,810	\$11,913	\$15,900
Hydrant Charges	\$647,598	\$647,046	\$648,952	\$670,000	\$654,835	\$690,909	\$663,300
Sprinkler Charges	\$118,166	\$124,386	\$123,572	\$121,400	\$124,185	\$127,994	\$126,550
Interest	\$431	\$372	\$2,071	\$300	\$6,668	\$755	\$12,000
Communication Tower Rental	\$39,986	\$40,146	\$36,846	\$39,000	\$46,851	\$39,700	\$86,050
Miscellaneous Income	\$46,594	\$43,569	\$33,192	\$40,000	\$4,242	\$41,300	\$10,000
Service Charge Mains	\$0	\$0	\$0	\$1,000	\$3,537	\$500	\$1,250
Service Charge Hydrant Hookups	\$1,688	\$1,384	\$285	\$1,500	\$1,308	\$1,300	\$1,050
Service Charge Turn On/Off Water	\$12,057	\$10,503	\$8,460	\$17,000	\$11,853	\$10,300	\$14,600
Miscellaneous Service Charges	\$6,532	\$11,043	\$11,091	\$10,000	\$14,928	\$10,900	\$12,750
Service Charge Backflow Test	\$47,128	\$34,700	\$38,743	\$33,000	\$33,250	\$36,300	\$36,700
Service Charge Entrances	\$15,335	\$35,231	\$26,555	\$21,500	\$83,929	\$26,300	\$26,500
Merchandise Sales	\$2,860	\$4,928	\$2,262	\$3,000	\$791	\$3,300	\$2,750
Income Received From State Grants	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Town of Merrimack Plowing	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Inspections/Plan Reviews	\$0	\$0	\$0	\$1,000	\$0	\$1,000	\$0
DW HWY Interconnection	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Overtime Estimates (reimbursable)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
System Development Charge	\$0	\$0	\$0	\$20,000	\$48,750	\$0	\$0
Legal Fee Reimbursements	\$360	\$0	\$360	\$1,000	\$0	\$0	\$0
Capital Reserve Withdrawal (If Need)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>TOTAL</b>	<b>\$3,204,748</b>	<b>\$3,387,899</b>	<b>\$3,519,929</b>	<b>\$3,257,439</b>	<b>\$3,545,502</b>	<b>\$3,477,099</b>	<b>\$3,602,322</b>
<b>GENERAL INFORMATION</b>							
Total Net Assets	\$15,757,064	\$18,503,377	\$19,229,344		\$20,001,329		
Total Current Wells							
Total Miles of Water Supply Lines							
<b>Cumulative Cash Reserves (Balance)</b>							
Cash	\$1,532,650	\$2,078,754	\$2,033,332		\$1,648,852	\$1,119,494	
Restricted Cash	\$749,393	\$749,393	\$747,209		\$646,181	\$646,181	
Investments in NHPDIP <sup>2</sup>	\$467,594	\$467,643	\$869,638		\$875,555	\$887,113	
Capital Reserve Fund (Balance)			\$3,650,179				
Land (Restricted)						\$1,483,000	
Equipment (Restricted)						\$3,707,000	
System Development Fees						\$550,000	
<b>TOTAL RESERVES<sup>3</sup></b>		<b>\$3,295,790</b>	<b>\$3,650,179</b>			<b>\$5,740,000</b>	

**Notes:**

<sup>1</sup>Revenue Information from 2017 Annual Report

<sup>2</sup>"NHPDIP" is New Hampshire Public Deposit Investment Pool

<sup>3</sup>FY 2018 reserves as of 6/18 per MVD

**8. PRIOR WATER DEPT. EXPENDITURES**  
MERRIMACK VILLAGE DISTRICT RATE STUDY

Acct. No.	Description	Budgets - By Fiscal Year ending June 30					Approved FY2018	BOC Rec. FY 2019 <sup>1</sup>
		Actual FY 2014	Actual FY 2015	Actual FY 2016	Actual FY 2017	Actual FY 2018		
<b>Water Department Administration</b>								
50010	Officers Salaries	\$9,615	\$9,510	\$9,767	\$9,498	\$10,395	\$10,495	
50100	Administrative Salaries	\$257,088	\$271,979	\$271,853	\$262,003	\$289,347	\$320,020	
50150	Employee Recognition						\$1,450	
50200	Field Staff	\$516,066	\$569,749	\$564,336	\$566,499	\$597,771	\$687,714	
50300	Unemployment Compensation	\$2,839	\$1,864	\$0	\$969	\$1,500	\$1,200	
50350	Employee Wellness Program	\$195	\$1,375	\$840	\$922	\$2,300	\$4,000	
50400	Social Security/Medicare	\$60,303	\$65,551	\$64,710	\$71,690	\$68,100	\$77,895	
50450	Retirement	\$70,195	\$81,386	\$85,047	\$86,191	\$99,425	\$115,875	
50500	Health Insurance	\$246,203	\$213,475	\$247,287	\$233,504	\$260,000	\$324,000	
50525	Dental Insurance	\$19,347	\$19,848	\$19,198	\$18,918	\$22,100	\$19,200	
50550	Life/Short & Long Term Disability Insuran	\$5,882	\$6,372	\$5,882	\$4,741	\$6,900	\$8,000	
50600	Workers Compensation	\$1,687	\$6,412	\$2,983	\$11,843	\$12,000	\$13,000	
60000	Electricity	\$222,502	\$209,715	\$249,530	\$191,131	\$266,000	\$274,000	
60100	Telephone	\$14,189	\$21,564	\$18,120	\$16,908	\$17,000	\$18,100	
60200	Uniforms	\$3,835	\$3,357	\$3,986	\$4,277	\$4,700	\$4,800	
60225	Education/Seminars	\$1,952	\$1,655	\$2,076	\$2,500	\$2,500	\$4,800	
60250	Testing/Licensing	\$1,918	\$202	\$1,195	\$825	\$1,550	\$1,050	
60300	Water Purchase	\$2,289	\$3,424	\$5,796	\$42,932	\$5,200	\$5,000	
60400	Heating Fuel LPG/Propane	\$13,321	\$10,077	\$7,860	\$12,328	\$11,500	\$14,100	
60450	Gasoline	\$29,825	\$24,484	\$23,402	\$17,930	\$26,600	\$26,400	
60460	Diesel Fuel	\$2,433	\$2,859	\$1,501	\$1,366	\$3,000	\$3,500	
60500	Motor Vehicle Maintenance	\$14,501	\$13,890	\$20,486	\$16,810	\$19,000	\$22,000	
60600	Chemicals	\$100,166	\$84,638	\$107,771	\$114,672	\$150,000	\$150,818	
60700	Safety Supplies/Equipment	\$3,856	\$3,474	\$4,131	\$8,605	\$10,700	\$9,800	
60800	Lease	\$7,535	\$10,738	\$6,763	\$10,897	\$11,000	\$10,000	
60850	Property Taxes	\$4,913	\$5,015	\$4,991	\$7,620	\$6,000	\$6,000	
70000	Small Tools	\$7,625	\$8,791	\$7,579	\$2,772	\$19,000	\$20,500	
70010	Office Equipment	\$366	\$1,521	\$27,404	\$3,128	\$44,850	\$11,200	
70020	Rentals	\$760	\$0	\$0	\$469	\$1,100	\$1,100	
70030	Town of Merrimack Sewer Rent/Septic Pump	\$2,683	\$1,330	\$1,190	\$1,559	\$2,500	\$2,500	
70050	Repairs & Maintenance-Backflows	\$387	\$582	\$300	\$337	\$1,000	\$1,000	
70100	Repairs & Maintenance-Communications Equipment	\$2,616	\$5,683	\$4,558	\$3,937	\$4,000	\$4,500	
70150	Repair & Maintenance Corrosion Control	\$14,847	\$4,431	\$3,303	\$0	\$7,000	\$5,000	
70200	Main Lines & Entrances-Enhancements	\$2,512	\$1,363	\$3,634	\$10,544	\$14,000	\$21,000	
70250	Repairs & Maintenance-Entrances	\$2,419	\$1,790	\$1,065	\$3,094	\$9,000	\$16,500	
70300	Repairs & Maintenance-Hydrants	\$4,561	\$7,043	\$13,330	\$7,471	\$14,000	\$14,000	
70400	Repairs & Maintenance-Main Lines	\$14,746	\$18,783	\$19,944	\$23,752	\$32,000	\$41,700	
70450	Repairs & Maintenance-Meters	\$31,459	\$18,693	\$23,497	\$23,812	\$50,000	\$50,000	
70500	Repairs & Maintenance-Monitoring Wells/Sampling	\$19,676	\$21,160	\$13,636	\$14,948	\$35,000	\$42,062	
70525	Repairs & Maintenance-Office Equipment	\$11,669	\$16,317	\$17,832	\$20,182	\$17,300	\$33,400	
70550	Repairs & Maintenance-Pump Station	\$17,966	\$23,112	\$6,996	\$58,157	\$37,500	\$65,000	
70600	Repairs & Maintenance-Structures	\$10,814	\$22,246	\$24,837	\$11,885	\$17,280	\$18,280	
70650	Repairs & Maintenance-Tanks	\$0	\$8,265	\$4,376	\$18,931	\$170,000	\$10,000	
70700	Repairs & Maintenance-Tools & Equipment	\$99	\$2,128	\$901	\$2,065	\$2,500	\$2,650	
70750	Repairs & Maintenance-Watershed	\$128	\$14	\$392	\$0	\$6,300	\$2,500	
80000	Office Supplies	\$13,603	\$16,048	\$20,511	\$12,749	\$18,000	\$18,000	
80100	Postage/Shipping/Freight	\$17,551	\$15,225	\$23,756	\$11,569	\$24,000	\$24,000	
80100	Shipping/Freight/Fuel Charge	\$886	\$1,202	\$1,133	\$238	\$1,500	\$1,500	
80150	Fees Misc	\$6,276	\$6,022	\$5,237	\$4,877	\$6,000	\$6,000	
80200	Dues/Subscriptions	\$1,747	\$1,677	\$2,112	\$2,270	\$2,200	\$3,000	
80300	Meeting Expense	\$2,169	\$1,276	\$1,371	\$1,690	\$1,400	\$2,500	
80350	Travel Expense	\$1,945	\$1,258	\$1,659	\$1,216	\$1,800	\$1,800	
80400	Advertising & Public Information	\$2,659	\$1,668	\$1,672	\$5,318	\$1,850	\$4,750	
81400	Public Education	\$0	\$473	\$577	\$1,421	\$1,300	\$1,500	
81500	Wellhead Program	\$0	\$0	\$0	\$0	\$0	\$0	
81600	Land Improvement	\$0	\$0	\$0	\$0	\$2,000	\$2,000	
81700	Insurance General	\$24,770	\$25,747	\$26,360	\$26,362	\$27,500	\$26,300	
81800	Outside Services	\$23,327	\$37,964	\$33,555	\$39,443	\$48,200	\$38,600	
81900	Engineering	\$53,133	\$22,277	\$89,411	\$36,995	\$18,300	\$58,400	
81901	Inspections/Plan Reviews	\$0	\$0	\$0	\$0	\$1,000	\$0	

