



TOWN COUNCIL – AGENDA REQUEST FORM

THIS FORM WILL BECOME PART OF THE BACKGROUND INFORMATION USED BY THE COUNCIL AND PUBLIC

Please submit Agenda Request Form, including back up information, 8 days prior to the requested meeting date. **Public Hearing requests must be submitted 20**

days prior to the requested meeting date to meet publication deadlines (exceptions may be authorized by the Town Manager, Chairman/Vice Chair).

MEETING INFORMATION

Date Submitted: October 13, 2023

Date of Meeting: October 26, 2023

Submitted by: Dawn Tuomala

Time Required: 15 minutes

Department: DPW - Admin

Background Info. Supplied: Yes No

Speakers: Jessica Richard – Strategic Funding Manager –Wright-Pierce & Dawn Tuomala

CATEGORY OF BUSINESS (PLEASE PLACE AN "X" IN THE APPROPRIATE BOX)

Appointment:	<input type="checkbox"/>	Recognition/Resignation/Retirement:	<input type="checkbox"/>
Public Hearing:	<input type="checkbox"/>	Old Business:	<input checked="" type="checkbox"/>
New Business:	<input type="checkbox"/>	Consent Agenda:	<input type="checkbox"/>
Nonpublic:	<input type="checkbox"/>	Other:	<input type="checkbox"/>

TITLE OF ITEM

Sewer Rate Study Presentation Follow-up

DESCRIPTION OF ITEM

To present a follow-up to the final Sewer Rates and Fees Study Report which identifies several financial inequities that need to be addressed to standardize billing practices.

REFERENCE (IF KNOWN)

RSA:	Warrant Article:
Charter Article:	Town Meeting:
Other:	N/A:

EQUIPMENT REQUIRED (PLEASE PLACE AN "X" IN THE APPROPRIATE BOX)

Projector:	<input type="checkbox"/>	Grant Requirements:	<input type="checkbox"/>
Easel:	<input type="checkbox"/>	Joint Meeting:	<input type="checkbox"/>
Special Seating:	<input type="checkbox"/>	Other:	<input type="checkbox"/>
Laptop:	<input checked="" type="checkbox"/>	None:	<input type="checkbox"/>

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APPROVAL

Town Manager: Yes No Chair/Vice Chair: Yes No

Hold for Meeting Date:



TOWN OF MERRIMACK, NH

Final Report

OCT 2023

Update to Comprehensive Wastewater Rates and Fees Study

Update to Comprehensive Wastewater Rates and Fees Study Town of Merrimack, NH

October 2023

Prepared By:

Wright-Pierce

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Section 1 Introduction

1.1 Introduction

The Town of Merrimack, New Hampshire owns, operates, and maintains a wastewater system that includes sewer collection and transport, septage receiving, wastewater treatment, and sludge composting. The goal of every public wastewater system is to provide customers with an uninterrupted supply of safe, dependable, fairly priced wastewater treatment while operating at breakeven or better financially. In order to meet these goals, the Merrimack wastewater system's rate structure must be periodically evaluated to ensure that the Town produces enough revenue to operate the system in a safe, lawful, and financially sound manner. This rate report provides a summary of the results of wastewater treatment system rate evaluation completed from 2021 to 2023.

The current system serves residential, commercial, and industrial users in the Town of Merrimack and small parts of the Town of Bedford and the City of Nashua. The largest single user is the Anheuser- Busch (A-B) brewery. The Town entered into an agreement with A-B on November 5, 2010. This report does not make any recommendations to modify any of the conditions set forth in the agreement with A-B as there have been no changes to the NPDES permit conditions which would warrant any changes.

There are approximately 5897 connections. Based on FY 2021/22 revenues, the commercial, institutional, and industrial (except A-B) users constitute approximately 50% of the user rate revenue at the plant. Currently, A-B contributes the remaining 50% of the user rate revenue. Each residential user is considered a connection unit (CU).

In addition to treating wastewater flows from Merrimack and parts of Bedford and Nashua that is transported to the WWTF in the sewer collection system, the facility also accepts septage, which is trucked to the facility by private contractors from the Amherst, Brookline, Greenville, Hollis, Temple, Wilton, Lyndeborough. Septage is received through dedicated screening facilities and stored in tankage and then metered into the wastewater liquid treatment process. Primary and secondary sludge generated at the WWTF is mechanically dewatered and further processed at the on-site compost facility. The finished compost product is distributed to Merrimack residents and commercial users. Dewatered sludge is also accepted from other communities (Franklin NH WWTF, Hooksett, Henniker, Milford, Amesbury, Jaffrey, Bristol, Sunapee, Mason, Mont Vernon, and Winchester) and processed with the Merrimack sludge at the compost facility. Merrimack maintains rate structures and relationships with both Normendeau Resource Management and Agresource but has not received sludge from them for several years.

Table 1-1 Wastewater System Percentage of Revenue

Revenue Category	Percent of Total FY 2020/21 Budget
Sewer User Rates	
Residential	27%
Commercial	6%
Industrial (not including A-B)	3%
A-B	42%
Compost Sales	2%
Septage and Sludge Tip Fees	13%
Other	7%

The Town previously retained Wright-Pierce to perform a comprehensive rate evaluation, primarily in response to falling revenues from the largest user, A-B. The original rate study was finalized in March 2009.

The 2009 study included the following conclusions and recommendations:

- Reserves would be depleted within two years at current rates
- Existing flat rate billing structure should be maintained
- Most recent rate increase occurred in 2005 and established the rates at \$175 per CU per year or \$2.46 per 1,000 gallons
- Residential, commercial, and industrial recommended rate increases as follows:
 - FY 09/10 – 6% increase (\$186/CU/yr.)
 - FY 11/12 – 6% increase (\$197/CU/yr.)
 - FY 13/14 – 8% increase (\$213/CU/yr.) (Town implemented 6% increase to \$208/CU/yr.)
 - A-B rate structure was renegotiated. The structure was formalized in the November 5, 2010 agreement between the Town and A-B.
 - Beyond the forecast period of the Study, the Town implemented and is planning to implement rate increases as follows:
 - FY 15/16 – 8% (\$225/CU/yr.)
 - FY 17/18 – 7% (\$242/CU/yr.)
 - FY 19/20 – 12% (\$271/CU/yr.)
 - FY 21/22 (current rate) – 12% (\$304/CU/yr.)
 - FY23/24 – 12% Increase (\$340/CU/yr.)

- FY 25/26 – 5% (\$357/CU/yr.)
- Existing septage and sludge tipping fees were determined to be appropriate and equitable and in line with market rates
- Connection fees were evaluated using the “buy-in” approach based on the depreciated value of the facility and available capacity. A connection fee of \$2,000 was established per residential connection.

This study is the first update to the 2009 study. Since the original study, the Town has implemented, or is currently implementing, significant capital improvement projects including the following:

- Sewer interceptor and manhole rehabilitation
- WWTF Dewatering Upgrade
- WWTF Phase II and Compost Facility Upgrade
- WWTF Phase III, Phase IV, Phase V, and Pump Stations Upgrade

A timeline of major upgrades completed since the WWTF was first brought online is included in Appendix A.

The Town’s NPDES discharge permit was renewed in 2014. The application to review the permit was submitted to EPA and NHDES on November 30, 2018. The application was deemed complete by EPA. The Town has not received a revised permit to date. Based on permits recently issued by EPA, the new permit is expected to contain nitrogen and per- and polyfluoroalkyl substances (PFAS) monitoring. In addition, the current phosphorus limit of 163.8 lbs/day monthly average is being reviewed. EPA has indicated that the upcoming permit renewal may include a lower phosphorus discharge limit.

These capital expenditures increased electrical costs, increased cost of consumables (operation and maintenance), and regulatory changes over the past 12 years have significant impact on the financial operations of the Merrimack wastewater department. Therefore, the Town desires to reevaluate current and anticipated future expenditures and revenues from its user base to confirm that the operational costs are fairly allocated and shared equitably among the users.

1.2 Scope Of Services

The scope of services for this study includes the following tasks:

1.2.1 Data Gathering and Review

Collect and review all pertinent information relevant to the rate and fees study.

1.2.2 Existing Wastewater Flows and Loads

Review WWTF operational data including septage for the past three years and tabulate the results. Tabulate and refine the data to estimate the user class loadings and the rest of the domestic wastewater. Comment on flow and loading trends over the past three years.

1.2.3 Cost of Treatment and Growth

Allocate the budget costs to five parameters (flow, BOD, TSS, nitrogen, and phosphorus) according to respective capital and operating cost relationships to confirm that the actual cost to treat wastewater is shared equitably across residential, commercial and industrial users, including septage haulers. Determine composting costs and compare to current tipping fees to ensure that current tipping fees are equitable.

1.2.4 Current Revenue Needs

The current and recent past budget cost expenditures will be confirmed and tabulated to assess past operational costs and trends. Future costs will be estimated for five years to allow needed revenue forecasts to be developed, which will provide the basis for recommended future user rates.

1.2.5 Projected Capital Needs and Costs

Small and large capital improvement projects and costs will be considered in evaluating the sewer user rate and fee structure.

1.2.6 Sewer Fund Balance

Reassess the basis for the current reserve funds balance targets and include within the recommended future rates adequate funding to maintain the target levels.

1.2.7 Existing Rate Structure and Billing Methods

Review current conditions in the context of the flat rates billing structure to confirm as most appropriate or suggest an alternative approach. Review all current and recommended fees for fairness, reasonableness, and comparison to other New Hampshire communities.

1.2.8 Existing Fees and Connection Charges

Review the current charges for other fees and services including connection fees.

1.2.9 Review of Sewer Use Ordinance

Review the existing ordinance in comparison to the NHDES model ordinance and identify recommended revisions. EPA recently completed an inspection of the Pretreatment Program which included a detailed review of the SUO. On March 30 and April 8, 2021, EPA, and its consultant's PG Environmental, conducted a remote Industrial Pretreatment Program Audit and Review of the Town's Industrial Pretreatment Program. As part of the audit, EPA made recommendations for the update of the SUO. The Town revised the SUO in accordance with EPA comments. On April 22 and 27, 2022 both NHDES and EPA approved the SUO, respectively. The revised SUO was adopted on May 26, 2022.