**8. PRIOR WATER DEPT. EXPENDITURES**  
**MERRIMACK VILLAGE DISTRICT RATE STUDY**

Acct. No.	Description	Budgets - By Fiscal Year ending June 30				Approved FY2018	BOC Rec. FY 2019 <sup>1</sup>
		Actual FY 2014	Actual FY 2015	Actual FY 2016	Actual FY 2017		
81950	Professional Fees	\$14,405	\$12,944	\$20,507	\$20,478	\$23,000	\$33,500
90000	Capital Budget Expense	\$69,935	\$29,243	\$57,036	\$59,375	\$95,000	\$252,250
90050	Capital Reserve Funds	\$0	\$200,000	\$200,000	\$150,000	\$160,000	\$0
90100	Bad Debts	\$0	\$0	\$0	\$303	\$500	\$500
90200	Debt Service Principal	\$517,472	\$330,000	\$260,000	\$260,000	\$260,000	\$260,000
90203	SRF Loan Principal				\$147,275	\$180,566	\$184,106
90300	Debt Service Interest	\$184,719	\$152,980	\$140,934	\$131,571	\$132,671	\$109,653
90303	SRF Loan Interest				\$114,685	\$81,394	\$77,854
	Restricted Funds (Open P.O.)	\$0	\$0	\$0			
<b>SUBTOTAL:</b>		<b>\$2,692,585</b>	<b>\$2,661,869</b>	<b>\$2,790,116</b>	<b>\$2,950,457</b>	<b>\$3,477,099</b>	<b>\$3,602,322</b>
Petitioned Warrant Articles							\$0
Special/Individual Warrant Articles							\$0
<b>TOTAL EXPENSES:</b>		<b>\$2,692,585</b>	<b>\$2,661,869</b>	<b>\$2,790,116</b>	<b>\$2,950,457</b>	<b>\$3,477,099</b>	<b>\$3,602,322</b>
<b>TOTAL REVENUES:</b>		<b>\$3,204,748</b>	<b>\$3,387,899</b>	<b>\$3,519,929</b>	<b>\$3,545,502</b>	<b>\$3,477,099</b>	<b>\$3,602,322</b>
<b>REVENUES MINUS EXPENSES:</b>		<b>\$512,163</b>	<b>\$726,030</b>	<b>\$729,813</b>	<b>\$595,045</b>	<b>\$0</b>	<b>\$0</b>
<b>SURPLUS %:</b>		<b>19.0%</b>	<b>27.3%</b>	<b>26.2%</b>	<b>20.2%</b>		

Notes:

<sup>1</sup>Budget for 2018/2019 based on BOC Recommended Budget.

## 9. Long Term Debt

### MERRIMACK VILLAGE DISTRICT RATE STUDY

General Obligation Bonds	FY 2016 <sup>1</sup>	FY 2017 <sup>1</sup>	FY 2018 <sup>2</sup>	FY 2019 <sup>2</sup>	FY 2020 <sup>2</sup>	FY 2021 <sup>2</sup>	FY 2022 <sup>2</sup>	FY 2023 <sup>2</sup>	FY 2024 <sup>2</sup>	FY 2025 <sup>2</sup>	FY 2026 <sup>2</sup>
TOTAL PRINCIPLE - all current debt	\$ 260,000	\$ 260,000	\$ 440,566	\$ 444,106	\$ 447,714	\$ 451,393	\$ 455,145	\$ 458,969	\$ 382,869	\$ 386,845	\$ 390,900
TOTAL INTEREST - all current debt	\$ 185,826	\$ 414,271	\$ 202,227	\$ 187,507	\$ 175,671	\$ 159,542	\$ 143,340	\$ 127,066	\$ 112,691	\$ 100,214	\$ 87,410
TOTAL PRINCIPAL AND INTEREST	\$ 445,826	\$ 674,271	\$ 642,793	\$ 631,613	\$ 623,385	\$ 610,935	\$ 598,485	\$ 586,035	\$ 495,560	\$ 487,060	\$ 478,310

Notes:

<sup>1</sup>P&I per 2016-2018 Long Term Debt Table in 2016 Annual Report

<sup>2</sup>P&I per Long Term Debt Schedule from MVD 2017 Annual Report

Account #	Description	Debt Type	Original Amount	Issue Date	Matures				Balance as of 6/30/17
					2002	2003	2006	2006	
30150	Bean Road Project	Bond	\$1,500,000	2002					\$450,000
30735	New Well Development	Bond	\$835,000	2011					\$480,000
30740	Continental Boulevard Area Mains	Bond	\$2,800,000	2011					\$1,820,000
	Wells 7&8 Treatment DWSRF	Bond	\$4,300,000	2016					\$4,152,725
	Total Bond Obligations								\$6,902,725
	Less FY 2018 payments								-\$440,566
	<b>Total Bond Obligations June 30, 2018</b>								<b>\$6,462,159</b>

**10. CAPITAL IMPROVEMENT PROGRAM (DRAFT)**  
MERRIMACK VILLAGE DISTRICT RATE STUDY

Capital Project <sup>1</sup>	Possible Funding Source	Staff Priority	Ongoing/ Previous	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
New Well Site Installation	Bond					\$1,500,000						
New Well Treatment	Budget/Bond			\$10,000								
Well #3 Treatment	Budget/Bond			\$25,000								
Well #4/#5 Treatment <sup>2</sup>	Capital Reserves/Other			\$4,160,000								
Well #5 Pumps/Controls	Capital Reserves											
Lime Station Improvements	Budget/Bond											
Well Building Evaluation (#2, #3, #7)	Budget			\$20,000								
Well #7 short and long term improvements	Budget			\$190,000								
Well Level Monitoring, SCADA/GIS/IT Improvements	Budget											
Turkey Hill Booster Station <sup>3</sup>	Budget/Bond			\$10,000	\$10,000	\$300,000	\$300,000					
Site 3 North Improvements	Private			TBD	\$1,300,000							
Booster Station Pumps/Controls	Budget					\$50,000						
Artificial Recharge	Capital Reserves			\$75,000								
Wire Road Extension (Add. Aft.)	Capital Reserves			\$267,000								
Equipment	Capital Reserves			\$135,000								
Backhaul/Leader	Capital Reserves			\$70,000								
Portable Pressure Pump/High Service	Capital Reserves											
W-15 1990 International Dump Truck Replacement	TBD						TBD					
W-25 1998 1 1/2 ton International Service Truck	TBD						TBD					
Town Coordination Projects	Capital Reserves											
Executive Park Drive	Capital Reserves			TBD								
Other	Capital Reserves			TBD								
Annual Funding to Support CIP/AM	Budget				\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
TOTAL CIP (10-year)				\$4,917,000	\$1,845,000	\$2,350,000	\$800,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
FUNDED CIP (5-year)				\$4,917,000	\$1,845,000	\$2,350,000	\$800,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
SHORTFALL (5-year)		\$0	0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Funding Sources (in model)</b>				Period Total	Period Ave.							
Bonded Debt				\$1,300,000	\$1,300,000							
Other funding (grant, developer, bond proceeds, etc)				\$3,755,000	\$600,000							
Amount From Capital Reserve Fund				\$952,000	\$900,000	\$900,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Asset Management from Budget				\$0	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Capital Expense from Budget				\$210,000	\$45,000	\$350,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000
TOTAL Funded				\$5,740,000	\$5,740,000	\$5,740,000	\$5,740,000	\$5,740,000	\$5,740,000	\$5,740,000	\$5,740,000	\$5,740,000
Capital Reserve Tracking				As of 6/18 = \$5,740,000								
Capital Reserve Balance Starting				\$4,788,000	\$5,288,000	\$4,888,000	\$4,888,000	\$4,888,000	\$4,888,000	\$4,888,000	\$4,888,000	\$4,888,000
Capital Reserve Deducts				\$952,000	\$900,000	\$900,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Capital Reserve Adds				\$0	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Capital Reserve Balance Ending				\$4,788,000	\$5,288,000	\$4,888,000	\$4,888,000	\$4,888,000	\$4,888,000	\$4,888,000	\$4,888,000	\$4,888,000
Total Debt (recommended)												
Suggested Bond Issuance - Booster Station Improvements												
Suggested Bond Issuance - New Well Site Installation & Lime Station Improvements												
Suggested Bond Issuance - Well #3 Treatment												

Note: Cells highlighted red represent capital projects that will be paid for by water department revenues and are incorporated in the model.  
<sup>1</sup>CIP per Capital Improvements Plan FY 2018 dated 2/12/2018  
<sup>2</sup>\$4,05k to come from capital reserves, the rest from grants and outside funding  
<sup>3</sup>Moved from FY2019 to FY2020 to reflect bond payments beginning in 2020

# 11A. ESTIMATED DEBT SCHEDULE - SEMIANNUAL PAYMENTS

## MERRIMACK VILLAGE DISTRICT RATE STUDY

Project: **Turkey Hill Booster Station**

Loan Origination Date (Est.):

**FY 2020**  
**\$1,300,000**

Amortization Calculation

Princ. \$1,300,000  
No. Payments 40  
Interest 2.420%  
Payment \$41,189

Amortized Grant **\$0**

Amortized payments (annual) **\$0.00**

20% SAG Reimbursement (annual) **\$0.00**

Project Cost:

Term (years):

No. of Payments:

Interest Rate:

20

40

2.420%

Semiannual Payment Due	Principle Remaining	Payment			Grant Reimburse * 0.0%	Grant Reimburse Amortized	Net Due	Net Due
		Principal	Interest	Total				
07/15/20	\$1,300,000	\$0	\$15,730	\$15,730	\$0	\$0	\$15,730	
01/15/21	\$1,300,000	\$65,000	\$15,730	\$80,730	\$0	\$0	\$80,730	\$96,460
07/15/21	\$1,235,000	\$0	\$14,944	\$14,944	\$0	\$0	\$14,944	
01/15/22	\$1,235,000	\$65,000	\$14,944	\$79,944	\$0	\$0	\$79,944	\$94,887
07/15/22	\$1,170,000	\$0	\$14,157	\$14,157	\$0	\$0	\$14,157	
01/15/23	\$1,170,000	\$65,000	\$14,157	\$79,157	\$0	\$0	\$79,157	\$93,314
07/15/23	\$1,105,000	\$0	\$13,371	\$13,371	\$0	\$0	\$13,371	
01/15/24	\$1,105,000	\$65,000	\$13,371	\$78,371	\$0	\$0	\$78,371	\$91,741
07/15/24	\$1,040,000	\$0	\$12,584	\$12,584	\$0	\$0	\$12,584	
01/15/25	\$1,040,000	\$65,000	\$12,584	\$77,584	\$0	\$0	\$77,584	\$90,168
07/15/25	\$975,000	\$0	\$11,798	\$11,798	\$0	\$0	\$11,798	
01/15/26	\$975,000	\$65,000	\$11,798	\$76,798	\$0	\$0	\$76,798	\$88,595
07/15/26	\$910,000	\$0	\$11,011	\$11,011	\$0	\$0	\$11,011	
01/15/27	\$910,000	\$65,000	\$11,011	\$76,011	\$0	\$0	\$76,011	\$87,022
07/15/27	\$845,000	\$0	\$10,225	\$10,225	\$0	\$0	\$10,225	
01/15/28	\$845,000	\$65,000	\$10,225	\$75,225	\$0	\$0	\$75,225	\$85,449
07/15/28	\$780,000	\$0	\$9,438	\$9,438	\$0	\$0	\$9,438	
01/15/29	\$780,000	\$65,000	\$9,438	\$74,438	\$0	\$0	\$74,438	\$83,876
07/15/29	\$715,000	\$0	\$8,652	\$8,652	\$0	\$0	\$8,652	
01/15/30	\$715,000	\$65,000	\$8,652	\$73,652	\$0	\$0	\$73,652	\$82,303
07/15/30	\$650,000	\$0	\$7,865	\$7,865	\$0	\$0	\$7,865	
01/15/31	\$650,000	\$65,000	\$7,865	\$72,865	\$0	\$0	\$72,865	\$80,730
07/15/31	\$585,000	\$0	\$7,079	\$7,079	\$0	\$0	\$7,079	
01/15/32	\$585,000	\$65,000	\$7,079	\$72,079	\$0	\$0	\$72,079	\$79,157
07/15/32	\$520,000	\$0	\$6,292	\$6,292	\$0	\$0	\$6,292	
01/15/33	\$520,000	\$65,000	\$6,292	\$71,292	\$0	\$0	\$71,292	\$77,584
07/15/33	\$455,000	\$0	\$5,506	\$5,506	\$0	\$0	\$5,506	
01/15/34	\$455,000	\$65,000	\$5,506	\$70,506	\$0	\$0	\$70,506	\$76,011
07/15/34	\$390,000	\$0	\$4,719	\$4,719	\$0	\$0	\$4,719	
01/15/35	\$390,000	\$65,000	\$4,719	\$69,719	\$0	\$0	\$69,719	\$74,438
07/15/35	\$325,000	\$0	\$3,933	\$3,933	\$0	\$0	\$3,933	
01/15/36	\$325,000	\$65,000	\$3,933	\$68,933	\$0	\$0	\$68,933	\$72,865
07/15/36	\$260,000	\$0	\$3,146	\$3,146	\$0	\$0	\$3,146	
01/15/37	\$260,000	\$65,000	\$3,146	\$68,146	\$0	\$0	\$68,146	\$71,292
07/15/37	\$195,000	\$0	\$2,360	\$2,360	\$0	\$0	\$2,360	
01/15/38	\$195,000	\$65,000	\$2,360	\$67,360	\$0	\$0	\$67,360	\$69,719
07/15/38	\$130,000	\$0	\$1,573	\$1,573	\$0	\$0	\$1,573	
01/15/39	\$130,000	\$65,000	\$1,573	\$66,573	\$0	\$0	\$66,573	\$68,146
07/15/39	\$65,000	\$0	\$787	\$787	\$0	\$0	\$787	
01/15/40	\$65,000	\$65,000	\$787	\$65,787	\$0	\$0	\$65,787	\$66,573
		<b>\$1,300,000</b>	<b>\$330,330</b>	<b>\$1,630,330</b>	<b>\$0</b>	<b>\$0</b>	<b>\$1,630,330</b>	<b>\$1,630,330</b>

Notes:



## 11B. ESTIMATED DEBT SCHEDULE - SEMIANNUAL PAYMENTS

### MERRIMACK VILLAGE DISTRICT RATE STUDY

Project: **PFAS Treatment Wells #7 & #8**

Loan Origination Date (Est.):

**FY 2022**  
**\$3,600,000**

Project Cost:

**20**

Term (years):

**40**

No. of Payments:

**2.704%**

Interest Rate:

Amortization Calculation

Princ.	\$3,600,000
No. Payments	40
Interest	2.704%
Payment	\$117,111

Amortized Grant

**\$0**

Amortized payments (annual)

**\$0.00**

20% SAG Reimbursement (annual)

**\$0.00**

Semiannual Payment Due	Principle Remaining	Payment			Grant Reimburse* 0.0%	Grant Reimburse Amortized	Net Due	Net Due
		Principal	Interest	Total				
07/15/22	\$3,600,000	\$0	\$48,672	\$48,672	\$0	\$0	\$48,672	
01/15/23	\$3,600,000	\$180,000	\$48,672	\$228,672	\$0	\$0	\$228,672	\$277,344
07/15/23	\$3,420,000	\$0	\$46,238	\$46,238	\$0	\$0	\$46,238	
01/15/24	\$3,420,000	\$180,000	\$46,238	\$226,238	\$0	\$0	\$226,238	\$272,477
07/15/24	\$3,240,000	\$0	\$43,805	\$43,805	\$0	\$0	\$43,805	
01/15/25	\$3,240,000	\$180,000	\$43,805	\$223,805	\$0	\$0	\$223,805	\$267,610
07/15/25	\$3,060,000	\$0	\$41,371	\$41,371	\$0	\$0	\$41,371	
01/15/26	\$3,060,000	\$180,000	\$41,371	\$221,371	\$0	\$0	\$221,371	\$262,742
07/15/26	\$2,880,000	\$0	\$38,938	\$38,938	\$0	\$0	\$38,938	
01/15/27	\$2,880,000	\$180,000	\$38,938	\$218,938	\$0	\$0	\$218,938	\$257,875
07/15/27	\$2,700,000	\$0	\$36,504	\$36,504	\$0	\$0	\$36,504	
01/15/28	\$2,700,000	\$180,000	\$36,504	\$216,504	\$0	\$0	\$216,504	\$253,008
07/15/28	\$2,520,000	\$0	\$34,070	\$34,070	\$0	\$0	\$34,070	
01/15/29	\$2,520,000	\$180,000	\$34,070	\$214,070	\$0	\$0	\$214,070	\$248,141
07/15/29	\$2,340,000	\$0	\$31,637	\$31,637	\$0	\$0	\$31,637	
01/15/30	\$2,340,000	\$180,000	\$31,637	\$211,637	\$0	\$0	\$211,637	\$243,274
07/15/30	\$2,160,000	\$0	\$29,203	\$29,203	\$0	\$0	\$29,203	
01/15/31	\$2,160,000	\$180,000	\$29,203	\$209,203	\$0	\$0	\$209,203	\$238,406
07/15/31	\$1,980,000	\$0	\$26,770	\$26,770	\$0	\$0	\$26,770	
01/15/32	\$1,980,000	\$180,000	\$26,770	\$206,770	\$0	\$0	\$206,770	\$233,539
07/15/32	\$1,800,000	\$0	\$24,336	\$24,336	\$0	\$0	\$24,336	
01/15/33	\$1,800,000	\$180,000	\$24,336	\$204,336	\$0	\$0	\$204,336	\$228,672
07/15/33	\$1,620,000	\$0	\$21,902	\$21,902	\$0	\$0	\$21,902	
01/15/34	\$1,620,000	\$180,000	\$21,902	\$201,902	\$0	\$0	\$201,902	\$223,805
07/15/34	\$1,440,000	\$0	\$19,469	\$19,469	\$0	\$0	\$19,469	
01/15/35	\$1,440,000	\$180,000	\$19,469	\$199,469	\$0	\$0	\$199,469	\$218,938
07/15/35	\$1,260,000	\$0	\$17,035	\$17,035	\$0	\$0	\$17,035	
01/15/36	\$1,260,000	\$180,000	\$17,035	\$197,035	\$0	\$0	\$197,035	\$214,070
07/15/36	\$1,080,000	\$0	\$14,602	\$14,602	\$0	\$0	\$14,602	
01/15/37	\$1,080,000	\$180,000	\$14,602	\$194,602	\$0	\$0	\$194,602	\$209,203
07/15/37	\$900,000	\$0	\$12,168	\$12,168	\$0	\$0	\$12,168	
01/15/38	\$900,000	\$180,000	\$12,168	\$192,168	\$0	\$0	\$192,168	\$204,336
07/15/38	\$720,000	\$0	\$9,734	\$9,734	\$0	\$0	\$9,734	
01/15/39	\$720,000	\$180,000	\$9,734	\$189,734	\$0	\$0	\$189,734	\$199,469
07/15/39	\$540,000	\$0	\$7,301	\$7,301	\$0	\$0	\$7,301	
01/15/40	\$540,000	\$180,000	\$7,301	\$187,301	\$0	\$0	\$187,301	\$194,602
07/15/40	\$360,000	\$0	\$4,867	\$4,867	\$0	\$0	\$4,867	
01/15/41	\$360,000	\$180,000	\$4,867	\$184,867	\$0	\$0	\$184,867	\$189,734
07/15/41	\$180,000	\$0	\$2,434	\$2,434	\$0	\$0	\$2,434	
01/15/42	\$180,000	\$180,000	\$2,434	\$182,434	\$0	\$0	\$182,434	\$184,867
		<b>\$3,600,000</b>	<b>\$1,022,112</b>	<b>\$4,622,112</b>	<b>\$0</b>	<b>\$0</b>	<b>\$4,622,112</b>	<b>\$4,622,112</b>

Notes:

# 11C. ESTIMATED DEBT SCHEDULE - SEMIANNUAL PAYMENTS

## MERRIMACK VILLAGE DISTRICT RATE STUDY

Project: **Fe/Mn Treatment Well #3**

Loan Origination Date (Est.):

**FY 2022**  
**\$4,500,000**

Amortization Calculation

Princ. \$4,500,000  
No. Payments 40  
Interest 2.704%  
Payment \$146,389

Amortized Grant **\$0**

Amortized payments (annual) **\$0.00**

20% SAG Reimbursement (annual) **\$0.00**

Project Cost:

Term (years):

No. of Payments:

Interest Rate:

**20**

**40**

**2.704%**

Semiannual Payment Due	Principle Remaining	Payment			Grant Reimburse* <i>0.0%</i>	Grant Reimburse <i>Amortized</i>	Net Due	Net Due
		Principal	Interest	Total				
<b>07/15/22</b>	\$4,500,000	\$0	\$60,840	\$60,840	\$0	\$0	\$60,840	
01/15/23	\$4,500,000	\$225,000	\$60,840	\$285,840	\$0	\$0	\$285,840	\$346,680
07/15/23	\$4,275,000	\$0	\$57,798	\$57,798	\$0	\$0	\$57,798	
01/15/24	\$4,275,000	\$225,000	\$57,798	\$282,798	\$0	\$0	\$282,798	\$340,596
07/15/24	\$4,050,000	\$0	\$54,756	\$54,756	\$0	\$0	\$54,756	
01/15/25	\$4,050,000	\$225,000	\$54,756	\$279,756	\$0	\$0	\$279,756	\$334,512
07/15/25	\$3,825,000	\$0	\$51,714	\$51,714	\$0	\$0	\$51,714	
01/15/26	\$3,825,000	\$225,000	\$51,714	\$276,714	\$0	\$0	\$276,714	\$328,428
07/15/26	\$3,600,000	\$0	\$48,672	\$48,672	\$0	\$0	\$48,672	
01/15/27	\$3,600,000	\$225,000	\$48,672	\$273,672	\$0	\$0	\$273,672	\$322,344
07/15/27	\$3,375,000	\$0	\$45,630	\$45,630	\$0	\$0	\$45,630	
01/15/28	\$3,375,000	\$225,000	\$45,630	\$270,630	\$0	\$0	\$270,630	\$316,260
07/15/28	\$3,150,000	\$0	\$42,588	\$42,588	\$0	\$0	\$42,588	
01/15/29	\$3,150,000	\$225,000	\$42,588	\$267,588	\$0	\$0	\$267,588	\$310,176
07/15/29	\$2,925,000	\$0	\$39,546	\$39,546	\$0	\$0	\$39,546	
01/15/30	\$2,925,000	\$225,000	\$39,546	\$264,546	\$0	\$0	\$264,546	\$304,092
07/15/30	\$2,700,000	\$0	\$36,504	\$36,504	\$0	\$0	\$36,504	
01/15/31	\$2,700,000	\$225,000	\$36,504	\$261,504	\$0	\$0	\$261,504	\$298,008
07/15/31	\$2,475,000	\$0	\$33,462	\$33,462	\$0	\$0	\$33,462	
01/15/32	\$2,475,000	\$225,000	\$33,462	\$258,462	\$0	\$0	\$258,462	\$291,924
07/15/32	\$2,250,000	\$0	\$30,420	\$30,420	\$0	\$0	\$30,420	
01/15/33	\$2,250,000	\$225,000	\$30,420	\$255,420	\$0	\$0	\$255,420	\$285,840
07/15/33	\$2,025,000	\$0	\$27,378	\$27,378	\$0	\$0	\$27,378	
01/15/34	\$2,025,000	\$225,000	\$27,378	\$252,378	\$0	\$0	\$252,378	\$279,756
07/15/34	\$1,800,000	\$0	\$24,336	\$24,336	\$0	\$0	\$24,336	
01/15/35	\$1,800,000	\$225,000	\$24,336	\$249,336	\$0	\$0	\$249,336	\$273,672
07/15/35	\$1,575,000	\$0	\$21,294	\$21,294	\$0	\$0	\$21,294	
01/15/36	\$1,575,000	\$225,000	\$21,294	\$246,294	\$0	\$0	\$246,294	\$267,588
07/15/36	\$1,350,000	\$0	\$18,252	\$18,252	\$0	\$0	\$18,252	
01/15/37	\$1,350,000	\$225,000	\$18,252	\$243,252	\$0	\$0	\$243,252	\$261,504
07/15/37	\$1,125,000	\$0	\$15,210	\$15,210	\$0	\$0	\$15,210	
01/15/38	\$1,125,000	\$225,000	\$15,210	\$240,210	\$0	\$0	\$240,210	\$255,420
07/15/38	\$900,000	\$0	\$12,168	\$12,168	\$0	\$0	\$12,168	
01/15/39	\$900,000	\$225,000	\$12,168	\$237,168	\$0	\$0	\$237,168	\$249,336
07/15/39	\$675,000	\$0	\$9,126	\$9,126	\$0	\$0	\$9,126	
01/15/40	\$675,000	\$225,000	\$9,126	\$234,126	\$0	\$0	\$234,126	\$243,252
07/15/40	\$450,000	\$0	\$6,084	\$6,084	\$0	\$0	\$6,084	
01/15/41	\$450,000	\$225,000	\$6,084	\$231,084	\$0	\$0	\$231,084	\$237,168
07/15/41	\$225,000	\$0	\$3,042	\$3,042	\$0	\$0	\$3,042	
01/15/42	\$225,000	\$225,000	\$3,042	\$228,042	\$0	\$0	\$228,042	\$231,084
		<b>\$4,500,000</b>	<b>\$1,277,640</b>	<b>\$5,777,640</b>	<b>\$0</b>	<b>\$0</b>	<b>\$5,777,640</b>	<b>\$5,777,640</b>

Notes:

## 11D. ESTIMATED DEBT SCHEDULE - SEMIANNUAL PAYMENTS

### MERRIMACK VILLAGE DISTRICT RATE STUDY

Project: **PFAS Treatment Wells #2 & #3**

Loan Origination Date (Est.):

**FY 2022**  
**\$6,400,000**

Amortization Calculation

Project Cost:

Term (years):

No. of Payments:

Interest Rate:

**20**  
**40**  
**2.704%**

Princ. \$6,400,000  
No. Payments 40  
Interest 2.704%  
Payment \$208,198

Amortized Grant **\$0**

Amortized payments (annual) **\$0.00**

20% SAG Reimbursement (annual) **\$0.00**

Semiannual Payment Due	Principle Remaining	Payment			Grant Reimburse* 0.0%	Grant Reimburse Amortized	Net Due	Net Due
		Principal	Interest	Total				
07/15/22	\$6,400,000	\$0	\$86,528	\$86,528	\$0	\$0	\$86,528	
01/15/23	\$6,400,000	\$320,000	\$86,528	\$406,528	\$0	\$0	\$406,528	\$493,056
07/15/23	\$6,080,000	\$0	\$82,202	\$82,202	\$0	\$0	\$82,202	
01/15/24	\$6,080,000	\$320,000	\$82,202	\$402,202	\$0	\$0	\$402,202	\$484,403
07/15/24	\$5,760,000	\$0	\$77,875	\$77,875	\$0	\$0	\$77,875	
01/15/25	\$5,760,000	\$320,000	\$77,875	\$397,875	\$0	\$0	\$397,875	\$475,750
07/15/25	\$5,440,000	\$0	\$73,549	\$73,549	\$0	\$0	\$73,549	
01/15/26	\$5,440,000	\$320,000	\$73,549	\$393,549	\$0	\$0	\$393,549	\$467,098
07/15/26	\$5,120,000	\$0	\$69,222	\$69,222	\$0	\$0	\$69,222	
01/15/27	\$5,120,000	\$320,000	\$69,222	\$389,222	\$0	\$0	\$389,222	\$458,445
07/15/27	\$4,800,000	\$0	\$64,896	\$64,896	\$0	\$0	\$64,896	
01/15/28	\$4,800,000	\$320,000	\$64,896	\$384,896	\$0	\$0	\$384,896	\$449,792
07/15/28	\$4,480,000	\$0	\$60,570	\$60,570	\$0	\$0	\$60,570	
01/15/29	\$4,480,000	\$320,000	\$60,570	\$380,570	\$0	\$0	\$380,570	\$441,139
07/15/29	\$4,160,000	\$0	\$56,243	\$56,243	\$0	\$0	\$56,243	
01/15/30	\$4,160,000	\$320,000	\$56,243	\$376,243	\$0	\$0	\$376,243	\$432,486
07/15/30	\$3,840,000	\$0	\$51,917	\$51,917	\$0	\$0	\$51,917	
01/15/31	\$3,840,000	\$320,000	\$51,917	\$371,917	\$0	\$0	\$371,917	\$423,834
07/15/31	\$3,520,000	\$0	\$47,590	\$47,590	\$0	\$0	\$47,590	
01/15/32	\$3,520,000	\$320,000	\$47,590	\$367,590	\$0	\$0	\$367,590	\$415,181
07/15/32	\$3,200,000	\$0	\$43,264	\$43,264	\$0	\$0	\$43,264	
01/15/33	\$3,200,000	\$320,000	\$43,264	\$363,264	\$0	\$0	\$363,264	\$406,528
07/15/33	\$2,880,000	\$0	\$38,938	\$38,938	\$0	\$0	\$38,938	
01/15/34	\$2,880,000	\$320,000	\$38,938	\$358,938	\$0	\$0	\$358,938	\$397,875
07/15/34	\$2,560,000	\$0	\$34,611	\$34,611	\$0	\$0	\$34,611	
01/15/35	\$2,560,000	\$320,000	\$34,611	\$354,611	\$0	\$0	\$354,611	\$389,222
07/15/35	\$2,240,000	\$0	\$30,285	\$30,285	\$0	\$0	\$30,285	
01/15/36	\$2,240,000	\$320,000	\$30,285	\$350,285	\$0	\$0	\$350,285	\$380,570
07/15/36	\$1,920,000	\$0	\$25,958	\$25,958	\$0	\$0	\$25,958	
01/15/37	\$1,920,000	\$320,000	\$25,958	\$345,958	\$0	\$0	\$345,958	\$371,917
07/15/37	\$1,600,000	\$0	\$21,632	\$21,632	\$0	\$0	\$21,632	
01/15/38	\$1,600,000	\$320,000	\$21,632	\$341,632	\$0	\$0	\$341,632	\$363,264
07/15/38	\$1,280,000	\$0	\$17,306	\$17,306	\$0	\$0	\$17,306	
01/15/39	\$1,280,000	\$320,000	\$17,306	\$337,306	\$0	\$0	\$337,306	\$354,611
07/15/39	\$960,000	\$0	\$12,979	\$12,979	\$0	\$0	\$12,979	
01/15/40	\$960,000	\$320,000	\$12,979	\$332,979	\$0	\$0	\$332,979	\$345,958
07/15/40	\$640,000	\$0	\$8,653	\$8,653	\$0	\$0	\$8,653	
01/15/41	\$640,000	\$320,000	\$8,653	\$328,653	\$0	\$0	\$328,653	\$337,306
07/15/41	\$320,000	\$0	\$4,326	\$4,326	\$0	\$0	\$4,326	
01/15/42	\$320,000	\$320,000	\$4,326	\$324,326	\$0	\$0	\$324,326	\$328,653
		<b>\$6,400,000</b>	<b>\$1,817,088</b>	<b>\$8,217,088</b>	<b>\$0</b>	<b>\$0</b>	<b>\$8,217,088</b>	<b>\$8,217,088</b>

Notes:

**12. PROJECTED WATER DEPT. EXPENDITURES  
MERRIMACK VILLAGE DISTRICT RATE STUDY**

		Fiscal Year								
	Inflation Rate	Approved Budget FY 2018	Yearly %	Proposed FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	
		Expense Category								
50010	3.00%	\$10,395	3.00%	\$10,495	\$10,810	\$11,134	\$11,468	\$11,812	\$12,167	
50100		\$289,347	3.00%	\$320,020	\$329,621	\$339,509	\$349,694	\$360,185	\$370,991	
50150		\$0	3.00%	\$1,450	\$1,494	\$1,538	\$1,584	\$1,632	\$1,681	
50200		\$697,771	3.00%	\$687,714	\$708,345	\$729,596	\$751,484	\$774,028	\$797,249	
50300		\$1,500	3.00%	\$1,200	\$1,236	\$1,273	\$1,311	\$1,351	\$1,391	
50350		\$2,300	3.00%	\$4,000	\$4,120	\$4,244	\$4,371	\$4,502	\$4,637	
50400		\$68,100	3.00%	\$77,895	\$80,232	\$82,639	\$85,118	\$87,620	\$90,302	
50450		\$99,425	3.00%	\$115,875	\$119,351	\$122,932	\$126,620	\$130,418	\$134,331	
50500		\$260,000	3.00%	\$324,000	\$333,720	\$343,732	\$354,044	\$364,665	\$375,605	
50525		\$22,100	3.00%	\$19,200	\$19,776	\$20,369	\$20,980	\$21,610	\$22,258	
50550		\$6,900	3.00%	\$8,000	\$8,240	\$8,487	\$8,742	\$9,004	\$9,274	
50600		\$12,000	3.00%	\$13,000	\$13,390	\$13,792	\$14,205	\$14,632	\$15,071	
60000		\$266,000	3.00%	\$274,000	\$282,220	\$290,687	\$299,407	\$308,389	\$317,641	
60100		\$17,000	3.00%	\$18,100	\$18,643	\$19,202	\$19,778	\$20,372	\$20,983	
60200		\$4,700	3.00%	\$4,800	\$4,944	\$5,092	\$5,245	\$5,402	\$5,565	
60225		\$2,500	3.00%	\$4,800	\$4,944	\$5,092	\$5,245	\$5,402	\$5,565	
60250		\$1,550	3.00%	\$1,050	\$1,082	\$1,114	\$1,147	\$1,182	\$1,217	
60300		\$5,200	3.00%	\$5,000	\$5,150	\$5,305	\$5,464	\$5,628	\$5,796	
60400		\$11,500	3.00%	\$14,100	\$14,523	\$14,959	\$15,407	\$15,870	\$16,346	
60450		\$26,600	3.00%	\$26,400	\$27,192	\$28,008	\$28,848	\$29,713	\$30,605	
60460		\$3,000	3.00%	\$3,500	\$3,605	\$3,713	\$3,825	\$3,939	\$4,057	
60500		\$19,000	3.00%	\$22,000	\$22,660	\$23,340	\$24,040	\$24,761	\$25,504	
60600		\$150,000	3.00%	\$150,818	\$155,343	\$160,003	\$164,803	\$169,747	\$174,839	
60700		\$10,700	3.00%	\$9,800	\$10,094	\$10,397	\$10,709	\$11,030	\$11,361	
60800		\$11,000	3.00%	\$10,000	\$10,300	\$10,609	\$10,927	\$11,255	\$11,593	
60850		\$6,000	3.00%	\$6,000	\$6,180	\$6,365	\$6,556	\$6,753	\$6,956	
70000		\$19,000	3.00%	\$20,500	\$21,115	\$21,748	\$22,401	\$23,073	\$23,765	
70010		\$44,850	3.00%	\$11,200	\$11,536	\$11,882	\$12,239	\$12,606	\$12,984	
70020		\$1,100	3.00%	\$1,100	\$1,133	\$1,167	\$1,202	\$1,238	\$1,275	
70030		\$2,500	3.00%	\$2,500	\$2,575	\$2,652	\$2,732	\$2,814	\$2,898	
70050		\$1,000	3.00%	\$1,000	\$1,030	\$1,061	\$1,093	\$1,126	\$1,159	
70100		\$4,000	3.00%	\$4,500	\$4,635	\$4,774	\$4,917	\$5,065	\$5,217	
70150		\$7,000	3.00%	\$5,000	\$5,150	\$5,305	\$5,464	\$5,628	\$5,796	
70200		\$14,000	3.00%	\$21,000	\$21,630	\$22,279	\$22,947	\$23,636	\$24,345	
70250		\$9,000	3.00%	\$16,500	\$16,995	\$17,505	\$18,030	\$18,571	\$19,128	
70300		\$14,000	3.00%	\$14,000	\$14,420	\$14,853	\$15,298	\$15,757	\$16,230	
70400		\$32,000	3.00%	\$41,700	\$42,951	\$44,240	\$45,567	\$46,934	\$48,342	
70450		\$50,000	3.00%	\$50,000	\$51,500	\$53,045	\$54,636	\$56,275	\$57,964	
70500		\$35,000	3.00%	\$42,062	\$43,324	\$44,624	\$45,962	\$47,341	\$48,761	
70525		\$17,300	3.00%	\$33,400	\$34,402	\$35,434	\$36,497	\$37,592	\$38,720	
70550		\$37,500	3.00%	\$65,000	\$66,950	\$68,959	\$71,027	\$73,158	\$75,353	
70600		\$17,280	3.00%	\$18,280	\$18,828	\$19,393	\$19,975	\$20,574	\$21,192	
70650		\$170,000	3.00%	\$10,000	\$10,300	\$10,609	\$10,927	\$11,255	\$11,593	
70700		\$2,500	3.00%	\$2,650	\$2,730	\$2,811	\$2,896	\$2,983	\$3,072	
70750		\$6,300	3.00%	\$2,500	\$2,575	\$2,652	\$2,732	\$2,814	\$2,898	
80000		\$18,000	3.00%	\$18,000	\$18,540	\$19,096	\$19,669	\$20,259	\$20,867	
80100		\$24,000	3.00%	\$24,000	\$24,720	\$25,462	\$26,225	\$27,012	\$27,823	
80150		\$1,500	3.00%	\$1,500	\$1,545	\$1,591	\$1,639	\$1,688	\$1,739	
80200		\$6,000	3.00%	\$6,000	\$6,180	\$6,365	\$6,556	\$6,753	\$6,956	
80300		\$2,200	3.00%	\$3,000	\$3,090	\$3,183	\$3,278	\$3,377	\$3,478	
80350		\$1,400	3.00%	\$2,500	\$2,575	\$2,652	\$2,732	\$2,814	\$2,898	
80400		\$1,800	3.00%	\$1,800	\$1,854	\$1,910	\$1,967	\$2,026	\$2,087	
80450		\$1,850	3.00%	\$4,750	\$4,893	\$5,039	\$5,190	\$5,346	\$5,507	
81000		\$1,300	3.00%	\$1,500	\$1,545	\$1,591	\$1,639	\$1,688	\$1,739	
81500		\$0	3.00%	\$0	\$0	\$0	\$0	\$0	\$0	
81600		\$2,000	3.00%	\$2,000	\$2,060	\$2,122	\$2,185	\$2,251	\$2,319	
81700		\$27,500	3.00%	\$26,300	\$27,089	\$27,902	\$28,739	\$29,601	\$30,489	
81800		\$48,200	3.00%	\$38,600	\$39,758	\$40,951	\$42,179	\$43,445	\$44,748	
81900		\$18,300	3.00%	\$58,400	\$60,152	\$61,957	\$63,815	\$65,730	\$67,702	
90000		\$1,000	3.00%	\$0	\$0	\$0	\$0	\$0	\$0	
90050		\$23,000	3.00%	\$33,500	\$34,505	\$35,540	\$36,606	\$37,705	\$38,836	
90100		\$95,000	table 10	\$252,250	see below	see below	see below	see below	see below	
90150		\$500	0.00%	\$500	\$500	\$500	\$500	\$500	\$500	
90200		\$260,000	table 9	\$260,000	\$447,714	\$451,393	\$455,145	\$458,969	\$462,859	
90203		\$180,566	table 9	\$184,106	\$184,106	\$184,106	\$184,106	\$184,106	\$184,106	
90300		\$132,671	table 9	\$109,653	\$175,671	\$159,542	\$143,340	\$127,066	\$112,691	
90303		\$81,394	table 9	\$77,854						
		\$3,477,099		\$3,602,322	\$3,423,383	\$3,494,918	\$3,568,972	\$3,645,622	\$3,646,919	
	Increase, %			3.6%	-5.0%	2.1%	2.1%	2.1%	0.0%	
13 & 14A. BASELINE EXPENDITURES										
				\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	
				\$45,000	\$350,000	\$300,000	\$300,000	\$0	\$0	
				\$96,460	\$94,887	\$93,314	\$91,741	\$90,168	\$90,168	
				\$3,602,322	\$4,064,843	\$4,439,805	\$4,462,286	\$4,237,363	\$4,237,087	
				3.6%	12.8%	9.2%	0.5%	-5.0%	0.0%	
14B. BASELINE + PFAS TREATMENT @ WELLS #7 & #8										
					\$277,344	\$272,477	\$272,477	\$267,610	\$267,610	
					\$192,500	\$192,500	\$192,500	\$192,500	\$192,500	
				\$3,602,322	\$4,064,843	\$4,439,805	\$4,932,130	\$4,702,339	\$4,697,197	
				3.6%	12.8%	9.2%	11.1%	-4.7%	-0.1%	
14C. 14B + FE/MIN TREATMENT AT WELL #3										
					\$346,680	\$340,596	\$340,596	\$334,512	\$334,512	
					\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	
				\$3,602,322	\$4,064,843	\$4,439,805	\$5,328,810	\$5,092,935	\$5,081,709	
				3.6%	12.8%	9.2%	20.0%	-4.4%	-0.2%	
14D. 14C + PFAS TREATMENT AT WELLS #2 & #3										
					\$493,056	\$484,403	\$484,403	\$475,750	\$475,750	
					\$332,500	\$332,500	\$332,500	\$332,500	\$332,500	
				\$3,602,322	\$4,064,843	\$4,439,805	\$6,154,366	\$5,909,839	\$5,889,959	
				3.6%	12.8%	9.2%	38.6%	-4.0%	-0.3%	

Notes:

1After FY 2019, Debt service Principal (90200) and interest (90300) include SRF loan



**13. BASELINE - CURRENT RATES**  
**MERRIMACK VILLAGE DISTRICT RATE STUDY**

Description	# Users	Minimum Yearly Charge	Min Chg Ratio	Projected # Users Increase	YEAR					
					FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Interest					\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Communication Tower Rental				0.00%	\$86,050	\$86,050	\$86,050	\$86,050	\$86,050	\$86,050
Miscellaneous Income				0.00%	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Service Charge Mains				0.00%	\$1,250	\$1,250	\$1,250	\$1,250	\$1,250	\$1,250
Service Charge Hydrant Hookups				0.00%	\$1,050	\$1,050	\$1,050	\$1,050	\$1,050	\$1,050
Service Charge Turn On/Off Water				0.00%	\$14,600	\$14,600	\$14,600	\$14,600	\$14,600	\$14,600
Miscellaneous Service Charges				0.00%	\$12,750	\$12,750	\$12,750	\$12,750	\$12,750	\$12,750
Service Charge Backflow Test				0.00%	\$36,700	\$36,700	\$36,700	\$36,700	\$36,700	\$36,700
Service Charge Entrances				0.00%	\$26,500	\$26,500	\$26,500	\$26,500	\$26,500	\$26,500
Merchandise Sales				0.00%	\$2,750	\$2,750	\$2,750	\$2,750	\$2,750	\$2,750
Income Received From State Grants				0.00%	\$0	\$0	\$0	\$0	\$0	\$0
Town of Merrimack Plowing				0.00%	\$0	\$0	\$0	\$0	\$0	\$0
Inspections/Plan Reviews				0.00%	\$0	\$0	\$0	\$0	\$0	\$0
DW HWY Interconnection				0.00%	\$0	\$0	\$0	\$0	\$0	\$0
Overtime Estimates (reimbursable)				0.00%	\$0	\$0	\$0	\$0	\$0	\$0
System Development Charge				0.00%	\$0	\$0	\$0	\$0	\$0	\$0
Legal Fee Reimbursements				0.00%	\$0	\$0	\$0	\$0	\$0	\$0
Other Projected Revenue					\$244,100	\$244,100	\$244,100	\$244,100	\$244,100	\$244,100
<b>Summary</b>										
Total Projected Revenues					3,517,857	3,519,102	3,520,349	3,521,600	3,522,854	3,524,111
Total Projected Expenditures - See Sheet 12.					3,602,322	4,064,843	4,439,805	4,462,286	4,237,363	4,237,087
Yearly Net Difference Between Revenue and Expenditures <sup>2</sup>					(84,465)	(545,741)	(919,455)	(940,686)	(714,509)	(712,977)
Surplus, %					-2%	-13%	-21%	-21%	-17%	-17%
<b>Cumulative Cash/Capital Reserves</b>										
Yearly Net Difference Between Revenue and Expenditures <sup>2</sup>					(84,465)	(545,741)	(919,455)	(940,686)	(714,509)	(712,977)
Transfers to Capital Reserves (from Budget)										
Transfers to Capital Reserves (from CIP table)					(952,000)	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Transfers from Capital Reserves (from CIP table)						0	(600,000)	0	0	0
Net change to Account Balances					(1,036,465)	(45,741)	(1,319,455)	(440,686)	(214,509)	(212,977)
<b>Total Account Balances</b>										
Starting Balance					\$4,703,535	\$4,657,795	\$3,338,339	\$2,897,653	\$2,683,144	\$2,470,168
Ending Balance					\$3,667,070	\$4,212,050	\$2,018,884	\$2,456,967	\$2,468,635	\$2,257,191

Notes:

<sup>1</sup>Meter consumption is avg. of previous 3 years

<sup>2</sup>Positive difference means that funds can be added to reserves. Negative means that funds will be drained from reserves.



**14A. RATE SETTING - BASELINE**  
**MERRIMACK VILLAGE DISTRICT RATE STUDY**

Description	# Users	Minimum Yearly Charge	Min Chg Ratio	Projected # Users Increase	YEAR					
					FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Transfer Fee		\$15,900		0.00%	\$15,900	\$15,900	\$15,900	\$15,900	\$15,900	\$15,900
Interest		\$12,000		0.00%	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Communication Tower Rental		\$86,050		0.00%	\$86,050	\$86,050	\$86,050	\$86,050	\$86,050	\$86,050
Miscellaneous Income		\$10,000		0.00%	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Service Charge Mains		\$1,250		0.00%	\$1,250	\$1,250	\$1,250	\$1,250	\$1,250	\$1,250
Service Charge Hydrant Hookups		\$1,050		0.00%	\$1,050	\$1,050	\$1,050	\$1,050	\$1,050	\$1,050
Service Charge Turn On/Off Water		\$14,600		0.00%	\$14,600	\$14,600	\$14,600	\$14,600	\$14,600	\$14,600
Miscellaneous Service Charges		\$12,750		0.00%	\$12,750	\$12,750	\$12,750	\$12,750	\$12,750	\$12,750
Service Charge Backflow Test		\$36,700		0.00%	\$36,700	\$36,700	\$36,700	\$36,700	\$36,700	\$36,700
Service Charge Entrances		\$26,500		0.00%	\$26,500	\$26,500	\$26,500	\$26,500	\$26,500	\$26,500
Merchandise Sales		\$2,750		0.00%	\$2,750	\$2,750	\$2,750	\$2,750	\$2,750	\$2,750
Income Received From State Grants		\$0		0.00%	\$0	\$0	\$0	\$0	\$0	\$0
Town of Merrimack Plowing		\$0		0.00%	\$0	\$0	\$0	\$0	\$0	\$0
Inspections/Plan Reviews		\$0		0.00%	\$0	\$0	\$0	\$0	\$0	\$0
DW HWY Interconnection		\$0		0.00%	\$0	\$0	\$0	\$0	\$0	\$0
Overtime Estimates (reimbursable)		\$0		0.00%	\$0	\$0	\$0	\$0	\$0	\$0
System Development Charge		\$0		0.00%	\$0	\$0	\$0	\$0	\$0	\$0
Legal Fee Reimbursements		\$0		0.00%	\$0	\$0	\$0	\$0	\$0	\$0
Other Projected Revenue		\$244,100		0.00%	\$244,100	\$244,100	\$244,100	\$244,100	\$244,100	\$244,100
		(See Account Balance Changes)								
<b>Summary</b>										
Total Projected Revenues		3,944,852			3,944,852	3,944,852	4,427,543	4,429,140	4,430,741	4,432,346
Total Projected Expenditures - See Sheet 12.		3,602,322			4,064,843	4,462,286	4,439,805	4,462,286	4,237,363	4,237,087
Yearly Net Difference Between Revenue and Expenditures <sup>2</sup>					(119,991)	(119,991)	(12,262)	(33,146)	193,378	195,258
Surplus, %					-2%	-3%	0%	-1%	5%	5%
Cumulative Cash/Capital Reserves										
Yearly Net Difference Between Revenue and Expenditures <sup>2</sup>					(84,465)	(119,991)	(12,262)	(33,146)	193,378	195,258
Transfers to Capital Reserves (from Budget)										
Transfers to Capital Reserves (from CIP table)					\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Transfers from Capital Reserves (from CIP table)					(952,000)	0	(900,000)	0	0	0
Net change to Account Balances					(1,036,465)	380,009	(412,262)	466,854	693,378	695,258
<b>Total Account Balances</b>					\$4,703,535	\$5,083,545	\$4,671,283	\$5,138,137	\$5,831,515	\$6,526,773
								Starting Balance		
								\$5,740,000		

Notes:

<sup>1</sup>Meter consumption is avg. of previous 3 years

<sup>2</sup>Positive difference means that funds can be added to reserves. Negative means that funds will be drained from reserves.







**14C. RATE SETTING - 14B + FE/MN TREATMENT AT WELL #3**  
**MERRIMACK VILLAGE DISTRICT RATE STUDY**

Description	# Users	Minimum Yearly Charge	Min Chg Ratio	Projected # Users Increase	YEAR					
					FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
					Rate Increase, %:	13.0%	13.0%	21.0%	0.0%	0.0%
<b>Water Sales</b>										
<i>Minimum (Capacity) charge based on water meter size</i>										
5/8 in. meter	6,270	\$54	1.0	0.25%	\$338,552	\$434,497	\$527,056	\$528,374	\$529,695	
3/4 in. meter	0	\$54	1.0	0.25%	\$0	\$0	\$0	\$0	\$0	
1 in. meter	204	\$96	1.8	0.25%	\$22,185	\$25,132	\$30,486	\$30,562	\$30,638	
1 1/2 in. meter	56	\$148	2.7	0.25%	\$8,288	\$9,389	\$12,902	\$12,934	\$12,966	
2 in. meter	118	\$219	4.1	0.25%	\$29,274	\$33,163	\$40,227	\$40,328	\$40,429	
3 in. meter	8	\$332	6.1	0.00%	\$3,001	\$3,391	\$4,104	\$4,104	\$4,104	
4 in. meter	7	\$514	9.5	0.00%	\$3,598	\$4,594	\$5,559	\$5,559	\$5,559	
6 in. meter	0	\$921	17.1	0.00%	\$0	\$0	\$0	\$0	\$0	
8 in. meter	2	\$1,493	27.6	0.00%	\$3,374	\$3,813	\$4,614	\$4,614	\$4,614	
10 in. meter	0	\$2,105	39.0	0.00%	\$0	\$0	\$0	\$0	\$0	
12 in. meter	0	\$3,745	69.4	0.00%	\$0	\$0	\$0	\$0	\$0	
Flat rate charge	0	\$3,745	0.0	0.00%	\$0	\$0	\$0	\$0	\$0	
Single Unit (Meter) Charge Subtotal, \$/year	6,665				\$401,534	\$515,226	\$624,947	\$626,474	\$628,004	
Multiple Units (units - meters)	1,981	\$54.00		0.25%	\$106,974	\$137,279	\$166,523	\$166,939	\$167,356	
TOTAL Minimum charge					\$508,508	\$652,505	\$791,470	\$793,413	\$795,361	
<b>Usage Charge (Volumetric)</b>										
Unit rate per 100 CF					\$1.95	\$2.20	\$3.01	\$3.01	\$3.01	
Unit Charge (per 1,000 gallons)					\$2.61	\$3.33	\$4.03	\$4.03	\$4.03	
Metered consumption, total, gpd					2,100,000	2,100,000	2,100,000	2,100,000	2,100,000	
Metered consumption, Mgal per year					766.5	766.5	766.5	766.5	766.5	
Usage charge subtotal, \$ per year					\$1,998,229	\$2,551,538	\$3,087,361	\$3,087,361	\$3,087,361	
Uncollected charges, % and \$					0.3% assumed uncollected	(\$8,502)	(\$9,612)	(\$11,636)	(\$11,648)	
Water Meter and Usage Net Revenue Subtotal					\$2,498,216	\$3,194,431	\$3,867,194	\$3,869,131	\$3,871,073	
<b>Hydrants</b>										
<i>Rate Increase, %:</i>										
Domestic (H1)	6,728	\$65.00		0.00%	\$494,172	\$558,414	\$675,681	\$675,681	\$675,681	
Mercantile (H2)	478	\$131.00		0.00%	\$70,758	\$79,957	\$96,748	\$96,748	\$96,748	
Industrial (H3)	25	\$325.00		0.00%	\$9,210	\$10,407	\$12,592	\$12,592	\$12,592	
Multi-unit (H5)	2,191	\$65.00		0.00%	\$160,929	\$181,850	\$220,038	\$220,038	\$220,038	
Hydrant Revenue Subtotal					\$850,503	\$930,627	\$1,005,059	\$1,005,059	\$1,005,059	
<b>Sprinklers</b>										
<i>Rate Increase, %:</i>										
2" sprinkler	33	\$186.00		0.00%	\$6,204	\$7,011	\$9,585	\$9,585	\$9,585	
4" sprinkler	31	\$376.00		0.00%	\$11,656	\$13,171	\$18,884	\$18,009	\$18,009	
6" sprinkler	72	\$845.00		0.00%	\$60,840	\$68,749	\$94,001	\$94,001	\$94,001	
8" sprinkler	21	\$1,502.00		0.00%	\$31,542	\$35,642	\$40,276	\$48,734	\$48,734	
10" sprinkler	4	\$2,604.00		0.00%	\$10,416	\$11,770	\$16,093	\$16,093	\$16,093	
12" sprinkler	1	\$3,380.00		0.00%	\$3,380	\$3,819	\$5,222	\$5,222	\$5,222	
Sprinkler Revenue Subtotal					\$124,038	\$140,163	\$191,645	\$191,645	\$191,645	
Other Revenue - see Sheet 7.					\$24,550	\$24,550	\$24,550	\$24,550	\$24,550	
Fines					\$24,550	\$24,550	\$24,550	\$24,550	\$24,550	