1.2.10 Prepare Draft Report and Meet With the Town

Prepare a draft report summarizing investigations, analysis and recommendations and submit the report to the Town for review and comment. Meet with the Town to discuss the findings and receive comments.

1.2.11 Prepare Draft Final Report

Submit the draft final report incorporating the Town's comments.

1.2.12 Revise Draft Final Report

Submit the revised draft final report incorporating the Town's comments.

1.2.13 Prepare Final Report and Present to the Town Council

Revise the report to incorporate any additional comments received and attend a Town Council meeting to present the findings and recommendations of the rate study.

Section 2 Introduction

2.1 Information and Data

A large range of information and data supplied by the Town were relied upon for analysis as part of this study including the following:

- NPDES discharge permit
- WWTF Monthly Operational Reports data
- 10-year actual revenues
- 10-year budgets
- Planned Capital Improvement Projects (CIP) minor and major
- Reserve funds audited balance updates
- Phase II WWTF and Compost Facility Upgrade project financial and funding summary
- Composting vs. landfilling cost analysis and comparison
- Wright-Pierce compost solids balance model to estimate actual operations and amendment requirements
- Merrimack Sewer Rate Schedules (2017, 2019, 2021, 2023)
- NHDES Water & Wastewater Rates Report (2020)
- Merrimack Sewer Use Ordinance (Chapter 158) – updated May 2022

2.2 Wastewater and Septage Flows and Loads

Wastewater flows enter the WWTF at Main Pump Station through a 48-inch interceptor sewer from the north and an 18-inch interceptor sewer from the south. Flows from the A-B brewery connect to the 48-inch interceptor through a dedicated 27-inch interceptor. The A-B interceptor includes an open channel Parshall flume flow meter. The combined wastewater flows currently pass through a macerator located at Main Pump Station (MPS); however, the Town hopes to install a new influent screenings system ahead of Main Pump Station next year. The MPS force main currently discharges ahead of an open channel Parshall Flume flow meter; however, this will be replaced with an in-line magnetic flow meter under the WWTF Phase III and Pump Stations Upgrade to measure the combined (total) influent flow.

As discussed in the introduction, this review of the rate structure does not include an evaluation of A-B rate formula or contribution since there have been no permit changes that would impact the current rate structure. The agreement expires in November of 2025. At that time, the Town will re-evaluate the formula and data used to calculate A-B's sewer fees.

The flow and load to the facility have been estimated using influent data collected over the past 12 years. It is assumed with this study that the current structure that 50% of the cost of operation, maintenance, and upgrade of the facility will be borne by the residential, commercial, and industrial users.

Trucked septage is offloaded through a screening unit and stored in mixed tanks. Septage is metered into the influent liquid flow stream in a channel downstream of the wastewater equalization tanks. The combined waste stream then receives the following unit treatment processes:

- Primary clarification
- Primary effluent pumping
- Anoxic, anaerobic, and aerobic treatment
- Secondary clarification
- Effluent flow measurement
- Chlorine disinfection
- Sodium bisulfite dechlorination
- Discharge to Merrimack River

Combined influent samples are collected five days a week by the WWTF staff and analyzed for various parameters for NPDES permit compliance monitoring purposes. A-B samples are also regularly collected for monitoring and billing. Septage loadings were estimated using the recorded volumes received and assumed pollutant concentrations based on the recommended values found in the New England Interstate Water Pollution Control Commission (NEIWPCC) TR-16 Guides for the Design of Wastewater Treatment Works as follows:

- BOD = 6,000 mg/l
- TSS = 15,000 mg/l
- TN = 700 mg/l
- TP = 250 mg/l

Flows and loads data for the three-year period 2017 through 2021 were evaluated and tabulated for this study and are summarized in [Table 2-1](#).

Table 2-1 Annual Average Flows and Loads (2017-2021)

Parameter	2017		2018		2019		2020		2021	
	Value	% Total	Value	%Total	Value	%Total	Value	%Total	Value	%Total
Flow (mgd)										
Domestic ⁽¹⁾	0.90	56%	1.02	59%	0.92	58%	0.87	57%	0.94	58%
WWTF Total Influent	1.61		1.72		1.58		1.54		1.62	
BOD (lbs./day)										
Domestic ⁽¹⁾	1,694	40%	1,717	40%	1,739	43%	2,158	49%	1,964	44%
WWTF Total Influent	4,186		4,338		4,057		4,374		4,427	
TSS (lbs./day)										
Domestic ⁽²⁾	2,033	21%	2,060	25%	2,087	25%	2,590	31%	2,357	44%
WWTF Total Influent	9,600		8,367		8,356		8,307		8,745	
Total Nitrogen (lbs./day)										
Domestic ⁽³⁾	407		412		417		518		471	
WWTF Total Influent	No Data		No Data		No Data		No Data		No Data	
Total Phosphorus (lbs./day)										
Domestic	34	20%	46	27%	38	23%	29	17%	30	18%
WWTF Total Influent	167		169		168		168		167	
Septage ⁽⁴⁾ Received (gal/yr)	2,395,025		3,877,517		4,874,064		4,664,486		4,523,610	
BOD (lbs./day)	328		532		668		802		786	
TSS (lbs./day)	821		1,329		1,671		2,005		1760	
Total Nitrogen (lbs./day)	38		62		78		75		72	
Total Phosphorus (lbs./day)	1.6		2.7		3.3		3.2		3.1	

Notes:

- Domestic BOD and flow calculated
- Domestic TSS assumed to be 1.2 x domestic BOD (Based on TR-16 per capita BOD and TSS loadings of 0.17 lb./cap/day and 0.20 lb./cap/day, respectively)
- Domestic total nitrogen assumed to be 24% of BOD (Based on TR-16 per capita BOD and TN loadings of 0.17 lb./dap/day and 0.04 lb./cap/day, respectively). This assumption is supported by total nitrogen sampling completed as part of the Comprehensive Facility Evaluation, prepared by Underwood Engineers, Inc. and dated January 2011.
- Septage loadings assumed to be BOD=6,000 mg/l, TSS=15,000 mg/l, TN=700 mg/l, TP=250 mg/l (TR-16)

In comparison to the flows and loads characteristics at the time of the previous rate study (2009) the following observations are offered:

- **Flow:** Total flow has decreased 23%
- **BOD and TSS:** Total BOD loads have decreased about 50%. Total TSS loads have remained about the same.
- **Septage:** Septage loads have decreased about 15% from the 2009 levels.
- **Total Nitrogen and Phosphorus:** In 2009 total nitrogen and phosphorus were not regulated in the NPDES permit and loadings of these parameters were not monitored.

The more recent flows and loads trends through 2021 are as follows:

- **Flow:** Total WWTF influent has been relatively stable. COVID-19-related impacts included a decrease in from 1.72 mgd in 2018 to 1.54 mgd in 2020. This decrease may be attributed to the closing of restaurants and businesses during the peak COVID-19 response period. Since the end of the COVID-19 restrictions, flow rose to 1.62 mgd in 2021.
- **BOD and TSS:** Town BOD and TSS loadings are stable.
- **Septage:** Average daily septage loads in gallons per day are provided in the [Table 2-2](#) below:

Table 2-2 Average Daily Septage Loading

Calendar Year	Average Daily Septage Loading (gallons/day)
2017	9,657
2018	14,688
2019	17,407
2020	16,029
2021	15,707
2022 – to date average	15,558

- **Total Nitrogen and Phosphorus:** The existing NPDES permit was issued March 20, 2014, with an effective date of June 1, 2014, and included a new seasonal (April 1 through October 31) phosphorus average monthly discharge limit of 164.8 lb./day. At the NPDES permit flow limit of 5.0 mgd, the phosphorus limit is equivalent to an effluent concentration of 4.0 mg/l. At the 2021 average effluent flow of 1.793 mgd, the phosphorus concentration was 4.08 mg/l. Total influent phosphorus loadings have been steady at approximately 167 -168 lbs./day. The Town operations includes an enhanced biological phosphorus removal (EBPR) process. EBPR is a two-step process. In the first step, phosphorous is converted to a soluble form. In the second step, the phosphorous is assimilated by Phosphorous Accumulating Organisms. The phosphorus removal in 2021 ranged between: 0% to 97% removal. The lbs/day in 2021 ranged between 4.95 lbs/day – 149.84 lbs/day. The Town

has consistently maintained compliance with the permit limit. Tables with the detailed information are provided in Attachment J.

Nitrogen is not regulated in the existing NPDES permit and is not currently monitored. Town nitrogen loadings have been estimated based on industry standard per-capita contributions (TR-16). Nitrogen loadings have likely increased in proportion to the increased septage loadings to the facility. Data to support this hypothesis is not available.

2.3 User Rates and Fees

In 2009 the Merrimack user rates were noted to be the 5th lowest and well below the New Hampshire state average. Sewer user rates were most recently increased on July 1, 2019. The New Hampshire DES released the updated 2021 New Hampshire Water & Wastewater Rates Report listing Merrimack as the 6th lowest user rate in the State. A copy of the 2021 rate schedule is included in Appendix B. Following completion of the original rate study in 2009 the following sewer user rate increases have been enacted by the Town:

- FY 09/10 - 6% (Rate = \$186/CU)
- FY 11/12 - 6% (Rate = \$197/CU)
- FY 13/14 - 6% (Rate = \$208/CU)
- FY 15/16 - 8% (Rate = \$225/CU)
- FY 17/18 - 7% (Rate = \$242/CU)
- FY 19/20 - 12% (Rate = \$271/CU)
- FY 21/22 - 12% (Rate = \$304/CU)

The overall user rates increase over this 12-year period is 57%. The consumption-based rates applied to non-residential users have risen at the same rate. The overall cost associated with operating the WWTF has increased which warrants the rate increases. In addition, the WWTF has executed multiple upgrades which could not be funded from the Sewer Infrastructure Improvement Capital Reserve Fund. The current rate structure only pays for the operation of the WWTF and does not include upgrades. As a result, the Town was required to secure loans with the New Hampshire State revolving fund. An effective rate structure should include:

- Cover cost associated with the operation of the facility;
- Include costs to maintain the development and perpetuation of the system; and
- Preservation of the utility's financial integrity.

Maintenance and perpetuation include the replacement of equipment that has either exceeded its useful life or is no longer operational. The two options for replacement of infrastructure include securing a bond or paying for the upgrades with the Capital Reserve Fund balance.

The 2009 study included consideration of the residential flat rate billing structure and concluded the flat rate system should be maintained. The underlying conditions have not changed, so continuation of the flat rate system is recommended.

2.3.1 Apartment Rates

As part of this study Wright-Pierce evaluated commercial apartment complexes. It became apparent during the evaluation that residents who live in apartments do not pay their equitable share of the sewer/WWTF costs. It should be noted that historically residential multi-unit properties have been billed based on water usage, similar to commercial users. Residents who currently own their place of residence (e.g., single family homes, condos, duplex, etc..) pay a flat rate of \$340 per year. Based on the evaluation apartment complex residents pay an average of \$86 per year which is 25% of the flat rate. Since the service being provided to a residence is the same, the fee structure should require apartment units to pay the same flat rate as other residents of Merrimack. An evaluation of additional revenue from converting to the flat rate fee for residential multi-unit properties was completed (e.g., apartment complexes). The Town completed an evaluation of additional revenue from converting to the flat rate fee for residential multi-unit properties. This evaluation is included in Appendix C and the additional revenue has been taken into consideration in the rates model presented in Section 3. By making this change, the Town would receive an additional \$363,000 per year in revenue based on the number of units identified in September 2023. It is estimated that an additional \$124,000 would be received based on new construction activities for a total revenue of \$487,000.

Since all residents who reside in the Town of Merrimack regardless of their living situation receive the same benefits, it is a recommendation of this evaluation that the flat rate be extended to commercial living facilities including apartments, town houses, and other multi-dwelling units. The flat should not apply to hotels or motels.

NHDES periodically publishes a statewide survey of water and sewer rates, which was last updated in FY20/21. A copy of the NHDES report is included in Appendix D. Comparison of the Merrimack user rates at the time of the latest NHDES survey (\$242/yr.) to the state data shows that the situation is similar to 2009. The state average was \$678 per year (180% higher than Merrimack rate) and Merrimack remained 7th lowest in the state and is anticipated to remain one of the lowest in the state.

The existing connection fee is \$2,000 for new residential users or \$10/gallon/day for new non-residential users that are billed on consumption. Based on a review of the current fees in New Hampshire, the current fee is comparable to the Statewide average connection fee of \$2,273 (refer to Appendix E for a survey of connection fees of select surrounding communities). At the current value, the connection fees are estimated to generate less than 1% of the total operating revenue so changes to the rate will have relatively little impact on the overall facility budget. Raising the connection fees would also pose a disincentive to development in the Merrimack area which is contrary to the Town's goals. The current flow accounts for approximately 1.7 mgd of the capacity at the WWTF which leaves 2.3 mgd available for future growth.

2.4 Budgets, Revenues and Reserves

The Town of Merrimack operates the wastewater department as an enterprise fund, meaning that system user revenues must fully fund the system expenses without contribution from the Town's general fund. The Town provided budgets for the years since the last rate study and audited revenue statements for the same period. This data was used to update the financial rates model and as the basis for projections of future budget costs and revenues.

2.4.1 Budget Costs

Budget costs include operating labor, supplies, utilities, administration, chemicals and compost bulking agent (sawdust), maintenance, services, and capital outlay. The relative cost of these categories for FY 2021/2022 is summarized in [Table 2-3](#).

Table 2-3 Operating Budget Categories

Cost Category	Percent of Total FY 2021/2022 Budget
Labor	51%
Supplies	1%
Utilities (electricity, fuel, water communications, etc.)	12%
Administration	2%
Chemicals and Consumables (compost bulking agent)	8%
Maintenance	5%
Services	10%
Capital Outlay	11%

The operating budget over the past 5 years has increased to support bond repayments and the addition of an Assistant Chief Operator position. The table that follows provides a summary of the operating budget and debt service payments.

Table 2-4 Operating Budget and Debt Service Payments Summary

Cost	FY19/20	FY 20/21	FY21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26
Operating Budget	(3,458,076)	(3,572,719)	(3,866,612)	(4,141,229)	(4,378,219)	(\$4,509,565)	(\$4,644,852)
Increase of Operating Budget from previous year	3%	3%	8%	7%	6%	3%	3%
Capital Improvement Bond/Debt Service Payments	(\$57,989)	(\$56,905)					
	(\$276,905)	(\$272,426)	(\$267,947)				
	(\$465,917)	(\$458,963)	(\$452,009)	(\$445,055)	(\$438,101)	(\$431,147)	(\$424,193)
						(\$1,754,064)	(\$1,729,731)
Pump Station Upgrades - CRF							
					(\$50,000)		(\$1,500,000)
						(\$750,000)	
Dewatering Upgrade						(\$100,000)	
PLC Cabinet Upgrade						(\$250,000)	
Agitator Upgrade (Compost Equipment) - CRF				(\$140,000)			
Executive Park Sewer Upgrade - CRF					(\$500,000)		
Minor Capital Purchases	(\$395,587)	(\$65,312)	(\$66,399)	(\$57,000)	(\$67,000)	(\$159,500)	(\$167,000)
Transfer to the CRF	(\$350,000)		(\$500,000)	(\$500,000)	(\$550,000)	(\$550,000)	(\$550,000)
Total Budget	(\$5,004,474)	(\$4,426,325)	(\$5,152,967)	(\$5,283,284)	(\$5,483,320)	(\$9,004,276)	(\$9,015,776)

The Town recently approved a total State Revolving Loan of \$30,722,750 to upgrade the WWTF. The initial payment for the loan will be in FY24/25 in the amount of \$1,754,064. Moving forward the capital outlay costs will be a larger portion of future budgets due to the ongoing and future planned upgrade projects.

2.4.2 Revenues

Revenues are collected to offset operational costs. Sources of revenues and the relative value of each source for FY 2021/2022 are summarized in [Table 2-3](#).

Table 2-5 Wastewater System Revenues

Revenue Category	Percent of Total FY 2021/2022 Budget
Sewer User Rates	
Residential	28%
Commercial	7.7%
Industrial (except A-B)	3%
A-B	39%
Compost Sales	23.2%
Septage and Sludge Tip Fees	12.7%
Other	6%

The dewatering upgrade also reduced the wet tons of sludge produced by the Town, which freed up capacity to accommodate larger quantities of sludge from outside communities. Septage quantities have also increased recently to approach pre-2009 levels. Septage and sludge tipping fees now represent almost 13% of the total revenues and are an important factor in maintaining very affordable user rates for the residents and businesses of Merrimack. Finished compost sales revenue has increased 154% over the past 10 years due to successful marketing efforts by Agresource, who targets high-end use markets, and to maintaining a high-quality finished product. Compost sales revenue represents 3% of the total revenues.

Historically, State Aid Grant payments were a significant contribution to offset the debt cost of large capital improvement projects. SAG revenues accounted for approximately 2% of total revenues in the past 10 years. The SAG program has not been fully funded by the NH State Legislature for the past 10 years, and so has not been available for more recent projects. It is unknown if the State will fully fund the SAG program in the future.

2.4.3 Reserves

Each fiscal year results in an amount of retained earnings or losses depending on actual expenditures and revenue collections. The Town also carries a budget line item to transfer funds to the Capital Reserve Fund. The retained earnings and annual capital reserve transfer fund the accounts. The reserve funds are used to stabilize the financial status of the enterprise fund and to finance minor capital improvement program items (and most major upgrades prior to the Phase I WWTF Upgrade). The recommended target reserve fund balance is six months of operating plus capital outlay costs. Since 2009 the target balance has been approximately \$2 million.

During the previous 10 years the Town has been relatively successful maintaining the target balance in the reserve fund. In anticipation of larger future debt servicing costs associated with major CIP projects, the Town accelerated user rate increases. This strategy successfully increased the reserve accounts balance. As of June 30, 2023, the Sewer Fund has a fund balance of \$8,597,467 and the Sewer CRF has a balance of \$898,390 for a total of \$9,495,857.

The current annual operating cost is approximately \$4.3 million, so it is recommended that the reserves fund balance target be increased to a minimum of \$2.9 million and further increased in the future in relation to increasing operating budget costs and capital improvement loan repayments. The reserve balance should be 50% of the operating budget and will therefore increase as the operating budget increases.

2.5 Septage

Septage is the material that is pumped out of septic tanks, typically once every 3 to 5 years. Compared to domestic wastewater, septage is highly concentrated. Prior to the 2009 Rate Study, the Town's septage tipping fee was \$50 per 1,000 gallons. An analysis of the actual cost to treat septage showed the true cost to be \$70 per 1,000 gallons, and this rate was implemented by the Town. The Town has implemented additional small incremental rate increases since 2009 and the current tipping charge is \$78.40. A survey of the septage fees at other facilities in the vicinity (within 50 miles of Merrimack) is included in Appendix E. The median tipping charge at these other facilities is \$70 per 1,000 gallons.

Septage loadings to the WWTF increased 104% over the most recent 3-year period (2017-2019). This increase indicates that the current rate is competitive in the current market. While the Merrimack WWTF has available capacity to accept increased septage loadings, which may provide an important additional revenue stream, adequate septage storage is not available to allow higher strength septage to be metered into the influent over time.