**14C. RATE SETTING - 14B + FE/MN TREATMENT AT WELL #3**  
**MERRIMACK VILLAGE DISTRICT RATE STUDY**

Description	# Users	Minimum Yearly Charge	Min Chg Ratio	Projected # Users Increase	YEAR					
					FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Transfer Fee					\$15,900	\$15,900	\$15,900	\$15,900	\$15,900	\$15,900
Interest		\$12,000		0.00%	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Communication Tower Rental		\$86,050		0.00%	\$86,050	\$86,050	\$86,050	\$86,050	\$86,050	\$86,050
Miscellaneous Income		\$10,000		0.00%	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Service Charge Mains		\$1,250		0.00%	\$1,250	\$1,250	\$1,250	\$1,250	\$1,250	\$1,250
Service Charge Hydrant Hookups		\$1,050		0.00%	\$1,050	\$1,050	\$1,050	\$1,050	\$1,050	\$1,050
Service Charge Turn On/Off Water		\$14,600		0.00%	\$14,600	\$14,600	\$14,600	\$14,600	\$14,600	\$14,600
Miscellaneous Service Charges		\$12,750		0.00%	\$12,750	\$12,750	\$12,750	\$12,750	\$12,750	\$12,750
Service Charge Backflow Test		\$36,700		0.00%	\$36,700	\$36,700	\$36,700	\$36,700	\$36,700	\$36,700
Service Charge Entrances		\$26,500		0.00%	\$26,500	\$26,500	\$26,500	\$26,500	\$26,500	\$26,500
Merchandise Sales		\$2,750		0.00%	\$2,750	\$2,750	\$2,750	\$2,750	\$2,750	\$2,750
Income Received From State Grants		\$0		0.00%	\$0	\$0	\$0	\$0	\$0	\$0
Town of Merrimack Plowing		\$0		0.00%	\$0	\$0	\$0	\$0	\$0	\$0
Inspections/Plan Reviews		\$0		0.00%	\$0	\$0	\$0	\$0	\$0	\$0
DW HWY Interconnection		\$0		0.00%	\$0	\$0	\$0	\$0	\$0	\$0
Overtime Estimates (reimbursable)		\$0		0.00%	\$0	\$0	\$0	\$0	\$0	\$0
System Development Charge		\$0		0.00%	\$0	\$0	\$0	\$0	\$0	\$0
Legal Fee Reimbursements		\$0		0.00%	\$0	\$0	\$0	\$0	\$0	\$0
Other Projected Revenue		\$244,100		0.00%	\$244,100	\$244,100	\$244,100	\$244,100	\$244,100	\$244,100
						\$244,100	\$244,100	\$244,100	\$244,100	\$244,100
<b>Summary</b>										
Total Projected Revenues		3,517,857			3,944,852	4,427,543	5,307,998	5,309,835	5,311,877	
Total Projected Expenditures - See Sheet 12.		3,602,322			4,064,843	4,439,805	5,328,810	5,092,835	5,081,709	
Yearly Net Difference Between Revenue and Expenditures <sup>2</sup>		(84,465)			(119,991)	(12,262)	(20,812)	217,000	230,168	
Surplus, %		-2%			-3%	0%	0%	4%	5%	
<b>Cumulative Cash/Capital Reserves</b>										
Yearly Net Difference Between Revenue and Expenditures <sup>2</sup>					(84,465)	(119,991)	(20,812)	217,000	230,168	
Transfers to Capital Reserves (from Budget)					\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	
Transfers to Capital Reserves (from CIP table)					0	(900,000)	0	0	0	
Transfers from Capital Reserves (from CIP table)					(952,000)	(900,000)	0	0	0	
Net change to Account Balances					(1,036,465)	(412,262)	479,188	717,000	730,168	
<b>Total Account Balances</b>					\$4,703,535	\$5,083,545	\$5,150,471	\$5,867,471	\$6,597,639	
Starting Balance		\$5,740,000			\$4,671,283					

**Notes:**

<sup>1</sup>Meter consumption is avg. of previous 3 years

<sup>2</sup>Positive difference means that funds can be added to reserves. Negative means that funds will be drained from reserves.

**14D. RATE SETTING - 14C + PFAS TREATMENT AT WELLS #2 & #3**  
**MERRIMACK VILLAGE DISTRICT RATE STUDY**

Description	# Users	Minimum Yearly Charge	Min Chg Ratio	Projected # Users Increase	YEAR						
					FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	
					Rate Increase, %:						
<b>Water Sales</b>											
<i>Minimum (Capacity) charge based on water meter size</i>											
5/8 in. meter	6,270	\$54	1.0	0.25%	\$338,580	\$383,552	\$434,497	\$609,817	\$611,341	\$612,870	
3/4 in. meter	0	\$54	1.0	0.25%	\$0	\$0	\$0	\$0	\$0	\$0	
1 in. meter	204	\$96	1.8	0.25%	\$19,584	\$22,185	\$25,132	\$35,273	\$35,361	\$35,449	
1 1/2 in. meter	56	\$148	2.7	0.25%	\$8,288	\$9,389	\$10,636	\$14,928	\$14,965	\$15,002	
2 in. meter	118	\$219	4.1	0.25%	\$25,842	\$29,274	\$33,163	\$46,544	\$46,660	\$46,777	
3 in. meter	8	\$332	6.1	0.00%	\$2,656	\$3,001	\$3,391	\$4,748	\$4,748	\$4,748	
4 in. meter	7	\$514	9.5	0.00%	\$3,598	\$4,066	\$4,594	\$6,432	\$6,432	\$6,432	
6 in. meter	0	\$921	17.1	0.00%	\$0	\$0	\$0	\$0	\$0	\$0	
8 in. meter	2	\$1,493	27.6	0.00%	\$2,986	\$3,374	\$3,813	\$5,338	\$5,338	\$5,338	
10 in. meter	0	\$2,105	39.0	0.00%	\$0	\$0	\$0	\$0	\$0	\$0	
12 in. meter	0	\$3,745	69.4	0.00%	\$0	\$0	\$0	\$0	\$0	\$0	
Flat rate charge	0	\$3,745	0.0	0.00%	\$0	\$0	\$0	\$0	\$0	\$0	
<b>Single Unit (Meter) Charge Subtotal, \$/year</b>	6,665				\$401,534	\$454,842	\$515,226	\$723,079	\$724,845	\$726,616	
Multiple Units (units - meters)	1,981	\$54.00		0.25%	\$106,974	\$121,183	\$137,279	\$192,671	\$193,153	\$193,636	
<b>TOTAL Minimum charge</b>					\$508,508	\$576,024	\$652,505	\$915,750	\$917,998	\$920,252	
<b>Usage Charge (Volumetric)</b>											
Unit rate per 100 CF											
Unit Charge (per 1,000 gallons)					\$2.61	\$2.95	\$3.33	\$4.66	\$4.66	\$4.66	
Metered consumption, total, gpd <sup>1</sup>					2,100,000	2,100,000	2,100,000	2,100,000	2,100,000	2,100,000	
Metered consumption, Mgal per year					766.5	766.5	766.5	766.5	766.5	766.5	
Usage charge subtotal, \$ per year					\$1,998,229	\$2,257,998	\$2,551,538	\$3,572,153	\$3,572,153	\$3,572,153	
Uncollected charges, % and \$					\$7,520	(\$9,502)	(\$9,612)	(\$13,464)	(\$13,470)	(\$13,477)	
<b>Water Meter and Usage (Net Revenue Subtotal)</b>					\$2,499,216	\$2,825,521	\$3,194,431	\$4,474,440	\$4,476,681	\$4,478,928	
0.3% assumed uncollected											
<b>Hydrants</b>											
Domestic (H1)	6,728	\$65.00		0.00%	\$437,320	\$494,172	\$558,414	\$781,779	\$781,779	\$781,779	
Mercantile (H2)	478	\$131.00		0.00%	\$62,618	\$70,758	\$79,957	\$111,940	\$111,940	\$111,940	
Industrial (H3)	25	\$326.00		0.00%	\$8,150	\$9,210	\$10,407	\$14,569	\$14,569	\$14,569	
Multi-unit (H5)	2,191	\$65.00		0.00%	\$142,415	\$160,929	\$181,850	\$254,590	\$254,590	\$254,590	
<b>Hydrant Revenue Subtotal</b>					\$650,503	\$735,068	\$830,627	\$1,162,878	\$1,162,878	\$1,162,878	
<b>Sprinklers</b>											
2" sprinkler	33	\$188.00		0.00%	\$6,204	\$7,011	\$7,922	\$11,091	\$11,091	\$11,091	
4" sprinkler	31	\$376.00		0.00%	\$11,656	\$13,171	\$14,884	\$20,837	\$20,837	\$20,837	
6" sprinkler	72	\$845.00		0.00%	\$60,840	\$68,749	\$77,687	\$108,761	\$108,761	\$108,761	
8" sprinkler	21	\$1,502.00		0.00%	\$31,542	\$35,642	\$40,276	\$56,386	\$56,386	\$56,386	
10" sprinkler	4	\$2,604.00		0.00%	\$10,416	\$11,770	\$13,300	\$18,620	\$18,620	\$18,620	
12" sprinkler	1	\$3,380.00		0.00%	\$3,380	\$3,819	\$4,316	\$6,042	\$6,042	\$6,042	
<b>Sprinkler Revenue Subtotal</b>					\$124,038	\$140,163	\$158,384	\$221,738	\$221,738	\$221,738	
<b>Other Revenue - see Sheet 7.</b>					\$24,550	\$24,550	\$24,550	\$24,550	\$24,550	\$24,550	
<b>Fines</b>					\$0	\$0	\$0	\$0	\$0	\$0	

**14D. RATE SETTING - 14C + PFAS TREATMENT AT WELLS #2 & #3**  
**MERRIMACK VILLAGE DISTRICT RATE STUDY**

Description	# Users	Minimum Yearly Charge	Min Chg Ratio	Projected # Users Increase	YEAR					
					FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Transfer Fee					\$15,900	\$15,900	\$15,900	\$15,900	\$15,900	\$15,900
Interest					\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Communication Tower Rental					\$86,050	\$86,050	\$86,050	\$86,050	\$86,050	\$86,050
Miscellaneous Income					\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Service Charge Mains					\$1,250	\$1,250	\$1,250	\$1,250	\$1,250	\$1,250
Service Charge Hydrant Hookups					\$1,050	\$1,050	\$1,050	\$1,050	\$1,050	\$1,050
Service Charge Turn On/Off Water					\$14,600	\$14,600	\$14,600	\$14,600	\$14,600	\$14,600
Miscellaneous Service Charges					\$12,750	\$12,750	\$12,750	\$12,750	\$12,750	\$12,750
Service Charge Backflow Test					\$36,700	\$36,700	\$36,700	\$36,700	\$36,700	\$36,700
Service Charge Entrances					\$26,500	\$26,500	\$26,500	\$26,500	\$26,500	\$26,500
Merchandise Sales					\$2,750	\$2,750	\$2,750	\$2,750	\$2,750	\$2,750
Income Received From State Grants					\$0	\$0	\$0	\$0	\$0	\$0
Town of Merrimack Plowing					\$0	\$0	\$0	\$0	\$0	\$0
Inspections/Plan Reviews					\$0	\$0	\$0	\$0	\$0	\$0
DW HWY Interconnection					\$0	\$0	\$0	\$0	\$0	\$0
Overtime Estimates (reimbursable)					\$0	\$0	\$0	\$0	\$0	\$0
System Development Charge					\$0	\$0	\$0	\$0	\$0	\$0
Legal Fee Reimbursements					\$0	\$0	\$0	\$0	\$0	\$0
<b>Other Projected Revenue</b>					\$244,100	\$244,100	\$244,100	\$244,100	\$244,100	\$244,100
<b>Summary</b>										
Total Projected Revenues					3,517,857	3,944,852	4,427,543	6,103,156	6,105,397	6,107,544
Total Projected Expenditures - See Sheet 12.					3,602,322	4,064,843	4,439,805	6,154,366	5,909,839	5,889,959
Yearly Net Difference Between Revenue and Expenditures <sup>2</sup>					(84,465)	(119,991)	(12,262)	(51,210)	195,558	217,685
Surplus, %					-2%	-3%	0%	-1%	3%	4%
<b>Cumulative Cash/Capital Reserves</b>										
Yearly Net Difference Between Revenue and Expenditures <sup>2</sup>					(84,465)	(119,991)	(12,262)	(51,210)	195,558	217,685
Transfers to Capital Reserves (from Budget)										
Transfers to Capital Reserves (from CIP table)										
Transfers from Capital Reserves (from CIP table)					(952,000)	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Net change to Account Balances					(1,036,465)	380,009	(412,262)	448,790	695,558	717,685
<b>Total Account Balances</b>					\$4,703,535	\$5,083,545	\$4,671,283	\$5,120,073	\$5,815,631	\$6,533,316
				Starting Balance	\$5,740,000					

Notes:

<sup>1</sup>Meter consumption is avg. of previous 3 years

<sup>2</sup>Positive difference means that funds can be added to reserves. Negative means that funds will be drained from reserves.