This study includes review of the current WWTF operational costs and relative allocation of the costs to flow, BOD and TSS, which is summarized in Section 2.8. Based on this analysis the recommended surcharges are \$741/1,000 lbs. for BOD and \$581/1,000 lbs. for TSS. The flow component of the allocated costs equates to \$0.81 per 1,000 gallons. A 1,000-gallon load of septage is estimated to bring 50 lbs. of BOD and 125 lbs. of TSS. Therefore, the septage treatment cost is estimated to be \$110.50 per 1,000 gallons. However, most other facilities in the region charge between \$65 to \$90 per 1,000 gallons. Therefore, market conditions will likely preclude the Town of Merrimack increasing the tipping fee to the actual calculated cost.

2.6 Sludge Processing

Sludge is a normal byproduct of all wastewater treatment facilities. The Merrimack WWTF produces both primary and secondary sludge. Primary sludge and thickened secondary sludge are combined before dewatering via a screw press. The dewatered sludge is then composted to produce a Class A finished product that is distributed to the public and commercial entities for landscaping or other horticultural purposes. The compost facility original bonding costs were paid off in FY 14/15. Additional sludge handling improvements including the screw press dewatering process were implemented about 10 years ago and will be paid off in FY 21/22. There are also composting facility elements included in the recent WWTF Phase II and Compost Facility Upgrade.

There are currently questions associated with WWTF sludge disposal or beneficial use due to emerging contaminants including PFAS compounds. The Town previously evaluated alternatives to the existing composting process, including landfill disposal, and elected to continue the current practice. The composting process was determined to be the most cost-effective sludge disposal alternative for Merrimack users, and it provides an important sludge handling solution for a number of other communities. It is also a significant source of outside revenue stream, totaling approximately \$394,000 in 2021.

The compost facility processed 10,617 tons in 2021, producing over 20,000 cubic yards of finished compost, which generated approximately \$181,000 of revenue. Sludge quantities from 2021 are summarized in [Table 2-6](#).

Sludge tipping fees for the eight communities' range between \$55.14 to \$69.21 per ton. The range of tipping fees is based on the volume of sludge from a community (higher volume correlates to a more favorable price) and a 3% annual increase. The aggregate tipping charge is \$65.04 per ton.

Table 2-6 Annual Sludge Loadings (2021)

Community	Sludge		Unit Cost (\$/ton)	Revenue (\$)	% of Total
	(tons)	% of Total			
Merrimack	4,957	47%	N/A	N/A	N/A
Hookset	850	8%	\$67.64	\$57,549	15%
Henniker	151	1%	\$70.95	\$10,550	3%
Milford	1,378	13%	\$69.67	\$95,185	24%
Agresource	0	0%	N/A	\$0	0%
Jaffrey	615	6%	\$73.91	\$45,445	12%
Bristol	226	2%	\$70.95	\$15,592	4%
Sunapee	420	4%	\$70.95	\$29,674	8%
Winchester	193	2%	\$70.95	\$13,648	3%
Franklin	1,827	17%	\$69.21	\$126,449	32%
Total	10,617	100%	N/A	\$394,092	100%
Non-Merrimack	5,660	53%	\$70.53	\$394,092	N/A

The 2021 composting cost was approximately \$870,000 with a net cost of approximately \$680,000 per year after accounting for finished compost sales. The 2021-unit cost was \$67.52 per ton. When factoring in the tipping fees from the other communities, the effective cost to compost the Merrimack sludge is \$70.53 per ton. Moving forward it is recommended that rate increases be set to so that the effective cost/ton that Merrimack spends on sludge is comparable to the cost/ton that is charged to other communities. See Appendix F for more detail.

2.7 Cost of Operations and Allocation to Pollutant Parameters

In order to equitably distribute operational costs to all users it is necessary to fully understand the characteristics of the waste stream and how different aspects of the waste stream impact operational costs. The 2009 study considered flow, BOD and TSS loadings. Other parameters, including nitrogen and phosphorus, are beginning to warrant greater consideration due to new and more stringent discharge permit limits for these parameters. Phosphorus limits were included in the current NPDES permit that was issued in 2014 due to water quality concerns in the Merrimack River. It is also anticipated that the phosphorus limit may be decreased, and nitrogen regulations may be included in the next NPDES permit which is overdue from the USEPA.

Based on the current conditions there does not appear to be a need or basis upon which to implement surcharges for nitrogen and phosphorus loadings at this time. The 2011 Comprehensive Facility Evaluation (refer to Section 2.2) reported the nitrogen concentration in A-B effluent to be comparable to domestic wastewater under average conditions but higher under maximum month conditions. Additionally, as noted previously in this section, A-B phosphorus loadings are higher than other users. However, under the current discharge limits and influent loadings, the Town of Merrimack does not expend any additional operational costs on phosphorus or nitrogen specific treatment measures; therefore, implementation of a phosphorus or nitrogen surcharge is not presently justified. If phosphorus conditions change in the future or if a nitrogen limit is imposed on the Town, reconsideration of additional surcharges may be warranted.

The FY 2020/21 budget was used as the basis to calculate the current cost of treatment for allocation to flow, BOD and TSS loadings. Each budget line item was assigned a percent allocation. The percentage allocation values were initially developed for the 2009 rate study with input from the WWTF staff. Some line items can be very clearly allocated, such as pump station electricity costs are 100% allocated to flow, whereas compost bulking agent (sawdust) is entirely a function of TSS and BOD levels and flow has no influence, so the allocation is 0% flow, 50% BOD and 50% TSS. Non-specific budget items are allocated 20% flow, 40% BOD and 40% TSS as previously determined in the 2009 study. The complete budget and allocation summary is included in Appendix G. The resulting cost allocation is as follows:

- Flow – 21.5%
- BOD – 40.5%
- TSS – 38.1%

The calculated allocations are also applied to the capital outlay costs. These allocations are comparable to those calculated in the 2009 rate study, which are used in the A-B billing calculations. When the Town renegotiates the Agreement with A-B in 2025, it is recommended that the allocations be re-evaluated at that time based on the FY 2025/26 budget and adjusted if needed.

2.8 Current Debt Costs and Future Capital Improvements

Debt costs associated with upgrade projects are also funded with user revenues. While the Town has paid for major upgrades out of the capital reserve fund in the past, there are currently two projects funded with State Revolving Fund (SRF) loans with the amortization schedule set up for level principal payments, which results in declining payments over the loan term. The loan payments through FY24/25 are provided in the budget table.

The operational budgets also include an annual contribution of \$550,000 to the capital reserve fund to fund CIP projects and purchases. Capital outlay costs currently represent approximately 11% of the total budget.

2.8.1 10-Year Capital Improvement Plan for Minor Vehicle Replacement

The Town of Merrimack maintains a sizable fleet of vehicles and equipment. Replacement or upgrade costs for these vehicles and sewer collection system rehabilitation costs are funded using the capital reserve fund. Annual expenditures are calculated for a six-year period. The DPW has a 10-year look ahead for minor vehicle replacement.

2.8.2 Major Capital Improvement Plan

The most significant ongoing major capital improvement project is the WWTF Phase III and Pump Stations Upgrade which is scheduled for completion in 2023. The confirmed funding for this upgrade totals \$30.7 million, which will be funded with a 30-year SRF loan with an interest rate of 2%. The initial debt payment will be due in FY 24/25 with an estimated value of \$1,754,064.

The Town previously identified a number of other major CIP projects to occur over the next 10 years as follows:

Table 2-7 10 Year CIP Projects

Project	Cost
Nutrient Removal Design	\$250,000
Heron Cove Pump Station	\$200,000
Pearson Rd Pump Station	\$225,000 (\$202,500 Town of Bedford funded)
Pennichuck Sq. Pump Station	\$1,550,000
Burt St. Pump Station	\$750,000
Dewatering Gearbox Replacement and Upgrade	\$2,100,000 (\$2,000,000 in FY33/34)
Chlorine Building Upgrade	\$250,000
PLC Cabinet Upgrade	\$250,000
Agitator PLC Upgrade	\$140,000
Pump Station Radio Telemetry	\$35,000 for engineering evaluation
Executive Park Sewer	\$500,000

For this rate study it is assumed these projects will also be funded using the capital reserve fund in the anticipated year the project is implemented. However, the Town may also elect to use SRF loan funding, which would extend the debt payments further into the future. The total value of the CIP projects through FY31 is \$4.1 million with \$0.2 million funded directly by the Town of Bedford.

As part of this evaluation, Wright-Pierce assisted the Town in compiling a list of additional capital improvement tasks that should occur within the planning period to maintain the facility's ability to meet NPDES permit requirements and to reduce the potential for costly emergency repairs. This list was divided into smaller CIP tasks that the Town can either complete in-house or contract with a small local contractor to complete and more involved CIP tasks where multiple tasks would be completed as one project. These items are summarized in Appendix H. The total value of the additional CIP projects is presented in Section 3.

The existing debt costs, capital reserve fund transfer and future CIP project costs have been programmed into the rate calculation model. The existing debt costs are fixed for the loan term. However, the discretionary capital

reserve fund transfer and new CIP projects may change in the future. These values should be updated in the model in future years when rates are reconsidered.

2.9 Sewer Use Ordinance

The rules and regulations for use of the Town of Merrimack wastewater system are contained in the Town’s Sewer Use Ordinance (Chapter 158, Articles I through XVI, and Attachment 1). The Ordinance was most recently adopted January 26, 2012, and Amended October 26, 2017. As discussed in the previous section, the SUO was updated in response to EPA comments. The revised SUO was adopted in May 2022.

Section 3 Cost of Service Assessment

3.1 Purpose

Financial evaluation of utility rates is based on a review of past expenditures and estimation of future conditions, including capital improvements. Periodically, it is necessary to reevaluate the underlying conditions and projections that were used as the basis for planning future rate increases.

This study developed a financial rate model to estimate future financial conditions and assess the impact of various rate increase alternatives. The validity of the rate model results is a function of the accuracy of known costs and predictions of future costs and revenues. It is important to use sound judgment with a reasonable measure of conservatism to ensure fiscal sustainability in the future. The forecast period for this study is 10 years through FY 2031.

As noted in Section 2, the WWTF Phase III and Pump Stations Upgrade project budget has also already been established and the permanent funding has been selected to be a 30-year SRF loan with a maximum interest rate of 2%.

The Town of Merrimack maintains minor and major CIP plans 10 years into the future. It is assumed for this study that these expenses will continue to be funded through the capital reserve fund. The total value of the CIP projects though FY31 is \$4.1 million with \$0.2 million funded directly by the Town of Bedford, as described in Section 2.

3.2 Estimated Future Costs, Revenues, and Assumptions

Future costs and revenues have been estimated in the rates model spreadsheet. The rate model results are included in Appendix I. The following rationale was used to estimate future conditions:

- **Operating Budget** – Assumed annual increase = 3%.
- **Existing and projected future debt costs** – The loan terms for all current projects are known. Under the BF model, it is assumed that new projects will be funded with 20-year SRF loans at a 3% interest rate. It is assumed that the Town will continue to opt for level principal amortization schedules. Future debt costs will not apply to the CRF model.
- **Minor CIP expenditures** – Funded from capital reserve funds according to the Town’s implementation schedule.
- **Transfer to Capital Reserve Fund** - \$ 550,000 per year. This is a discretionary amount, but it is assumed the current level of funding will continue.
- **Residential, commercial and industrial user fees and interest** – Assume 0.28% user growth and recommended user rate increases. The assumed user growth is equal to the past 10 years of new user growth based on collected revenues.
- **Anheuser-Busch user fees** – Assume flows and loads remain at current levels. A-B revenue is a critical budget line item that should continue to be closely monitored by the Town.
- **Septage tipping fee revenues** – Assume volumes remain at current levels and tipping fees are increased only for inflation as the market allows. Market forces will not allow the Town to increase the septage tipping fees

abruptly and significantly without reducing the quantity received also, resulting in diminished or possibly reduced revenues.

- **Sludge tipping fee revenues** – Assume volumes remain at current levels and tipping fees are increased as needed so Town cost to process sludge is comparable to cost for other communities. Market forces will not allow the Town to increase the sludge tipping fees abruptly and significantly without also reducing the quantity received, resulting in diminished or possibly reduced revenues.
- **Compost sales revenue** - Assume volumes remain at current levels and sales price is increased only for inflation.
- **Connection fees** – Assume fee remains at current value and quantity remains at the past 10-year average rate of 20 CUs per year.
- **State Aid Grants** – Assume no SAG funding received on future projects.
- **Interest in Pooled Cash** – Assume 0.5% per year on the Capital Reserves Funds balance.
- **Other miscellaneous revenues** – Assume revenues maintained at same level as the average for the previous 10 years.
- **Transition to flat rate billing for residential multi-units** - Assume Town implements change to bill all residential multi-units at flat rate in lieu of water usage. This study assumes the Town will implement the apartment rates in 3-phases beginning in FY25/26.

The above assumptions are used to predict future costs and revenues in the rates model. The measure of fiscal sustainability is the capital reserves fund balance in comparison to the target value. It is recommended that the target value be adjusted each year to reflect six months of the current year's operating plus capital costs less the transfer to capital reserves funding.

3.2.1 Wastewater Sector Labor Shortage

The wastewater sector is facing growing challenges in the recruitment, training, and retention of employees. The October 2021 AWWA Covid Water Sector Impact Survey 5 found that 40% of the 416 utilities surveyed were having challenges hiring and replacing staff. In addition, according to EPA, approximately one-third of the water industry workforce will retire in the next 10 years. The demand for employees in an increasingly smaller pool of workers is further compounded by the technological advances in this sector. Wastewater utilities will need skilled specialists and will compete with private firms for employees for these employees. It is recommended that the Town of Merrimack benchmark its compensation and benefits packages to ensure that wages are competitive with similar positions in this geography.

3.2.2 NPDES Permit and Nutrient Removal

One factor that is currently unknown is what future permit limits may be imposed on the Town. At a minimum, it is anticipated that the Town will be required to begin monitoring nitrogen and that the current phosphorus limit may be further reduced. However, without the specific requirements, it is difficult to accurately estimate the increased cost of operation and its impact on sewer user rates. As such, the current models do not take into account changes to future permit limits. When more stringent nutrient limits are set, the Town will need to assess what adjustments to the rate models are necessary to ensure that all sewer users contribute their equitable share in the cost for treatment.

3.3 Capital Reserve Funding Model

As noted above, the Capital Reserve Funding model assumes that all major upgrades within the 10-year planning window will be funded from the Town's capital reserve fund (similar to what was done for projects before and including WWTF Phase I Upgrade). The same list of recommended upgrade tasks (see Section 3.3.1) was grouped into a WWTF Phase IV Upgrade, a WWTF Phase V Upgrade and a WWTF Phase VI Upgrade. It was necessary to space the work out to allow time to build the capital reserve fund before each project. Note: The Phase IV Upgrade includes the scope items that were removed from the current WWTF Phase III Upgrade between bidding and award to bring the project with the project budget. Refer to Appendix I for copies of the rates calculator for each scenario.

3.3.1 Scenario 1 – CRFM No Future Rate Increases

This scenario models the results of no future rate increases through the current forecast period (FY 2031/32). The capital reserve fund would drop below the recommended level by FY 2024/25 and would reach a deficit by FY 2031/32. This alternative is not sustainable.

3.3.2 Scenario 2 – CRFM Planned Rate Increases

Refer to Section 3.3.1.2 above for a summary of the currently planned increases. This scenario would result in underfunding the budget and necessitate significant withdrawals from the capital reserve fund. The capital reserve fund would drop below the recommended level by FY 2024/25 and would reach a deficit by FY 2031/32. The user rate increases in this scenario are not sufficient to adequately fund operations and maintain the target balance in the capital reserve fund.

3.3.3 Scenario 3 – CRFM Recommended Rate Increases

The recommended rate increases in comparison to the currently planned increases are summarized in [Table 3-2](#).

Table 3-1 Recommended User Rate Increases (Capital Reserve Funding Model)

Year	Recommended Increase	Planned Increase
Current	(\$271)	(\$271)
FY 2021/22	12% (\$304)	12% (\$304)
FY 2023/24	12% (\$340)	12% (\$340)
FY 2025/26	5% (\$357)	5% (\$357)
FY 2027/28	7% (\$382)	N/A
FY 2029/30	7% (\$409)	N/A

Implementation of the recommended rates increases as summarized in [Table 3-2](#) would result in a capital reserve fund balance of \$3.6 million in FY 2029/30, which is approximately 50% of the FY29/30 operating budget.

3.4 Other Fees And Charges

There are other fees and charges that generate significant revenue. The most significant of these are septage/sludge tipping fees and connection fees to a lesser degree. The strict financial analysis of the cost of

treatment for septage shows that there is justification to raise the tipping fee significantly. However, it is unlikely that the market would accept this level of increase and quantities would decrease.

For this evaluation, it is assumed that septage tipping fees will increase from the existing rate (\$78.40 per 1,000 gallons) by 3 or 4.5% every two years to partially defray inflation costs. Refer to [Table 3-3](#) below for a summary of assumed increases. The Town of Merrimack should monitor market costs for septage receiving and implement incremental increases as the market allows.

The sludge processing market has fewer options than the septage market. This problem has been further accentuated by the recent concerns about emerging pollutant compounds like PFAS. Therefore, the Town of Merrimack likely has more flexibility to revise and raise sludge tipping fees without concern of losing quantity. The rates should be increased over time to reflect inflationary pressures, but like septage, the Town must also consider market pressures which cannot be accurately predicted. For this evaluation, it is assumed that the sludge tipping fees will be increased only as needed to maintain a comparable cost to process sludge for the Town of Merrimack and other communities (i.e., the Town pays the same to process one ton of sludge as other communities). Refer to [Table 3-3](#) below for a summary of assumed increases.

Table 3-2 Recommended Septage and Sludge Tipping Fee Increases

Year	Septage	Sludge
Current	(\$78.40)	(\$65.04)
FY 2021/22	3% (\$80.75)	8% (\$70.24)
FY 2023/24	3% (\$83.17)	4% (\$73.05)
FY 2025/26	3% (\$85.67)	4% (\$75.98)
FY 2027/28	4.5% (\$89.52)	4% (\$79.01)
FY 2029/30	3% (\$92.21)	4% (\$82.17)

Section 4 Conclusions and Recommendations

4.1 Conclusions

Due to delayed capital improvement of aging wastewater infrastructure and increasing construction costs, substantial rate increases will be required to maintain the Town's operations budget and a fully solvent enterprise fund while completing capital improvements in a timely manner.

Review of the current budget costs with line-item allocations to flow, BOD and TSS resulted in negligible changes to the current allocation values. This should be re-evaluated in 2025 when the Town renegotiates their Agreement with A-B, and the A-B invoice formula should be updated to incorporate any changes at that time. Additional surcharges for nitrogen and phosphorus may be appropriate in the future but cannot be justified currently.

Over the past 10 to 15 years WWTF influent flows and loads have decreased. Operational costs during this period increased less than 1% per year, which is significantly less than would be expected due to normal inflation and is likely due in part to the decreasing flows and loads to the facility. This development has increased the available excess capacity in the facility that has allowed the Town to recently increase septage loadings which helps to balance lost revenues from other users.

4.2 Recommendations

The following recommendations are offered based on this evaluation:

1. Continuation of the existing flat rate residential billing system is recommended because the underlying conditions have not changed since the 2009 study.
2. A number of multi-unit residential properties are currently billed based on water consumption similar to commercial users. For consistency among users, future billing of these users should be converted to the same flat rate system used for all other residential users.
3. The existing sewer connection fee of \$2,000 for new residential users or \$10/gallon/day for new non-residential users is comparable to the current New Hampshire statewide average of \$2,273. Connection fees account for less than 1% of total operating revenues. No change to the current connection fee is recommended.
4. The target reserve fund balance should be adjusted each year to maintain a balance that is equivalent to 6 months of the operating plus capital outlay costs.
5. Based on the allocation of budget costs to flow, BOD and TSS, the Merrimack WWTF cost to treat septage is approximately \$110 per 1,000 gallons. However, most other facilities in the region charge between \$65 to \$90 per 1,000 gallons. Therefore, market conditions may likely preclude the Town of Merrimack increasing the tipping fee to the actual calculated cost. The assumed septage tipping fee increases are summarized in [Table 4-1](#).
6. The existing sludge tipping fees do not equitably distribute the actual composting costs to non-Merrimack users. Merrimack's composting costs are presently higher than the aggregate tipping fees charged to the other users. At a minimum, the tipping fees should be revised to be comparable to Merrimack's composting costs. The recommended tipping fees to achieve this goal are summarized in [Table 4-2](#).
7. The currently scheduled user rate increases are not sufficient to adequately support operational costs and maintain the target balance in the reserves. The recommended sewer user rate increases for the Capital Reserve Funding model are summarized in [Table 4-3](#).

Table 4-1 Recommended Septage Tipping Fees

Year	Increase (%)	Fee (\$1,000 gal)
Current	N/A	\$78.40
FY 2021/22	3%	\$80.75
FY 2023/24	3%	\$83.17
FY 2025/26	3%	\$85.67
FY 2027/28	4.5%	\$89.52
FY 2029/30	3%	\$92.21

Table 4-2 Recommended Sludge Tipping Fees

Year	Increase (%)	Fee (\$/1,000 gal)
Current	N/A	\$65.04
FY 2021/22	8%	\$70.24
FY 2023/24	4%	\$73.05
FY 2025/26	4%	\$75.98
FY 2027/28	4%	\$79.01
FY 2029/30	4%	\$82.17

Table 4-3 Recommended Sewer User Rates – Capital Reserve Funding Model

Year	Residential (flat rate)		Commercial/Industrial	
	Increase (%)	Rate (\$/CU)	Increase (%)	Rate (\$/1,000 gal)
Current	N/A	\$271	N/A	\$3.82
FY 2021/22	12%	\$304	12%	\$4.28
FY 2023/24	12%	\$340	12%	\$4.79
FY 2025/26	5%	\$357	5%	\$5.03
FY 2027/28	7%	\$382	7%	\$5.38
FY 2029/30	7%	\$409	7%	\$5.76

- For the rate model, a nominal fee increase was assumed for finished compost sales to non-residents as summarized in [Table 4-3](#). However, the Town of Merrimack should assess market conditions and local demand for the product prior to implementing the recommended fee increases.

Table 4-4 Recommended Finished Compost Sale Fees

Year	Increase (%)	Fee (\$/CY)
Current	N/A	\$10.00
FY 2021/22	3%	\$10.30
FY 2023/24	3%	\$10.61
FY 2025/26	3%	\$10.93
FY 2027/28	4.5%	\$11.42
FY 2029/30	3%	\$11.76



Appendix A Timeline

Appendix B
Merrimack Current Sewer
User Rate Schedule

A decorative graphic consisting of a horizontal blue bar and a vertical blue bar that intersect at the center of the page. The horizontal bar is a lighter shade of blue, while the vertical bar is a darker shade of blue.



Appendix C Apartment Fee Comparison



Appendix D
NH Rate Survey Info



Appendix E
Septage Tipping Fees Survey



Appendix F Sludge Tipping Fees Analysis

Appendix G
FY 2022/2023 Detailed
Budget and Allocation

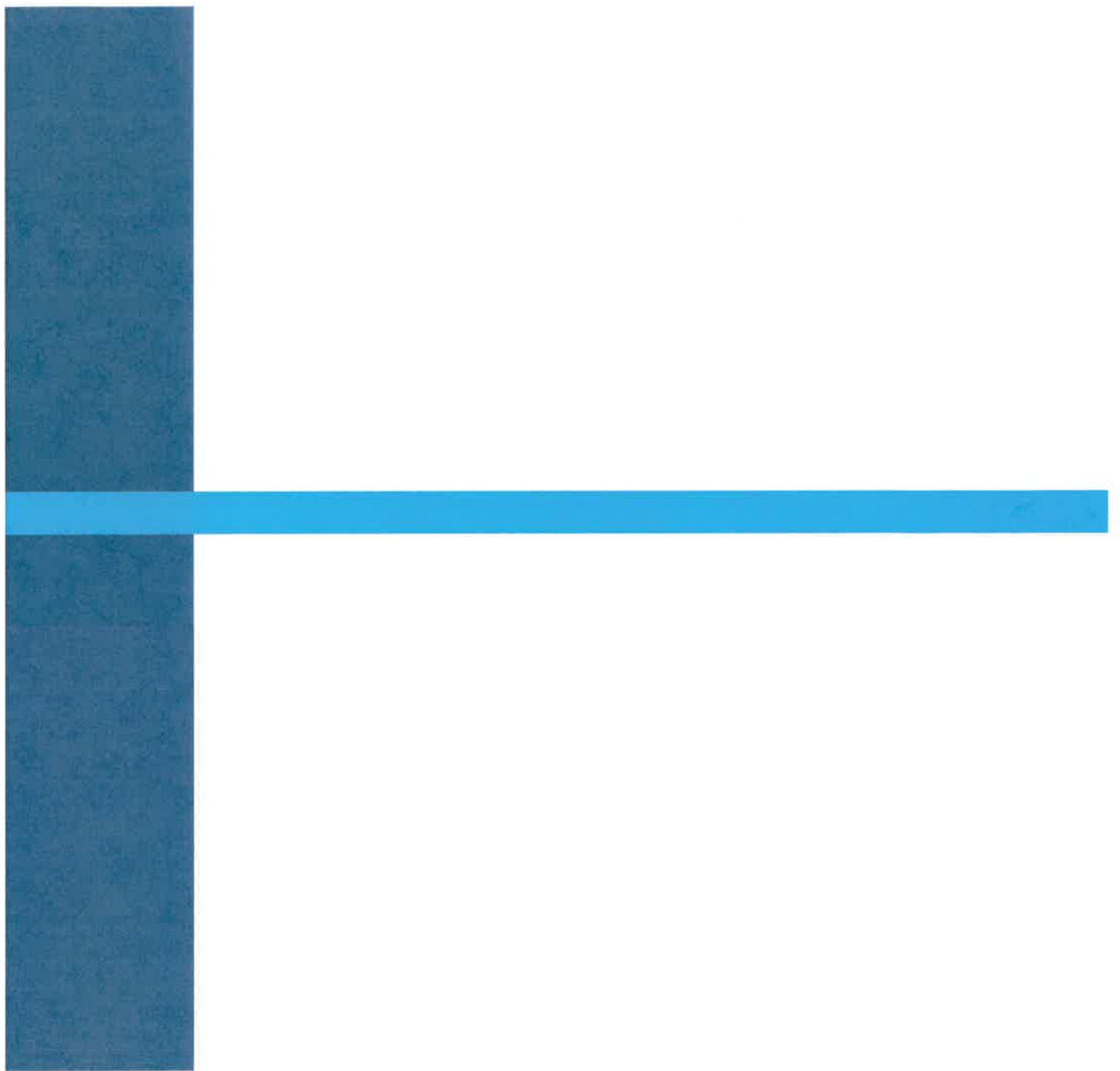




Appendix H
Additional Capital Improvement Tasks



Appendix I Rate Calculations



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Town of Merrimack, NH

Sewer Rate Study

October 26, 2023

Jessica Richard



Presentation Overview

What is a Sewer Rate Study?
Current Sewer Rate Structure
Goals
Recommendations
Questions?

What is a Sewer Rate Study?

- Evaluates the actual costs of operating and maintaining a sewer system
- American Water Works Association (AWWA) recommends rate study is updated when system needs change
 - Living Document
- Last sewer rate study completed in 2009
- Significant capital changes have been implemented or are currently being implemented since last study
- Projects improvements include:
 - Sewer interceptor and manhole rehabilitation
 - WWTF Dewatering Upgrade
 - WWTF Phase II and Compost Facility Upgrade
 - WWTF Phase III, Phase IV, Phase V, and Pump Station Upgrades

Project Goals

- 1** Develop budget projections
- 2** Account for operations, maintenance, and capital costs
- 3** Sufficiently fund the wastewater enterprise fund
- 4** Maintain reserve funds
- 5** Develop fair and equitable rate recommendations

Current Sewer Rate Structure

- **Pays only for the operations of the WWTF**
 - Does not include upgrades
- **Upgrades are Financed:**
 - **Capital Reserve Account**
 - Annual recommended contribution of at least 50% of the operating budget
 - **NHDES State Revolving Loans**
 - **State Aid Grants (SAG)**
 - NH State Legislature has not fully funded the SAG in the previous 10 years

2019 Approved Sewer Rate Increases

Fiscal Year	Percentage Increase	Sewer Rate
18/19		\$242
19/20	12%	\$271
21/22	12%	\$304
23/24	12%	\$340
25/26	5%	\$357

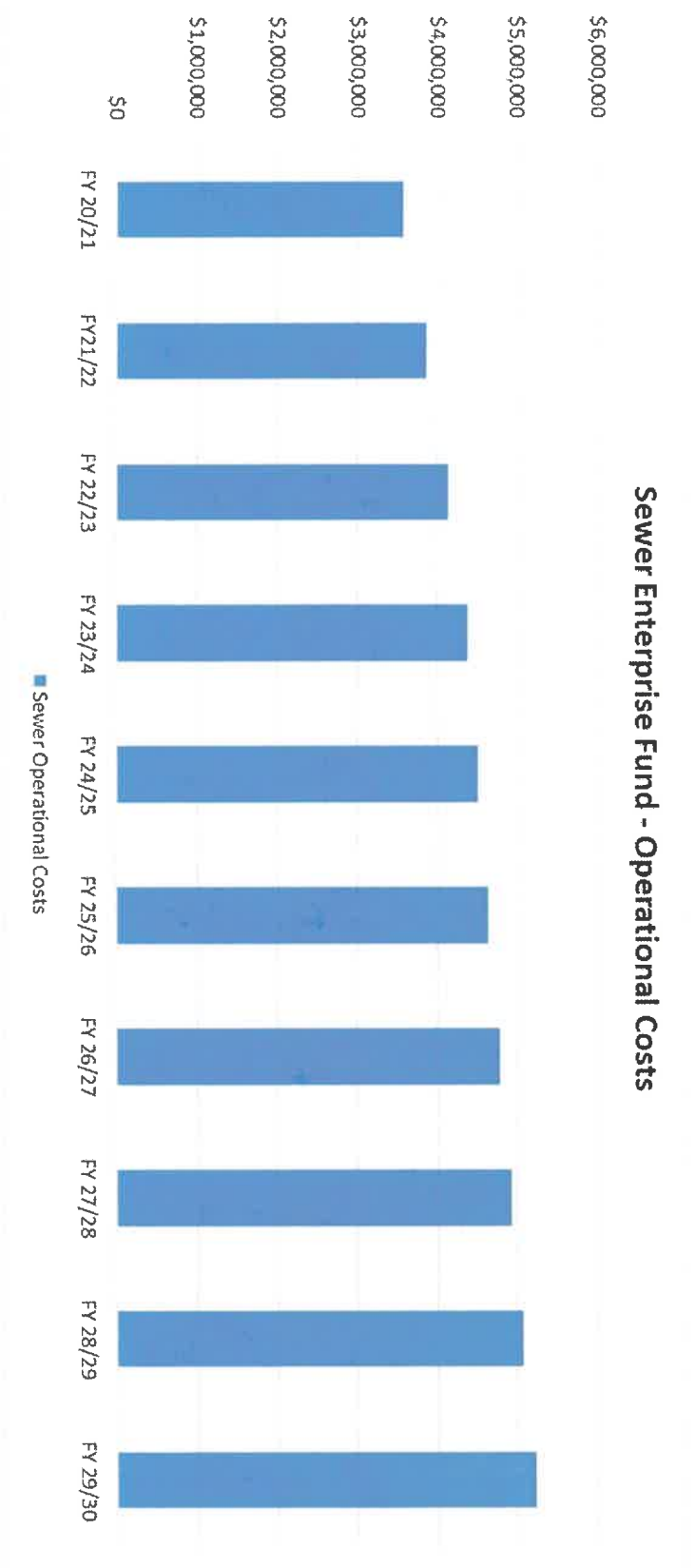
10-Year CIP Projects

Project	Cost
Nutrient Removal Design	\$250,000
Heron Cove Pump Station	\$200,000
Pearson Rd Pump Station	\$225,000 (\$202,500 Town of Bedford funded)
Pennichuck Sq. Pump Station	\$1,550,000
Burt St. Pump Station	\$750,000
Dewatering Gearbox Replacement and Upgrade	\$2,100,000 (\$2,000,000 in FY33/34)
Chlorine Building Upgrade	\$250,000
PLC Cabinet Upgrade	\$250,000
Agitator PLC Upgrade	\$140,000
Pump Station Radio Telemetry	\$35,000 for engineering evaluation
Executive Park Sewer	\$500,000

Operating Budget and Debt Service Payment Summary

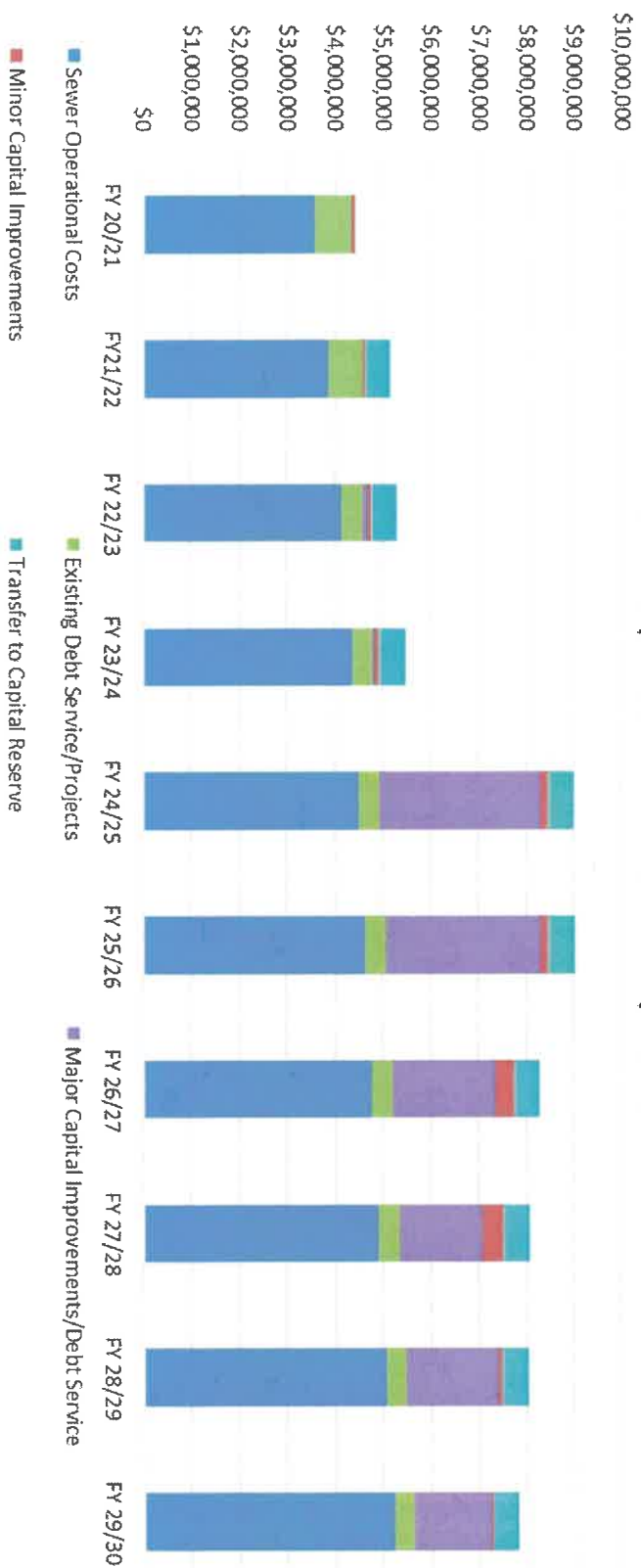
Cost	FY19/20	FY 20/21	FY21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26
Operating Budget	(3,458,076)	(3,572,719)	(3,866,612)	(4,141,229)	(4,378,219)	(4,509,565)	(4,644,852)
Increase of Operating Budget from previous Year	3%	3%	8%	7%	6%	3%	3%
Capital Improvement Bond/Debt Service Payments	(557,989)	(556,905)					
	(5276,905)	(5272,426)	(5267,947)				
	(5465,917)	(5458,963)	(5452,009)	(5445,055)	(5438,101)	(5431,147)	(5424,193)
						(1,754,064)	(1,729,731)
Pump Station Upgrades - CRF						(50,000)	(1,500,000)
						(750,000)	
						(100,000)	
						(250,000)	
Dewatering Upgrade							
PLC Cabinet Upgrade							
Agitator Upgrade (Compost Equipment) - CRF				(140,000)			
Executive Park Sewer Upgrade - CRF						(500,000)	
Minor Capital Purchases	(3395,587)	(665,312)	(666,399)	(57,000)	(67,000)	(159,500)	(167,000)
Transfer to the CRF	(3350,000)		(500,000)	(500,000)	(550,000)	(550,000)	(550,000)
Total Budget	(55,004,474)	(54,426,325)	(55,152,967)	(55,283,284)	(55,483,320)	(59,004,276)	(59,015,776)

Sewer Operational Costs



Sewer Enterprise Fund Revenue Requirement

Sewer Enterprise Fund - Revenue Requirement



Apartment Fee Comparison

Apartment Complex	Total Units	Units Rented	Flow Based Fee (current annual)	Flat Rate Fee	Fee Difference
Gilbert Crossing	240	100%	\$ 25,603.14	\$ 72,960.00	\$ 47,356.86
Executive Park	280	70%	\$ 30,861.51	\$ 85,120.00	\$ 54,258.49
Homestead Apartments (Red Oak)	18	100%	\$ 1,977.58	\$ 5,472.00	\$ 3,494.42
Bowers Landing	104	100%	\$ 16,588.25	\$ 31,616.00	\$ 15,027.75
London Court Apartments	144	100%	\$ 12,885.26	\$ 43,776.00	\$ 30,890.74
Wentworth Place (Coventry Court)	80	100%	\$ 7,324.09	\$ 24,320.00	\$ 16,995.91
Merrimack Meadows	96	100%	\$ 14,473.44	\$ 29,184.00	\$ 14,710.56
Neighbor Works (Angelo Dr.)	57		\$ 6,898.42	\$ 17,328.00	\$ 10,429.58
Depot St Apartments (7 Depot St)	8		\$ 1,054.25	\$ 2,432.00	\$ 1,377.75
Nestling Pines (23 McElwain)	6		\$ 862.96	\$ 1,824.00	\$ 961.04
JMR Construction (64 Front St)	8		\$ 1,014.67	\$ 2,432.00	\$ 1,417.33
Crosswoods Path II (Bldg 1)	21		\$ 1,471.87	\$ 6,384.00	\$ 4,912.13
Crosswoods Path II (Bldg 2)	21		\$ 21,505.22	\$ 70,528.00	\$ 49,022.78
Edge Brook	232		\$ 304.00	\$ 21,888.00	\$ 21,584.00
Bowers Landing II (1 of 3 active)	72		\$ 6,603.76	\$ 68,096.00	\$ 61,492.24
Park Place (Slate) 3 Lexington Ct	224		\$ 304.00	\$ 29,184.00	\$ 28,880.00
1 Innovation Way	96			\$ 12,160.00	
Residences at 366 DW	40		\$ 149,732.42	\$ 531,088.00	\$ 362,811.58
	1747				
			Annual Fee per Unit	\$ 85.71	
Upcoming - Planning Stage					
Flatley - Gilbert Crossing	152			\$ 46,208.00	
Possibility					
Park Place (Slate)	172			\$ 63,232.00	
In Construction					
Twin Bridge (2 buildings)	48			\$ 14,592.00	
	372			\$ 124,032.00	

Annual Fee per Unit

\$ 85.71



Apartment Fee Phasing



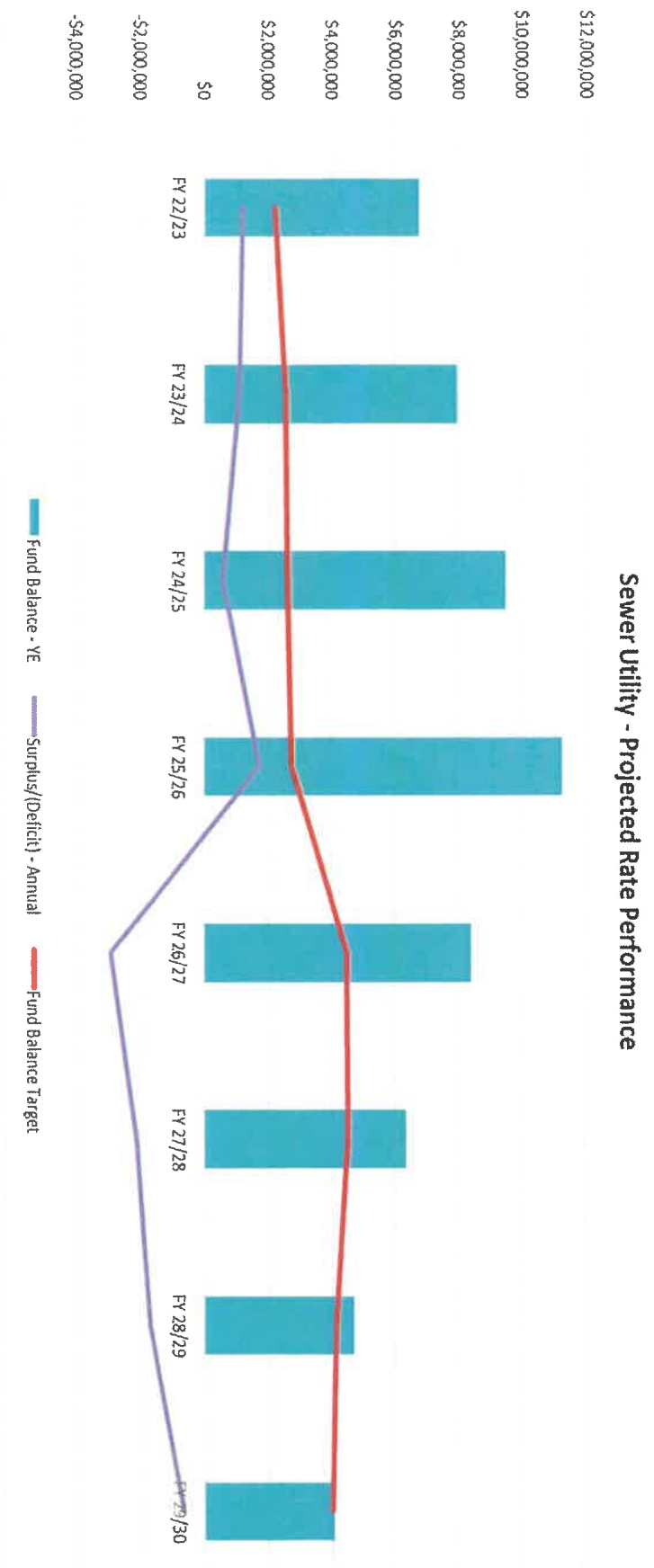
Apartment Rate	3 Phase	2 Phase	3 Phase	4 Phase
Current Annual Apartment Revenue	\$149,732			
Annual Fee per Unit	\$85.71	\$191	\$102	\$56
Number of Units	1747.00	\$382	\$204	\$112
			\$409	\$225
				\$450

	FY 24/25	FY 25/26	FY 26/27	FY 27/28	FY 28/29	FY 29/30	FY 30/31	FY 31/32	FY 32/33
No Phasing		\$625,425	\$627,176	\$672,958	\$674,842	\$724,103	\$726,130	\$800,980	\$803,223
2 Phase		\$334,603	\$335,539	\$672,958	\$674,842	\$724,103	\$726,130	\$800,980	\$803,223
3 Phase		\$179,012	\$179,514	\$360,032	\$361,041	\$724,103	\$726,130	\$800,980	\$803,223
4 Phase		\$98,457	\$98,732	\$198,018	\$198,572	\$398,257	\$399,372	\$800,980	\$803,223
# of Units	1747	1752	1757	1762	1767	1772	1777	1782	1787

Recommended Sewer User Rates vs Planned Rates

Year	Recommended Increase	Planned Increase
Current	(\$271)	(\$271)
FY 2021/22	12% (\$304)	12% (\$304)
FY 2023/24	12% (\$304)	12% (\$340)
FY 2025/26	5% (\$357)	5% (\$357)
FY 2027/28	7% (\$382)	N/A
FY 2029/30	7% (\$409)	N/A

Sewer Utility – Projected Rate Performance



Recommended Septage Tipping Fees

Year	Increase (%)	Fee (\$1,000/gal)
Current	N/A	\$78.40
FY 2021/22	3%	\$80.75
FY 2023/24	3%	\$83.17
FY 2025/26	3%	\$85.67
FY 2027/28	4.5%	\$89.52
FY 2029/30	3%	\$92.91

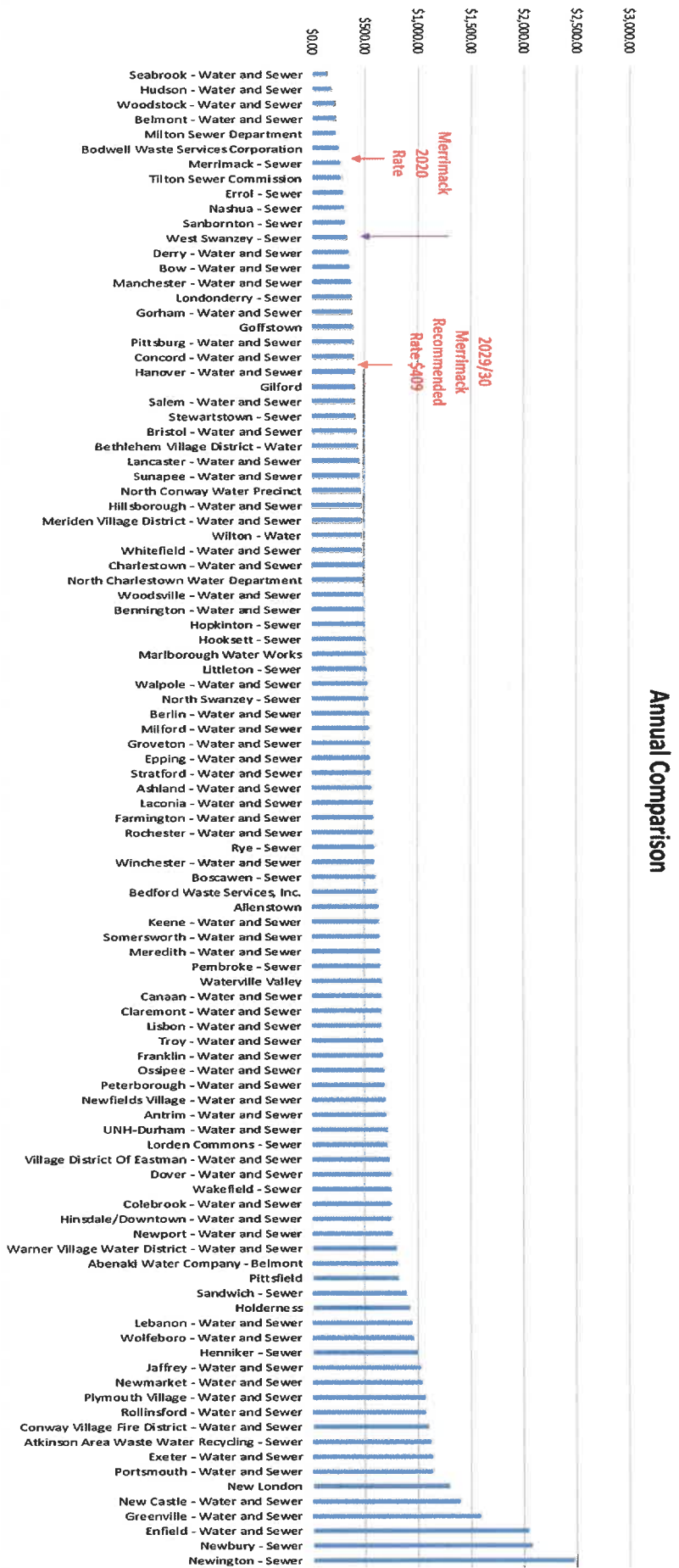
Recommended Sludge Tipping Fees

Year	Increase (%)	Fee (\$1,000/gal)
Current	N/A	\$65.04
FY 2021/22	8%	\$70.24
FY 2023/24	4%	\$73.05
FY 2025/26	4%	\$75.98
FY 2027/28	4%	\$79.01
FY 2029/30	4%	\$82.17

Recommended Compost Sale Fees

Year	Increase (%)	Fee (\$/CY)
Current	N/A	\$10.00
FY 2021/22	3%	\$10.30
FY 2023/24	3%	\$10.61
FY 2025/26	3%	\$10.93
FY 2027/28	4.5%	\$11.42
FY 2029/30	3%	\$11.76

Rate Recommendations



THANK YOU