## 15. SAMPLE WATER BILLS (Existing Rates compared to Alternatives)

Town of Merrimack, NH

Description	Average gpd	Meter Size	Consum. CF/Qtr	Existing Rates					Proposed Rates					FY 2021					FY 2022							
				FY 2019					FY 2020					FY 2021					FY 2022							
				Hydrant	Meter	Cons	Charge	Annual	Hydrant	Meter	Cons	Charge	Annual	Hydrant	Meter	Cons	Charge	Annual	Hydrant	Meter	Cons	Charge	Annual	Hydrant	Meter	Cons
<b>Residential (Hydrant Only)</b>																										
Existing rates	0	5/8"	0	\$65	\$54	\$1.95	\$30	\$119	\$65	\$54	\$1.95	\$30	\$119	0%	\$65	\$54	\$1.95	\$30	\$119	0%	\$65	\$54	\$1.95	\$30	\$119	0%
Proposed rates (a)	0	5/8"	0	\$65	\$54	\$1.95	\$30	\$119	\$73	\$61	\$2.20	\$34	\$134	13%	\$83	\$69	\$2.49	\$38	\$152	13%	\$83	\$69	\$2.49	\$38	\$152	13%
Proposed rates (b)	0	5/8"	0	\$65	\$54	\$1.95	\$30	\$119	\$73	\$61	\$2.20	\$34	\$134	13%	\$83	\$69	\$2.49	\$38	\$152	13%	\$93	\$77	\$2.79	\$43	\$170	12%
Proposed rates (c)	0	5/8"	0	\$65	\$54	\$1.95	\$30	\$119	\$73	\$61	\$2.20	\$34	\$134	13%	\$83	\$69	\$2.49	\$38	\$152	13%	\$100	\$83	\$3.01	\$46	\$184	21%
Proposed rates (d)	0	5/8"	0	\$65	\$54	\$1.95	\$30	\$119	\$73	\$61	\$2.20	\$34	\$134	13%	\$83	\$69	\$2.49	\$38	\$152	13%	\$116	\$97	\$3.49	\$53	\$213	40%
<b>Residential Single Unit (Very Low User)</b>																										
Existing rates	80	5/8"	976	\$65	\$54	\$1.95	\$49	\$195	\$65	\$54	\$1.95	\$49	\$195	0%	\$65	\$54	\$1.95	\$49	\$195	0%	\$65	\$54	\$1.95	\$49	\$195	0%
Proposed rates (a)	80	5/8"	976	\$65	\$54	\$1.95	\$49	\$195	\$73	\$61	\$2.20	\$55	\$220	13%	\$83	\$69	\$2.49	\$62	\$249	13%	\$83	\$69	\$2.49	\$62	\$249	13%
Proposed rates (b)	80	5/8"	976	\$65	\$54	\$1.95	\$49	\$195	\$73	\$61	\$2.20	\$55	\$220	13%	\$83	\$69	\$2.49	\$62	\$249	13%	\$93	\$77	\$2.79	\$70	\$279	12%
Proposed rates (c)	80	5/8"	976	\$65	\$54	\$1.95	\$49	\$195	\$73	\$61	\$2.20	\$55	\$220	13%	\$83	\$69	\$2.49	\$62	\$249	13%	\$100	\$83	\$3.01	\$75	\$301	21%
Proposed rates (d)	80	5/8"	976	\$65	\$54	\$1.95	\$49	\$195	\$73	\$61	\$2.20	\$55	\$220	13%	\$83	\$69	\$2.49	\$62	\$249	13%	\$116	\$97	\$3.49	\$87	\$349	40%
<b>Residential Single Unit (Average Residential in Town)</b>																										
Existing rates	206	5/8"	2513	\$65	\$54	\$1.95	\$79	\$315	\$65	\$54	\$1.95	\$79	\$315	0%	\$65	\$54	\$1.95	\$79	\$315	0%	\$65	\$54	\$1.95	\$79	\$315	0%
Proposed rates (a)	206	5/8"	2513	\$65	\$54	\$1.95	\$79	\$315	\$73	\$61	\$2.20	\$89	\$356	13%	\$83	\$69	\$2.49	\$101	\$402	13%	\$83	\$69	\$2.49	\$101	\$402	13%
Proposed rates (b)	206	5/8"	2513	\$65	\$54	\$1.95	\$79	\$315	\$73	\$61	\$2.20	\$89	\$356	13%	\$83	\$69	\$2.49	\$101	\$402	13%	\$93	\$77	\$2.79	\$113	\$451	12%
Proposed rates (c)	206	5/8"	2513	\$65	\$54	\$1.95	\$79	\$315	\$73	\$61	\$2.20	\$89	\$356	13%	\$83	\$69	\$2.49	\$101	\$402	13%	\$100	\$83	\$3.01	\$122	\$487	21%
Proposed rates (d)	206	5/8"	2513	\$65	\$54	\$1.95	\$79	\$315	\$73	\$61	\$2.20	\$89	\$356	13%	\$83	\$69	\$2.49	\$101	\$402	13%	\$116	\$97	\$3.49	\$141	\$563	40%
<b>Residential Single Unit (Higher user)</b>																										
Existing rates	400	5/8"	4880	\$65	\$54	\$1.95	\$125	\$500	\$65	\$54	\$1.95	\$125	\$500	0%	\$65	\$54	\$1.95	\$125	\$500	0%	\$65	\$54	\$1.95	\$125	\$500	0%
Proposed rates (a)	400	5/8"	4880	\$65	\$54	\$1.95	\$125	\$500	\$73	\$61	\$2.20	\$141	\$565	13%	\$83	\$69	\$2.49	\$159	\$638	13%	\$83	\$69	\$2.49	\$159	\$638	13%
Proposed rates (b)	400	5/8"	4880	\$65	\$54	\$1.95	\$125	\$500	\$73	\$61	\$2.20	\$141	\$565	13%	\$83	\$69	\$2.49	\$159	\$638	13%	\$93	\$77	\$2.79	\$179	\$715	12%
Proposed rates (c)	400	5/8"	4880	\$65	\$54	\$1.95	\$125	\$500	\$73	\$61	\$2.20	\$141	\$565	13%	\$83	\$69	\$2.49	\$159	\$638	13%	\$100	\$83	\$3.01	\$193	\$772	21%
Proposed rates (d)	400	5/8"	4880	\$65	\$54	\$1.95	\$125	\$500	\$73	\$61	\$2.20	\$141	\$565	13%	\$83	\$69	\$2.49	\$159	\$638	13%	\$116	\$97	\$3.49	\$223	\$893	40%
<b>Residential Single Unit (Based on NHDES Statewide Average)</b>																										
Existing rates	197	5/8"	2403	\$65	\$54	\$1.95	\$77	\$306	\$65	\$54	\$1.95	\$77	\$306	0%	\$65	\$54	\$1.95	\$77	\$306	0%	\$65	\$54	\$1.95	\$77	\$306	0%
Proposed rates (a)	197	5/8"	2403	\$65	\$54	\$1.95	\$77	\$306	\$73	\$61	\$2.20	\$87	\$346	13%	\$83	\$69	\$2.49	\$98	\$391	13%	\$83	\$69	\$2.49	\$98	\$391	13%
Proposed rates (b)	197	5/8"	2403	\$65	\$54	\$1.95	\$77	\$306	\$73	\$61	\$2.20	\$87	\$346	13%	\$83	\$69	\$2.49	\$98	\$391	13%	\$93	\$77	\$2.79	\$110	\$438	12%
Proposed rates (c)	197	5/8"	2403	\$65	\$54	\$1.95	\$77	\$306	\$73	\$61	\$2.20	\$87	\$346	13%	\$83	\$69	\$2.49	\$98	\$391	13%	\$100	\$83	\$3.01	\$118	\$473	21%
Proposed rates (d)	197	5/8"	2403	\$65	\$54	\$1.95	\$77	\$306	\$73	\$61	\$2.20	\$87	\$346	13%	\$83	\$69	\$2.49	\$98	\$391	13%	\$116	\$97	\$3.49	\$137	\$548	40%
STATE AVERAGE COST (2018)	197	5/8"	2403					\$552					\$552						\$552						\$552	
<b>Commercial</b>																										
Existing rates	2500	2"	30498	\$131	\$219	\$1.95	\$682	\$2,729	\$131	\$219	\$1.95	\$682	\$2,729	0%	\$131	\$219	\$1.95	\$682	\$2,729	0%	\$131	\$219	\$1.95	\$682	\$2,729	0%
Proposed rates (a)	2500	2"	30498	\$131	\$219	\$1.95	\$682	\$2,729	\$148	\$247	\$2.20	\$771	\$3,084	13%	\$167	\$280	\$2.49	\$871	\$3,484	13%	\$167	\$280	\$2.49	\$871	\$3,484	13%
Proposed rates (b)	2500	2"	30498	\$131	\$219	\$1.95	\$682	\$2,729	\$148	\$247	\$2.20	\$771	\$3,084	13%	\$167	\$280	\$2.49	\$871	\$3,484	13%	\$187	\$313	\$2.79	\$976	\$3,903	12%
Proposed rates (c)	2500	2"	30498	\$131	\$219	\$1.95	\$682	\$2,729	\$148	\$247	\$2.20	\$771	\$3,084	13%	\$167	\$280	\$2.49	\$871	\$3,484	13%	\$202	\$338	\$3.01	\$1,054	\$4,216	21%
Proposed rates (d)	2500	2"	30498	\$131	\$219	\$1.95	\$682	\$2,729	\$148	\$247	\$2.20	\$771	\$3,084	13%	\$167	\$280	\$2.49	\$871	\$3,484	13%	\$234	\$391	\$3.49	\$1,220	\$4,878	40%
<b>Industrial</b>																										
Existing rates	5000	4"	60996	\$326	\$514	\$1.95	\$1,399	\$5,598	\$326	\$514	\$1.95	\$1,399	\$5,598	0%	\$326	\$514	\$1.95	\$1,399	\$5,598	0%	\$326	\$514	\$1.95	\$1,399	\$5,598	0%
Proposed rates (a)	5000	4"	60996	\$326	\$514	\$1.95	\$1,399	\$5,598	\$368	\$581	\$2.20	\$1,581	\$6,325	13%	\$416	\$656	\$2.49	\$1,787	\$7,148	13%	\$416	\$656	\$2.49	\$1,787	\$7,148	13%
Proposed rates (b)	5000	4"	60996	\$326	\$514	\$1.95	\$1,399	\$5,598	\$368	\$581	\$2.20	\$1,581	\$6,325	13%	\$416	\$656	\$2.49	\$1,787	\$7,148	13%	\$466	\$735	\$2.79	\$2,001	\$8,005	12%
Proposed rates (c)	5000	4"	60996	\$326	\$514	\$1.95	\$1,399	\$5,598	\$368	\$581	\$2.20	\$1,581	\$6,325	13%	\$416	\$656	\$2.49	\$1,787	\$7,148	13%	\$504	\$794	\$3.01	\$2,162	\$8,649	21%
Proposed rates (d)	5000	4"	60996	\$326	\$514	\$1.95	\$1,399	\$5,598	\$368	\$581	\$2.20	\$1,581	\$6,325	13%	\$416	\$656	\$2.49	\$1,787	\$7,148	13%	\$583	\$919	\$3.49	\$2,502	\$10,007	40%

Notes: