

Draft Report



City of Belmont
Comprehensive Sewer
Rate Study
April 2020





April 1, 2020

Ms. Leticia Alvarez
Assistant Public Works Director
City of Belmont
One Twin Pines Lane Suite 385
Belmont, California 94002

Subject: City of Belmont 2020 Comprehensive Sewer Rate Study Draft Report

Dear Ms. Alvarez:

HDR Engineering, Inc. (HDR) is pleased to present the draft report on the comprehensive sewer rate study recently conducted for the City of Belmont (City). The overall objective in conducting the rate study was to establish cost-based rates that provide adequate and sustainable funding for the operational and capital needs of the sewer utility. This report outlines the approach, methodology, findings, and conclusions of the rate study process undertaken for the City's sewer utility.

This report was developed utilizing the City's specific accounting, operating, and historical customer billing records. HDR utilized this information to develop our analyses which shaped our findings, conclusions, and recommendations. At the same time, this study was developed utilizing generally accepted rate setting principles as outlined in the Water Environment Federation Manual of Practice No. 27 rate setting manuals. The conclusions and recommendations contained within this report are intended to provide the City with cost-based and equitable rates for its customers.

We appreciate the assistance provided by the City staff, management, and the City Council in the development of this study.

Sincerely yours,
HDR Engineering, Inc.

A handwritten signature in black ink, appearing to read 'Shawn Koorn', written over a light blue horizontal line.

Shawn Koorn
Associate Vice President



Table of Contents

Executive Summary

Introduction	1
Overview of the Rate Study Process	2
Key Study Results	3
Overview of the Sewer Rate Study	4
Summary of the Revenue Requirement Analysis.....	4
Summary of the Cost of Service Analysis	6
Summary of the Rate Design Analysis	7
Summary	10

1 Overview of the Rate Setting Process

1.1 Introduction	11
1.2 Generally Accepted Rate Setting Principles..	11
1.3 Prudent Financial Planning	11
1.4 Overview of the Rate Study Process	12
1.5 Determining the Revenue Requirement	12
1.6 Analyzing the Sewer Cost of Service	13
1.7 Designing Sewer Rates.....	14
1.8 Summary.....	14

2 Development of the Sewer Revenue Requirement

2.1 Introduction	15
2.2 Determining the Sewer Utility Revenue Requirement	15
2.2.1 Determining the Time Period and Methodology	15
2.2.2 Flow Impact on Calculating Revenues	16
2.2.3 Projection of Sewer Revenues	17
2.2.4 Projection of Sewer Operation and Maintenance Expenses.....	18
2.2.5 Projection of Sewer Capital Improvement Projects and Funding.....	20
2.2.6 Projection of Debt Service	21
2.2.7 Reserve Funding	22
2.2.8 Summary of the Sewer Revenue Requirement	22
2.2.9 Debt Service Coverage Ratios	24
2.2.10 Review of the Sewer Reserve Levels	25
2.2.11 Consultant’s Conclusions	25
2.3 Summary.....	26

3	Development of the Sewer Cost of Service Analysis	
3.1	Introduction	27
3.2	Objectives of a Cost of Service Study.....	27
3.3	Determining the Customer Classes of Service	28
3.4	General Cost of Service Procedures	28
3.4.1	Functionalization of Costs.....	28
3.4.2	Allocation of Costs.....	28
3.4.3	Development of Distribution Factors	29
3.4.4	Functionalization and Allocation of Sewer Plant in Service	30
3.4.5	Functionalization and Allocation of Operating Expenses.....	30
3.4.6	Major Assumptions of the Cost of Service Study.....	31
3.5	Summary of the Cost of Service Analysis	32
3.6	Consultant’s Conclusions and Recommendations	32
3.7	Summary	33
4	Development of the Sewer Rate Design	
4.1	Introduction	34
4.2	Rate Design Goals and Objectives.....	34
4.3	Development of Cost Based Sewer Rates.....	34
4.4	Present and Proposed Sewer Rates	35
4.5	Average Residential Local Bill Comparison	38
4.6	Summary of the Sewer Rate Study.....	38

Technical Appendix



Executive Summary

Introduction

HDR Engineering, Inc. (HDR) was retained by the City of Belmont (City) to perform a comprehensive sewer rate study as an update to the prior rate study which was performed in 2018. The 2018 study set rates for the two year period of Fiscal Year (FY) 2018/2019 and 2019/2020. The City's sewer treatment services are provided for the City through its participation in Silicon Valley Clean Water (SVCW), which owns and operates a sub-regional wastewater treatment plant and related conveyance facilities that serve the City of Belmont, the cities of Redwood City and San Carlos and the West Bay Sanitary District. SVCW costs are allocated proportionally among the JPA members based on their capacity rights, average annual flow rates and strength of the sewer generated by each member agency. The collection system component is based on all the costs to operate the City's sewer system, except for treatment costs. The treatment costs are based on the current treatment costs projections as notified of cost changes by the wholesale provider.

The City's sewer rate is comprised of two components, a collection system component and a treatment system component. The collection system component is based on the costs to operate the City's sewer system, with the exception of treatment costs. The treatment costs are based on the current treatment costs projections and can be adjusted as the City is notified of cost changes by the wholesale provider (SVCW). Each parcel's sewer charge is the sum of the base charge and flow charges for both collection and treatment.

The vast majority of the City's rate revenues are derived from residential customers. Currently, the City has two major classes of service: residential and non-residential customers. Non-residential customers are further categorized between low-strength and high-strength customers. The City's sewer rate structure includes a fixed component, as well as a component based on the customers' winter water average consumption. Annually, the City requests the water consumption data from the Mid-Peninsula Water District to develop the proposed sewer rates, and resulting revenue forecast, for the next fiscal year. In the 2016 rate study, it was recommended that the City make adjustments to the winter water calculation that takes into account the mandated conservation on the City's sewer customers. This resulted in the City adopting a drought regulation adjustment of 14% on each customer's winter period consumption, or multiplied by 1.14, to develop the consumption for rate setting purposes in. The consumption data from Mid-Peninsula Water District, for the 2018 study, indicated that consumption had not returned to pre-drought levels and the 14% drought regulation adjustment was continued in the 2018 study for the FY 2018/2019, and 2019/2020 rate setting periods. Although for purposes of terminology there currently is evidence there is no longer a "drought" period, this study shows a need for continued "flow" adjustment factor of 9% to the customer's winter period consumption. This will be discussed further in the study.

This study is based on the previous sewer rate study methodologies and analyses completed by HDR in 2014, 2016, and 2018. The prior studies, provided recommendations, and rates, to fund an adequate level of renewal and replacement and include funding of capital projects from prior

years. This funding/financial plan was updated during the recent issuance of the 2019 JPFA Sewer Revenue Bond debt to fund a portion of the City’s major capital improvement projects. This study reviews the adequacy of the existing sewer rates to meet their system improvement needs, and provide the basis for appropriate rate structures for each customer classification. The projected rate adjustments allow the City to meet three key prudent financial criteria, these are:

- Meeting Debt Service Coverage Ratios (DSC) – DSC ratios are the measurement of a utility’s ability to repay outstanding debt. During this study this was a key driver in the results of the proposed rate adjustments to meet a 2.0 debt service coverage ratio target. The 2.0 debt service coverage target was based on the analysis for the recent 2019 JPFA Sewer Revenue Bond. The proposed rate adjustments in this study allow the City to maintain a strong debt service coverage ratio.
- Adequate Renewal and Replacement Funding – The need to maintain the system is key to minimizing future capital needs. This study has continued with the City’s the annual renewal and replacement funding needs to prudent levels which exceed depreciation over the rate planning period. This reflects the funding needs of past deferred capital improvements and necessary inflow and infiltration (I&I) capital improvement needs.
- Maintaining Prudent Reserve Fund Levels – The study has continued to provide ending reserve fund balances to be in line with typical industry levels (i.e. industry best practices). Given that the City receives semi-annual payments for services, it is important to have sufficient cash reserves on hand to fund operations between payments.

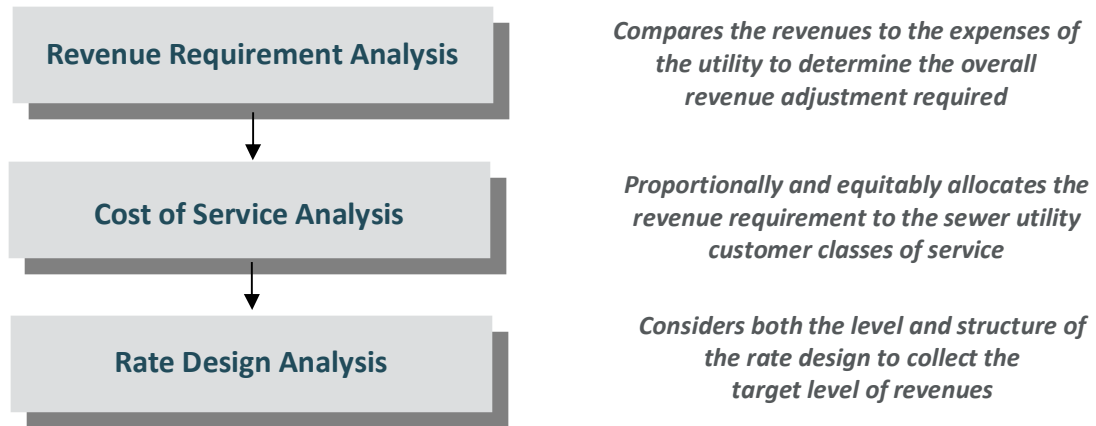
Meeting these three key criteria are critical to the City being able to fund/finance future capital by the issuance of long-term debt. By adjusting rates the City is demonstrating to the outside financial community its willingness and commitment to maintain a strong financial position. This willingness to address this financial issue and adjust rates accordingly will be beneficial when issuing future long-term debt for the sewer systems capital needs.

The development of this study examines the adequacy of the current sewer rates (i.e., revenues vs. expenses) for the utility and provides the cost-basis for any recommended sewer rate revenue adjustments. This report describes the overall methodology used to analyze the City’s sewer rates along with the findings, conclusions, and recommendations.

Overview of the Rate Study Process

A comprehensive sewer rate study uses three interrelated analyses to address the adequacy and equity of a utility’s rates. These three analyses are a revenue requirement analysis, a cost of service analysis, and a rate design analysis. These three analyses are illustrated below in Figure ES-1.

Figure ES – 1 Overview of the Comprehensive Rate Analyses



For the City’s sewer rate study, HDR completed each of the three analyses, a revenue requirement, cost of service analysis, and rate design analyses. The results from each task of the rate study were used as the basis for establishing cost-based and equitable rates for the City’s customers. The storm utility revenue requirement analysis was the only task provided.

Key Study Results

The sewer utility was financially evaluated on a stand-alone basis. By reviewing the sewer utility individually, the costs (expenses) required to adequately fund both O&M and capital infrastructure must be balanced against the rate impacts to customers. Likewise, future rate impacts should be considered. For example, the delayed action to fund capital improvements in the current time period could result in future higher costs and in turn increased rate adjustments as well as risk associated with catastrophic failure. As with most things, it is challenging to balance the desire for least cost rates with the operating and capital needs required to provide a high-level service to customers.

Based on the technical analysis undertaken as part of this study, the following findings, conclusions, and recommendations were noted.

- The revenue requirement analysis for the sewer utility was developed for FY 2020/2021 – 2027/2028.
- The starting point for the revenue requirement analysis was the City’s FY 2019/2020 sewer budget and the current capital improvement plan.
- Wastewater treatment is provided by the Silicon Valley Clean Water (SVCW) and included within the City’s operation and maintenance expenses. SVCW FY 2020/2021 budget was escalated annually at a 4% inflation factor for future years based on SVCW cost planning projections.
- The current 14% drought regulation adjustment to take into account the previously mandated conservation on the City’s sewer customers has been updated to a “flow”

adjustment factor of 9% to reflect changes in winter water averages since the prior studies.

- Escalation factors were developed to project future years operating expenses. These factors ranged from 2% to 7% per year depending on the specific expense and reflect the inflationary increases experienced by the City in the past.
- The level of repair and replacements were funded at an adequate level as projected in the prior studies, as well as a focus on inflow and infiltration (I&I) capital needs.
- A cost of service analysis was developed to review the equity of the existing rates. The results of the cost of service analysis indicated minor some cost differences between the various customer classes of service. However, the differences are minimal and reflect a reasonable range of difference. Given this, it is recommended that no adjustments in the cost relationships between the classes of service be made at this time.
- Proposed rates were developed for consideration by the City Council for FY 20/21 and FY 21/22.
- Rate projections were developed for a 5-year period of FY 22/23 through FY 24/25, to provide the City Council with a projection of rates necessary to meet future operating and capital needs.
- The proposed rate adjustments are necessary for the City to adequately fund its financial needs and maintain prudent financial measures and operating metrics
 - ✓ Maintain a healthy financial outlook for future long-term borrowing by targeting a 2.0 debt service coverage ratio
 - ✓ Adequate funding of capital improvements from rates to prudently maintain the City's existing infrastructure (i.e., renewal and replacement programs) as well as I&I improvements.
 - ✓ Maintain adequate minimum reserve levels for routine operating and capital needs and emergency situations

Provided below is the executive summary of the technical analyses undertaken for the City and the findings, conclusions, and recommendations of this study.

Overview of the Sewer Rate Study

The sewer rate study determined the overall adequacy of the existing sewer rates, on a financial stand-alone basis, at the current rate levels. That is, no funding sources other than those generated by the sewer utility were used to fund sewer utility expenses. For the sewer rate study, a concerted effort was made to minimize rate impacts over the five year review period while also maintaining the City's financial metric's targets for debt service coverage ratio, capital improvement funding, and operating and capital cash reserve levels.

Summary of the Revenue Requirement Analysis

The development of the revenue requirements analysis is used to determine the overall adequacy of the sewer utility rates. The starting point of the sewer revenue requirement analysis was the FY 2019/2020 budget. HDR and City staff developed a projection of revenues and expenses for future years based on assumed escalation (inflationary) factors. The sewer study developed future rate needs based on operating and capital needs, however, the focus for

purposes of rate setting was the next five-year period (FY 2020/2021 – 2024/2025). A rate transition plan was developed for this five-year time period in a way that creates a smooth transition to fully funding the utility in the future. The summary of the sewer revenue requirement is shown below in Table ES-1. It indicates the need for rate adjustments in order to properly fund the sewer utility.

Table ES – 1						
Summary of Sewer Revenue Requirement (\$000s)						
	Budget	Projected				
	2019/20^[1]	2020/21	2021/22	2022/23	2023/24	2024/25
Revenues						
Retail Rate Revenues	\$12,325	\$12,033	\$12,153	\$12,275	\$12,397	\$12,521
Other Revenues	<u>685</u>	<u>447</u>	<u>430</u>	<u>419</u>	<u>471</u>	<u>451</u>
Total Revenues	\$13,010	\$12,480	\$12,583	\$12,694	\$12,868	\$12,972
Expenses						
Collection O&M Expenses	\$4,174	\$4,297	\$4,425	\$4,558	\$4,697	\$4,841
Treatment O&M Expenses	3,441	3,565	3,707	3,855	4,010	4,170
Repair & Replace. Funding	1,600	1,750	1,900	2,050	2,200	2,350
I/I Capital Funding	595	611	627	644	661	679
Total Debt Service	1,514	2,412	2,502	2,979	3,742	3,745
Change in Working Capital +/-	<u>1,614</u>	<u>688</u>	<u>1,182</u>	<u>1,369</u>	<u>1,259</u>	<u>1,901</u>
Total Expenses	\$12,938	\$13,322	\$14,344	\$15,456	\$16,569	\$17,685
Balance/(Deficiency) of Funds	\$72	(\$842)	(\$1,761)	(\$2,762)	(\$3,701)	(\$4,713)
Cumulative as a % of Rates	0.0%	7.0%	14.5%	22.5%	29.9%	37.6%
Proposed Rate Adjustments	0.0%	7.0%	7.0%	7.0%	6.0%	6.0%
Debt Service Coverage Ratio						
Before Rate Adjustment	3.33	1.77	1.64	1.32	1.02	0.96
After Rate Adjustment	3.33	2.12	2.34	2.25	2.01	2.22

[1] Note: FY 2019/20 includes the revenues at the adopted rate levels from the prior rate study. Therefore, no rate adjustment is included in FY 2019/20.

Table ES–1 shows the total deficiency of revenues before any sewer rate adjustments ranges from \$842,000 in FY 2020/2021 to \$4.7 million by FY 2024/2025. A 7.0% annual sewer revenue adjustment is proposed in FY 2020/2021, 2021/2022, 2022/2023 and a 6.0% adjustment in 2023/2024, 2024/2025. The projected rate adjustments allow the City to meet three key prudent financial metric criteria, these are:

- Meet Prudent Debt Service Coverage Ratios – DSC target of 2.0.
- Adequate Renewal and Replacement Funding – Annual renewal and replacement funding needs exceed depreciation over the 5-year plan as well as I&I capital funding needs.

- Maintain Prudent Reserve Fund Levels – Operating reserve target equal to annual minimum of 180 days of O&M; Capital project reserve target equal to two years of annual depreciation.

The revenue requirement developed in this sewer rate study will allow the City to develop cost-based rates that meet the City’s goals and objectives for maintaining the existing system and funding future capital needs. The rate transition plan developed provides a gradual increase in rates over a 5-year period. While the revenue requirement analysis projected operating and capital needs over a five year period, the focus of the proposed rates, for Proposition 218 purposes is the next two fiscal year period of FY 20/21 and FY 21/22.

Summary of Cost of Service Analysis

A cost of service analysis is concerned with the proportional and equitable distribution of the total revenue requirement to the various customer classes of service. The objectives of the cost of service analysis are different from determining revenue requirements. A revenue requirement analysis determines the utility's overall financial needs, while the cost of service study determines the proportional and equitable manner to collect those revenue requirements. The City’s customer classes are residential, low strength non-residential, and high strength non-residential customers. Table ES-2 provides the summary of the cost of service analysis for the FY 2020/2021 test year.

Table ES – 2 Summary of the Sewer Cost of Service Analysis FY 2021 (\$000’s)				
Classes of Service	Present Rate Revenues	Distributed Costs	\$ Difference	% Difference
Residential	\$10,698	\$11,438	(\$740)	6.9%
Non-Residential				
Low Strength	997	1,077	(80)	8.1%
High Strength	<u>337</u>	<u>359</u>	<u>(22)</u>	<u>6.4%</u>
Total	\$12,032	\$12,874	(\$842)	7.0%

The results of the cost of service analysis indicated some minor cost differences between the customer classes of service. It should be noted that the cost of service analysis developed by HDR is not a simple fixed/variable analysis. Rather, the cost of service analysis allocates costs between the various customer classes of service based on each customer classes proportional share of volume, strength and customer-related costs. While minor cost differences exist, the overall allocation of costs between low strength customers (e.g., residential and low strength non-residential) and high strength customers is reasonable. Given that, no adjustments in the cost relationships between the customer classes of service are recommended at this time.

Summary of the Rate Design Analysis

The final step of the comprehensive sewer rate study process is the design of sewer rates to collect the desired level of revenue, based on the results of the revenue requirement and cost of service analysis. The individual classification totals were then allocated to the different customer classes. The allocated expenses were then aggregated to determine overall customer class responsibility.

Developing proportional and equitable rates is of paramount importance in developing proposed sewer rates. Given this, the City's proposed sewer rates have been developed with the intent of meeting the legal requirements of California constitution article XIII D, section 6 (Article XIII D), commonly referred to as Proposition 218. A key component of Article XIII D is the development of rates which reflect the cost of providing service and are proportionally allocated among the various customer classes of service. HDR would point out that there is no single methodology for equitably assigning costs to the various customer groups. The Water Environment Federation (WEF) Manual of Practice No. 27 clearly delineates various methodologies which may be used to establish cost-based rates. Article XIII D does not prescribe a particular methodology for establishing rates; consequently, HDR developed the City's proposed sewer rates based on the WEF MOP #27 methodology, and the City's sewer collection system operating and customer characteristics, to meet the requirements of Article XIII D to provide an administrative record of the steps taken to establish the City's proposed sewer rates.

HDR is of the opinion that the proposed rates comply with legal requirements of Article XIII D. HDR reaches this conclusion based upon the following:

- **The revenue derived from sewer rates does not exceed the funds required to provide the property related service (i.e., sewer service).** The proposed rates are designed to collect the overall revenue requirements of the City's sewer system.
- **The revenues derived from sewer rates shall not be used for any purpose other than that for which the fee or charge is imposed.** The revenues derived from the City's sewer rates are used exclusively to operate and maintain the City's sewer system.
- **The amount of a fee or charge imposed upon a parcel or person as an incident of property ownership shall not exceed the proportional costs of the service attributable to the parcel.** The cost of service analysis was specifically developed to focus on the issue of proportional assignment of costs.

The City's sewer rate is comprised of two components, a collection system component and a treatment system component. The collection system component is based on all the costs to operate the City's sewer system, except for treatment costs. The treatment costs are based on the current treatment costs projections and can be adjusted as the City is notified of cost changes by the wholesale provider. Each parcels' sewer charge is the sum of the base charge and flow charges for both collection and treatment. The proposed sewer rate designs maintain their current rate structure.

For the five year rate period, the rates include a 9% flow adjustment factor that replaces the 14% drought regulation factor which was implemented during the 2016 rate study. Mid-Peninsula Water District consumption billing data for the winter period, for FY 2019/2020 was not available at the time of the study. The three year periods of FY 2016/2017, 2017/2018, and 2018/2019 billing information was reviewed and an average of the three years developed the 9% flow adjustment factor. The winter water consumption has increased but not returned to prior levels experienced before the drought and may be further impacted by the current pandemic. The flow adjustment factor will allow the City to maintain sufficient revenues during the proposed rate period of FY 20/21 and FY 20/22. The flow adjustment factor will be reviewed again during the next rate study and adjusted at that time to reflect the average over the most recent three years of available consumption data.

The same formula for this adjustment will remain as follows: (HCF = 100 cubic feet)

Formula: Actual Volume Usage x (1 + (flow adjustment factor)) = adjusted volume usage

Example: 8 HCF x (1+ .09) = 8.72 HCF adjusted volume usage

Table ES-3 provides the present and proposed rates for the residential and non-residential customers for the next five fiscal years.

Table ES – 3
Present and Proposed Sewer Rates (Annually)

	Present Rates	Proposed Rates FY 2020/21	Proposed Rates FY 2021/22	Proposed Rates FY 2022/23	Proposed Rates FY 2023/24	Proposed Rates FY 2024/25
COLLECTION						
<u>Residential</u>						
Base Charge	\$337.96	\$361.62	\$386.93	\$414.02	\$438.86	\$465.19
Flow Charge (\$/HCF) ^[1]	\$4.81	\$5.15	\$5.51	\$5.89	\$6.25	\$6.62
<u>Non-Residential</u>						
Base Charge	\$337.96	\$361.62	\$386.93	\$414.02	\$438.86	\$465.19
Flow Charge Low Strength (\$/HCF) ^[1]	\$4.81	\$5.15	\$5.51	\$5.89	\$6.25	\$6.62
Flow Charge High Strength (\$/HCF) ^[1]	\$9.35	\$10.00	\$10.70	\$11.45	\$12.14	\$12.87
TREATMENT						
<u>Residential</u>						
Base Charge	\$177.62	\$190.05	\$203.36	\$217.59	\$230.65	\$244.49
Flow Charge (\$/HCF) ^[1]	\$2.38	\$2.55	\$2.72	\$2.92	\$3.09	\$3.28
<u>Non-Residential</u>						
Base Charge	\$177.62	\$190.05	\$203.36	\$217.59	\$230.65	\$244.49
Flow Charge Low Strength (\$/HCF) ^[1]	\$2.38	\$2.55	\$2.72	\$2.92	\$3.09	\$3.28
Flow Charge High Strength (\$/HCF) ^[1]	\$4.63	\$4.95	\$5.30	\$5.67	\$6.01	\$6.37
COMBINED						
<u>Residential</u>						
Base Charge	\$515.58	\$551.67	\$590.29	\$631.61	\$669.50	\$709.67
Flow Charge (\$/HCF) ^[1]	\$7.19	\$7.69	\$8.23	\$8.81	\$9.34	\$9.90
<u>Non-Residential</u>						
Base Charge	\$515.58	\$551.67	\$590.29	\$631.61	\$669.50	\$709.67
Flow Charge Low Strength (\$/HCF) ^[1]	\$7.19	\$7.69	\$8.23	\$8.81	\$9.34	\$9.90
Flow Charge High Strength (\$/HCF) ^[1]	\$13.98	\$14.96	\$16.01	\$17.13	\$18.15	\$19.24

[1] Present average bill 8 HCF X 1.14 = 9.12 HCF; \$515.58/12 = \$42.97 monthly base combined charge
Proposed average bill 8 HCF X 1.09 = 8.72 HCF; \$551.67/12 = \$45.97 monthly base combined charge

It should be noted in FY 2021, the 7% revenue requirement rate adjustment translates to an overall average monthly bill adjustment of 4.2% for a typical residential customer. At present rates, a typical residential customer with 8 hundred cubic feet of winter water average would have a monthly bill of \$108.54 (8 HCF X 1.14 = 9.12 HCF). Under the proposed rates, the same customer would have a monthly bill of \$113.06 in FY 2021, a \$4.51 monthly increase (\$113.06 - \$108.54 = \$4.51 or 4.2%). The proposed rate adjustment for FY 2021 was 7.0%, however with

the flow factor adjustment from 1.14 to 1.09 (0.05 decrease), results in an overall change to the bill of 4.2%. Table ES-4 shows the average residential bill for FY 2021 through FY 2025.

Table ES – 4 Present and Proposed Sewer Rates (Monthly)					
	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
<i>Proposed Revenue Adjustment</i>	7.0%	7.0%	7.0%	6.0%	6.0%
Present Average Monthly Bill ^[1]	\$108.54				
After Proposed Rate Adj. ^[2]	\$113.06	\$120.97	\$129.44	\$137.20	\$145.44
Monthly Bill Difference	\$4.51	\$7.92	\$8.46	\$7.77	\$8.23
Cumulative Bill Difference	\$4.51	\$12.43	\$20.89	\$28.66	\$36.90
<i>% Change to Monthly Bill</i>	4.2%	7.0%	7.0%	7.0%	6.0%

[1] – Current average bill is $\$515.58/12 = \$42.97 + 9.12 \text{ HCF} \times \$7.19 = \$108.54$.

[2] – Proposed average bill $\$551.67/12 = \$45.97 + 8.72 \text{ HCF} \times \$7.69 = \$113.06$.

This report provides a more detailed discussion of the sewer rate study revenue requirement, cost of service, and rate design analyses undertaken for the City.

Summary

The adequacy of the City’s sewer rates were reviewed by HDR through the development of a comprehensive sewer rate study. Based upon the analyses developed herein, which included the budgeted operating and capital expenses, HDR has proposed a comprehensive set of revenue recommendations for the sewer utility. The following sections of the report provide a more detailed discussion of the technical analyses undertaken, along with the findings, conclusions, and recommendations of the study.



1.0 Overview of the Rate Setting Process

1.1 Introduction

HDR Engineering, Inc. (HDR) was retained by the City of Belmont (City) to conduct a comprehensive sewer rate study. The objective in conducting a comprehensive sewer rate study is to develop cost-based rates which adequately fund the City's operation and maintenance (O&M) needs, along with the necessary capital improvements (i.e., capital infrastructure) for the utility. This study determines the adequacy of the existing sewer rates and provides the analytical framework for any needed future adjustments.

1.2 Generally Accepted Rate Setting Principles

As a practical matter, utilities should consider setting their rates around some generally accepted or global principles and guidelines. Utility rates should be:

- ✓ Cost-based, equitable, and set at a level that meets the utility's full revenue requirement
- ✓ Easy for the customer to understand and easy for the utility to administer
- ✓ Designed to conform with generally accepted rate setting techniques
- ✓ Stable in their ability to provide adequate revenues to meet the utility's financial, operating, capital infrastructure and regulatory requirements
- ✓ Established at a level that is, from the customer's perspective, stable from year-to-year

These general principles and guidelines have historically been used by the City to establish their current sewer rates. For this study, they were again applied, in the development of the rate analyses developed for the City.

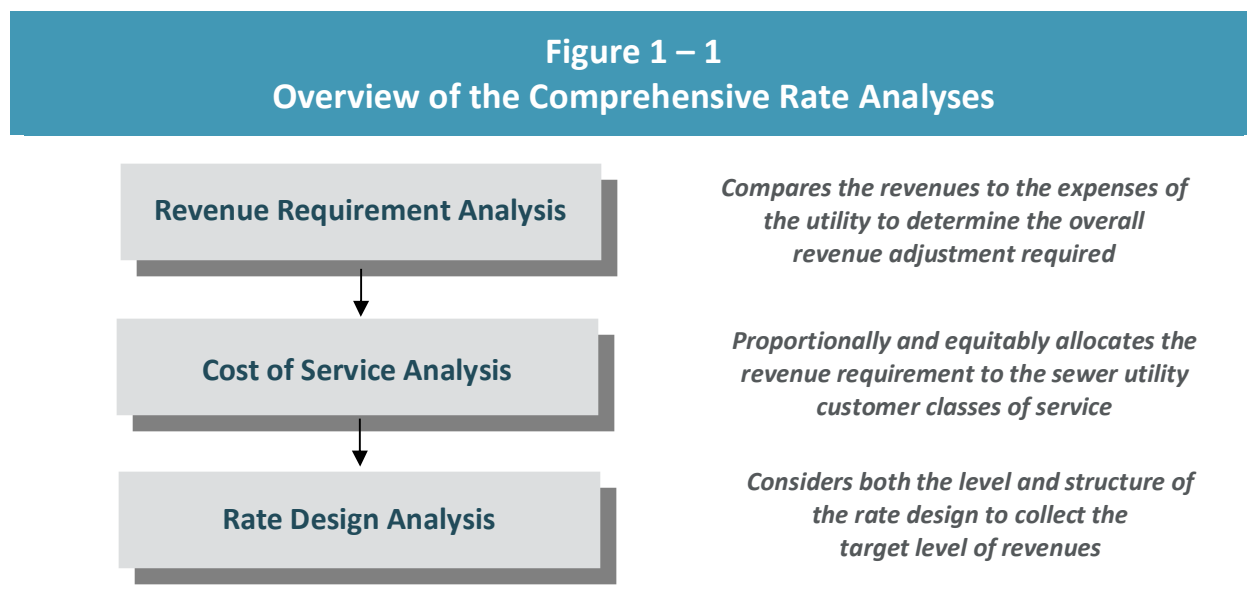
1.3 Prudent Financial Planning

Financial rate-setting policies and guidelines are integral to the process of developing a utility rate study. Financial policies are intended to provide guidance in the financial planning and rate-setting process, and in the day-to-day financial management of the City's utilities. Adoption of financial policies provides a strong foundation for the long-term financial sustainability of the utility and provides the outside financial community with a better understanding of the City's commitment to managing the utility in a financially prudent manner. As a part of the City's previous utility rate study, key financial and rate-setting policies/targets were developed and established. These key financial policies address issues such as maintaining minimum reserves for cash flow and capital improvement purposes, minimum debt service coverage (DSC) ratios, and consistent and adequate rate funding of capital projects for the City. Each of the key financial planning and rate setting objectives were carried forward from the City's prior sewer rate studies.

“Financial policies are intended to provide guidance in the financial planning and rate-setting process...Adoption of financial policies provides a strong foundation for the long-term financial sustainability of the utility...”

1.4 Overview of the Rate Study Process

A comprehensive study generally consists of three interrelated analyses performed for each utility. Figure 1 - 1 provides an overview of these analyses.



In a comprehensive rate study, a revenue requirement analysis is concerned with the overall funding sources (revenues) and expenses (both operating and capital) of the utility. From this analysis, a determination can be made as to the overall *level* of adjustment to revenues. Next, a cost of service analysis is performed to proportionally and equitably allocate the revenue requirements to the various types of customers served (e.g., residential, commercial, etc.). Finally, given the overall level of revenues to be collected, along with an equitable allocation of those costs, the last step of the rate study process in the design of rates to collect the appropriate level of revenues while considering the other rate design goals and objectives of the utility (e.g. revenue stability, conservation, ease of administration, customer understanding, etc.).

In the case of the City’s study, all three analyses (revenue requirement, cost of service, rate design) were conducted for the sewer utility. This study has focused, in particular, on the level of rate revenue needed to fully fund the sewer utility system on a stand-alone basis. The results from each task of the rate study, were used as the basis for establishing cost-based and equitable rates for the City’s customers.

In developing this study, HDR utilized generally accepted cost of service and rate setting techniques and industry best practices in the development of the City’s sewer rate study.

1.5 Determining the Revenue Requirement

Most public utilities use the “cash basis” methodology for establishing their revenue requirement and setting rates. This revenue requirement methodology conforms to most public utility budgetary requirements and the calculation is easy to understand. Under the “cash basis” revenue requirement methodology, a public utility:

- ✓ Adds operation and maintenance (O&M) expenses to any applicable taxes or transfer payments to determine total operating expenses. Operation and maintenance expenses include the materials, electricity, labor, supplies, etc. needed to keep the utility functioning.
- ✓ Calculates capital costs by adding debt service payments (principal and interest) to capital improvements financed with rate revenues. In lieu of including capital improvements financed with rate revenues, a utility sometimes includes (i.e., substitutes) depreciation expense to stabilize the annual revenue requirement from year-to-year.

Note that the two portions of the capital expense component (debt service and capital improvements financed from rates) are necessary under the cash basis methodology because utilities generally cannot finance all their capital facilities with strictly rates or long-term debt.

Under the cash basis revenue requirement methodology the sum of the operating expenses and capital costs equals the utility’s total revenue requirement during any period of time (see Table 1-1).

Table 1 – 1
Overview of the Sewer Utility Cash Basis Revenue Requirements

+	Sewer Operation and Maintenance Expenses
✓	Planning Project Management
✓	Sanitary Sewer and NPDES Operations
+	Repair & Replacement Funded from Rates
+	Debt Service (P + I) – Existing and Future
±	<u>Change in Working Capital</u>
=	Total Sewer Revenue Requirement
–	<u>Miscellaneous Revenues</u>
=	Net Revenue Requirement (Balance Required from Rates)

The analyses developed within this report utilized the “cash basis” methodology. This is consistent with past practices of the City’s utility rate-setting.

1.6 Analyzing the Sewer Cost of Service

After the total revenue requirement is determined, it is then proportionally and equitably allocated to the users of the sewer service. The allocation, usually analyzed through a cost of service analysis, reflects the cost relationships for collecting and treating wastewater. The approach for establishing the cost of service analysis is based on the Water Environment Federation Manual of Practice No. 17 (WEF MOP 27). As discussed in the manual, a cost of service analysis requires three analytical steps. A cost of service analysis requires three analytical steps:

1. Costs are *functionalized* or grouped into the various cost categories related to providing service (e.g., for pumping; treatment, collection, etc.). This step is largely accomplished by the utility’s accounting system.
2. The functionalized costs are then *allocated* to specific cost components. Allocation refers

to the arrangement of the functionalized data into cost components. For example, sewer utility's costs are typically classified as volume, strength (BOD/TSS), or customer-related.

3. Once the costs are allocated into cost components, they are proportionally *distributed* to the customer classes of service (e.g., residential, non-residential, high-strength). The distribution is based on each customer class' relative contribution to the cost component (i.e., benefits received from and burdens placed on the system and its resources). For example, customer-related costs are distributed to each class of service based on the total number of customers in that class of service. Once costs are distributed, the revenues from each customer class of service required to achieve cost-based rates can be determined.

At the conclusion of the cost of service study, two key pieces of information are provided. First, the cost of service provides an understanding of the total revenues to be collected from each class of service. In other words the revenue requirement is, for example, \$10.0 million and the cost of service provides an equitable method to distribute that total cost of \$10.0 between the various sewer customer classes of service (e.g., residential, non-residential). The other important piece of information provided by the cost of service analysis is the average unit costs. Average unit costs are the distributed costs divided by the appropriate consumption (billing) units. This provides an understanding of the cost on a \$/customer/month and \$/hundred cubic feet (HCF) basis. These average unit costs are cost-based rates and used to establish the proposed rates in the initial rate study year.

1.7 Designing Sewer Rates

The design of the proposed sewer rates for adoption by the City concludes the analytical portion of the rate study process. In designing proposed sewer rates, the results from both the revenue requirement and cost of service analysis is used to develop rates that achieve the overall goals and objectives of the City. These goals and objectives may include consideration of cost-based rates, but may also consider items such as ability to pay, continuity of past rate philosophy, conservation (efficient use), encouragement of economic development, ease of customer understanding and billing administration, legal requirements, etc. It is important to understand that cost of service is only one goal or objective in designing final sewer rates, however, it is an important one, and necessary to meet the proportionality and equity requirements of Proposition 218.

1.8 Summary

This section of the report has provided a brief introduction to the general principles, techniques, and economic theory used to set sewer utility rates. These principles and methodologies have been the basis for the City's past utility rate studies and continue to be the basis for the City's current rate analyses. The next three sections of the report discusses the sewer utility rate study and the technical analyses undertaken.



2.0 Development of the Sewer Revenue Requirement

2.1 Introduction

This section of the City’s rate study report discusses the development of the sewer rate analyses and proposed sewer rates. The main objectives of the sewer rate study is to develop cost-based sewer rates while attempting to minimize the impacts to the utility’s customers. Provided below is a detailed discussion of the technical analyses, along with our findings, conclusions and recommendations.

2.2 Determining the Sewer Utility Revenue Requirement

The starting point of the sewer revenue requirement analysis was the FY 2019/2020 budget. HDR developed a projection of revenues and expenses for future years based on assumed escalation (inflationary) factors. The sewer study developed future rate needs based on operating and capital needs over a five-year period, however, the focus for purposes of rate setting was the next two-year period (FY 20/21 and FY 21/22). A rate transition plan was developed for this five-year time period in a way that creates a smooth transition to fully funding the utility in the future.

The sewer capital funding plan was developed from the City’s CIP plan as the starting point. That plan assumed the issuance of long-term debt to fund a portion of the City’s major capital improvement projects. This study updated the capital improvement funding analysis based on the City’s current capital plan and funding approach. A \$20 million bond issue occurred in FY 2019/2020 with payments starting in FY 2020/2021. A key consideration in issuing debt is the establishment of rates sufficient to support repayment of the debt, but also sufficient to meet rate covenants associated with the debt (e.g., reserves, minimum debt service coverage). This study includes a transition to continue to strengthen the level of renewal and replacement and capital project funding over the 5-year planning period. Renewal and replacement funding is approximately \$1.6 million in FY 2019/2020 increasing to \$2.3 million in FY 2024/25.

2.2.1 Determining the Time Period and Methodology

The first step in calculating the revenue requirement for the sewer utility was to establish a time frame for the revenue requirement analysis. For this study, the revenue requirement was developed from FY 2020/2021 to 2027/2028, with the focus being the five-year projected time period (FY 2020/2021 – 2024/2025), and the rate setting focus on FY 20/21 and FY 21/22. Reviewing a multi-year time period is recommended in an attempt to identify any major expenses that may be on the horizon. By anticipating future financial requirements, the City can begin planning for these changes sooner, thereby minimizing short-term rate impacts and overall long-term rates.

The second step in determining the revenue requirement for the City was to decide on the basis of accumulating costs. For the City’s revenue requirement, a “cash basis” approach was utilized. The “cash basis” approach is the most commonly used methodology by municipal utilities to set their revenue requirement, and the method used in previous rate studies developed for the City by HDR. The actual revenue requirement developed for the City was customized to follow the

City's system of accounts (budget documents). However, even with these modifications, the City's sewer revenue requirement still contains the basic cost components of a cash basis methodology. Table 2-1 provides a summary of the cash basis approach used to develop the City's sewer revenue requirement.

Table 2 – 1
Overview of the Cash Basis Revenue Requirements

+	Collection O&M Expenses
	Treatment O&M Expenses
+	Repair & Replacement Funded from Rates
+	I/I Capital Funding
+	Debt Service (P + I) – Existing and Future
<u>±</u>	<u>Change in Working Capital</u>
=	Total Sewer Revenue Requirement
-	<u>Miscellaneous Revenues</u>
=	Net Revenue Requirement (Balance Required from Rates)

Given a time period around which to develop the revenue requirement and a method to accumulate the costs; the focus shifts to the development and projection of the revenues and expenses of the sewer utility.

The primary financial inputs in the development of the revenue requirement were the City's 2020 operating budget, historical winter data customer characteristics (e.g., customer number and average winter consumption), and current adopted rates. Presented below is a detailed discussion of the steps and key assumptions contained in the development of the projections of the City's sewer revenues and expenses.

2.2.2 Flow Impacts on Calculating Revenues

The City has a sewer rate structure that includes a fixed component as well as a volumetric component based on the customers' winter water average consumption. Each year, the City requests the water consumption data from the Mid-Peninsula Water District to develop the proposed sewer rates, and resulting revenue forecast, for the next fiscal year. The City adopted a 14% drought regulation factor during the 2016 rate study. The drought regulation factor has been in place for FY 2017/2018, 2018/2019 and 2019/2020 rates. Although for purposes of terminology there is evidence there is no longer a "drought" period, this study shows a need for a continued "flow" adjustment to the customer's winter period consumption to reflect variations in annual water consumption for various impacts (e.g., weather, conservation, low flow appliances).

The flow adjustment factor was reviewed and adjusted based on billing flow data (average winter months) for the last three years. Mid-Peninsula Water District consumption for the winter period, for FY 2019/2020 was not available at the time of the study. Therefore the three year period of FY 2016/2017, 2017/2018, and 2018/2019 billing information (data is one year lag in

billing data) was reviewed and an average of the three years was developed for an updated flow adjustment factor. The winter water consumption has increased but not returned to prior levels experienced before the drought. Table 2-2 shows a summary of the average of the three years of winter flow average 775,972 hundred cubic feet (HCF) or billed with the 14% flow adjustment factor of 884,608 HCF. Based on a review of the current consumption, and historical billed consumption units, for FY 20/21 and FY 21/22 a 9% flow adjustment factor is proposed which reflects a slight increase in the winter water consumption.

Table 2 – 2
Summary of the Winter Water Flow Adjustment

Component	2018	2019	2020	Average	Estimated 2021
Billed Winter Flow HCF ^[1]	778,645	754,965	794,305	775,972	794,305
% Adjustment Factor	14%	14%	14%		9%
Total HCF	887,655	860,660	905,508	884,608	865,792

[1] HCF = hundred cubic feet

By making this flow factor adjustment to the sewer billing units, the City will be projected to maintain target revenues during this next five year period as customer winter water use has not returned to previous levels. Absent an adjustment to consumption levels, the City will need to adjust rates higher to reflect the reduced consumption levels. The flow adjustment factor will allow the City to maintain sufficient revenues during the next five year period given continued changing winter water consumption levels. The flow adjustment factor will be reviewed again during the next rate study and adjusted at that time. The same formula for this adjustment will remain as follows (HCF = 100 cubic feet):

Formula: Actual Volume Usage x (1 + (flow adjustment factor)) = adjusted volume usage

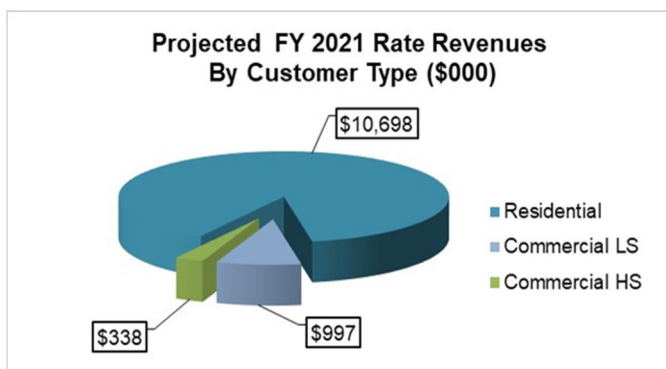
Example: 8 HCF x (1+ .09) = 8.72 HCF adjusted volume usage

It should also be noted that the majority of the City’s costs are fixed and do not vary depending on the level of sewer flows. The one cost that can vary is the cost of treatment from the Silicon Valley Clean Water (SVCW). The cost of treatment is flow based and would change as a result of decreased sewer flows. Given all of the above, a decline in annual water consumption, which is the basis for establishing sewer billing units and subsequent sewer rate revenues, will have an impact on the necessary rate adjustment to prudently fund the City’s operating and capital expenses.

2.2.3 Projection of Sewer Revenues

The first step in developing the revenue requirement was to develop a projection of rate revenues, at present rate levels. In general, this process involved developing projected billing units for each customer group. The billing units for each customer group were then multiplied by the applicable current sewer rates. This method of independently calculating revenues assures the projected revenues used within the analysis tie to the projected billing units.

The vast majority of the City’s rate revenues are derived from residential customers. Currently, the City has two major classes of service: residential and non-residential customers. Non-residential customers are further categorized between low-strength and high-strength customers. In total, and at currently adopted rate levels, the City is projected to receive approximately \$12.0 million in rate revenue in 2021. This is based on the historical customer average billing data, plus the flow adjustment factor of 9%. Future years are projected at an additional 1.0% annual customer growth.



In addition to rate revenues, the City also receives a variety of miscellaneous revenues which includes interest on investments, charge back revenues, standby fees, and other miscellaneous revenues. The utility is projected to annually receive approximately \$447,000 in miscellaneous revenues over the projected planning horizon.

On a combined basis, taking into account the rate revenues along with miscellaneous revenues, the City’s total projected revenues are expected to be approximately \$12.4 million in FY 2021 increasing to approximately \$12.9 million in FY 2025.

2.2.4 Projection of Sewer Operation and Maintenance Expenses

Operation and maintenance (O&M) expenses are incurred by the City to operate and maintain the existing plant in service. In general, O&M expenses are grouped into a number of different major functional categories (see Table 2-1). For each major functional category, the City maintains a number of subaccounts. To begin the process of projecting O&M expenses over the planning horizon, escalation factors were developed.

Escalation factors were developed for the basic types of expenses the City incurs: labor, benefits, materials and supplies, utilities, insurance, and miscellaneous expenses. The escalation factors used were in the range of two to seven percent per year, depending on the type of cost and recent inflationary trends. A major cost for the sewer utility is the cost of wastewater treatment from Silicon Valley Clean Water (SVCW). SVCW’s costs have been increasing due to their recent major capital projects, but also because of their operating cost associated with regulatory and utility cost increases. SVCW costs are allocated proportionally among the JPA members based on their capacity rights, average annual flow rates and strength of the sewer generated by each member agency. The SVCW budget for FY 2020/2021, for Belmont, of \$3.5 million in treatment costs was included in the study. All future years were projected from FY 2020/2021 based on a 4% escalation factor which was documented in the SVCW cost planning projections as an inflation factor for O&M costs.

Provided below in Table 2-3 is a summary of the escalation factors used to develop the projected O&M expenses for FY 2020/2021 through 2024/2025.

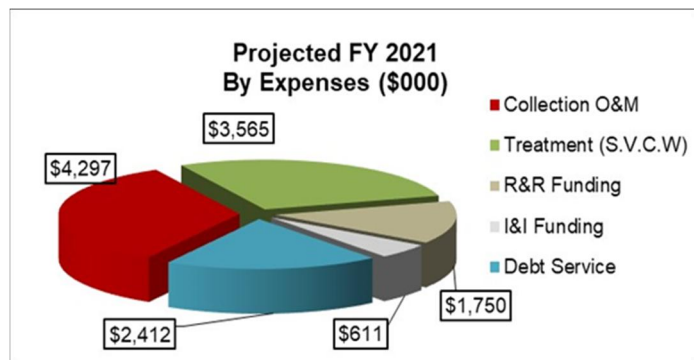
**Table 2 – 3
Overview of the Sewer Utility Escalation Factors**

	FY 2020/21 ^[1]	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Revenues					
Rate Revenues (Growth)	0.0%	1.0%	1.0%	1.0%	1.0%
Other Revenues	1.0%	1.0%	1.0%	1.0%	1.0%
Expense					
Labor	2.0%	2.0%	2.0%	2.0%	2.0%
Professional/Contractual	2.0%	2.0%	2.0%	2.0%	2.0%
Data Processing	3.0%	3.0%	3.0%	3.0%	3.0%
Benefits – Medical	7.0%	7.0%	7.0%	7.0%	7.0%
Benefits – Other	5.3%	5.3%	5.3%	5.3%	5.3%
Materials & Supplies	3.0%	3.0%	3.0%	3.0%	3.0%
Equipment/Vehicles	3.0%	3.0%	3.0%	3.0%	3.0%
Education/Training	2.0%	2.0%	2.0%	2.0%	2.0%
Indirect Expense	3.0%	3.0%	3.0%	3.0%	3.0%
Miscellaneous	3.0%	3.0%	3.0%	3.0%	3.0%
Utilities	5.0%	5.0%	5.0%	5.0%	5.0%
SVCW Treatment	4.0%	4.0%	4.0%	4.0%	4.0%
Inflation Factor	2.7%	2.7%	2.7%	2.7%	2.7%

[1] Rate revenue for FY 2020/2021 were based on average flow for last three years.

The development of the revenue requirement was based on the City’s FY 2019/2020 budget. Using the escalation factors developed in Table 2 - 3, a forecast of future O&M expenses was developed. The revenue requirement maintained the overall functional nature of the City’s system of accounts (i.e., salaries and wages, benefits, supplies). It should be noted that no other significant changes or extraordinary increases over the FY 2019/2020 budget levels for operating expenses were assumed.

Total operation and maintenance expenses for the City are projected to be approximately \$13.3 million in FY 2020/2021. Of this amount, approximately 45% or \$3.6 million is related to SVCW wastewater treatment



costs. The SVCW wastewater treatment costs are purchased services and are thus not a “locally controlled” sewer cost. Over the planning horizon, the O&M expenses are projected to increase to approximately \$17.6 million by FY 2024/2025.

2.2.5 Projection of Sewer Capital Improvement Projects and Funding

A key component in the development of the City’s sewer revenue requirement was properly funding capital improvement needs. The sewer capital funding plan was developed from the City’s CIP plan as the starting point. That plan assumed the issuance of long-term debt to fund a portion of the City’s major capital improvement projects. This study updated the capital improvement funding analysis based on the City’s current capital plan and funding approach. A \$20 million bond issue occurred in 2019/2020 with payments starting in 2020/2021. A key consideration in issuing debt is the establishment of rates sufficient to support repayment of the debt, but also sufficient to meet rate covenants associated with the debt (e.g., reserves, minimum debt service coverage).

As noted, the prior rate studies, and this rate study, focused on setting proposed rates at a level that establishes a prudent funding level for renewal and replacement needs above annual depreciation expense. This study includes a transition to continue to strengthen the level of renewal and replacement and capital project funding over the 5-year planning. Renewal and replacement funding is approximately \$1.7 million in FY 2020/2021 increasing to \$2.3 million in FY 2024/2025.

In addition to the sewer capital plan, additional capital improvements have been outlined to reduce inflow and infiltration (I&I) in the sewer system. I&I rate funded capital is approximately \$595,000 in FY 2020/2021 increasing to \$679,000 in FY 2024/2025. Shown below in Table 2–4 is a summary of the sewer capital improvement plan. In total, the sewer rates are annually funding \$2.2 million in FY 2020/2021 increasing to \$3.0 million in FY 2024/2025

Table 2 - 4 Summary of the Sewer Capital Improvement Plan (\$000s)						
	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
Total Sewer Capital Projects	\$11,002	\$6,850	\$5,625	\$10,600	\$8,519	\$6,212
Less: Funding Sources						
Operating Fund Reserves	\$0	\$0	\$0	\$0	\$0	\$0
Capital Fund Reserves ^[1]	9,402	5,100	3,725	8,550	6,319	3,862
Grants	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total Funding Sources	\$9,402	\$5,100	\$3,725	\$8,550	\$6,319	\$3,862
Sewer Capital from Rates	\$1,600	\$1,750	\$1,900	\$2,050	\$2,200	\$2,350
I&I Capital Funding	\$595	\$611	\$627	\$644	\$661	\$679

[1] Capital fund reserves are funded through periodic issuances of long-term debt

The City, based on the rate transition plan developed as part of this revenue requirement, is projected to have adequate resources to provide funding for these capital projects. Provided below is an overview of the funding sources the City has used, and will continue to use, to fund the planned improvements over the next five-year period.

Rate Funding - A general financial guideline states that, at a minimum, a utility should annually fund from rates an amount equal to or greater than annual depreciation expense for renewal and replacement funding. In this case, annual depreciation expense reflects the City's current investment in sewer collection plant being depreciated or "losing" its useful life. Therefore, this portion of plant investment needs to be replaced to maintain the existing level of infrastructure. More importantly, for a sewer utility, a failure to maintain the collection system infrastructure could lead to infiltration and inflow (I&I) issues. With increased flows, the City's overall cost of wastewater treatment would, in turn, also increase. That being the case, it becomes very cost-effective to properly and adequately maintain the collection system in order to minimize I&I issues on the system. The City has taken a pro-active approach in past studies and in this analysis to maintain capital funding equal to greater than annual depreciation.

Capital Reserve Funding – The capital reserve serves a couple different purposes but mainly reserves are a means to set aside funds for larger capital projects that may require funding greater than the annual rate funding component provides. Maintaining adequate capital reserves help to smooth out the fluctuations in the capital improvement spending, but it also provides the City with greater financial flexibility during the planning and construction of the projects. As part of the current capital funding plan, there will be approximately \$27 million in capital projects over the five year period, with an annual average ending cash balance of \$10.9 million in capital reserves used as a funding source over the five-year rate setting period (2021 – 2025). Over the planning horizon, close attention should be given to the capital reserve balance as to not reduce fund balances below minimum targets. The target minimum capital reserve amount is typically set equal to two-year of capital projects.

Long-Term Debt – Another potential funding source for capital projects is from the issuance of long-term debt (e.g., low-interest loans, revenue bonds, etc.). While there are certain advantages and disadvantages with the issuance of long-term debt, it is important to weigh all of them when deciding whether to issue new debt or fund a project by other means. Long-term debt is often issued for major capital projects which have an immediate impact on rates and long-term debt is a financing mechanism to smoothly finance / fund the major capital project. For this analysis, the City is anticipating issuing additional long-term debt of \$20 million in FY 2022/2023 to fund necessary capital improvement projects.

2.2.6 Projection of Debt Service

The final component of the City's revenue requirement is annual debt service payments. The City currently has three outstanding debt obligations; the 2016 Refunding, 2016 and 2019 revenue bonds, amounting to a total annual debt service of approximately \$2.4 million for 2020/2021. In addition, the City has projected the need to issue additional long term debt during the projected five-year period. The City is expecting to issue approximately \$20 million bond in FY 2022/2023 to fund capital project needs. The level of annual debt service payments resulting from this new issuances would increase the annual debt service by approximately \$1.2 million in FY 2024/2025.

2.2.7 Reserve Funding

This study has used reserve funding, or transfers to and from sewer reserve funds, to smooth and mitigate the rate adjustments in any particular year. Funds can be drawn down to mitigate the need for a rate adjustment, or increased to replenish reserves if they have been drawn down in prior years. In this analysis, change in working capital is primarily used to balance revenue requirements to the proposed rate adjustments. From year-to-year, the use of these reserves, or change in working capital, is very minimal.

2.2.8 Summary of the Sewer Revenue Requirement

Given the above projections of revenues and expenses, a summary of the revenue requirement for the sewer utility can be developed. In developing the final revenue requirement, consideration was given to the financial planning considerations of the City. In particular, emphasis was placed on attempting to minimize rates, yet still have adequate funds to support the operational and capital expenses, and the City's target financial metrics throughout the projected time period. Presented below in Table 2-5 is a summary of the sewer revenue requirement. A detailed analysis of the sewer revenue requirement can be found in Technical Appendix.

Table 2 – 5						
Summary of Sewer Revenue Requirement (\$'000s)						
	Budget	Projected				
	2019/20^[1]	2020/21	2021/22	2022/23	2023/24	2024/25
Revenues						
Retail Rate Revenues	\$12,325	\$12,033	\$12,153	\$12,275	\$12,397	\$12,521
Other Revenues	<u>685</u>	<u>447</u>	<u>430</u>	<u>419</u>	<u>471</u>	<u>451</u>
Total Revenues	\$13,010	\$12,480	\$12,583	\$12,694	\$12,868	\$12,972
Expenses						
Collection O&M Expenses	\$4,174	\$4,297	\$4,425	\$4,558	\$4,697	\$4,841
Treatment O&M Expenses	3,441	3,565	3,707	3,855	4,010	4,170
Repair & Replace. Funding	1,600	1,750	1,900	2,050	2,200	2,350
I/I Capital Funding	595	611	627	644	661	679
Total Debt Service	1,514	2,412	2,502	2,979	3,742	3,745
Change in Working Capital +/-	<u>1,614</u>	<u>688</u>	<u>1,182</u>	<u>1,369</u>	<u>1,259</u>	<u>1,901</u>
Total Expenses	\$12,938	\$13,322	\$14,344	\$15,456	\$16,569	\$17,685
Balance/(Deficiency) of Funds	\$72	(\$842)	(\$1,761)	(\$2,762)	(\$3,701)	(\$4,713)
Cumulative as a % of Rates	0.0%	7.0%	14.5%	22.5%	29.9%	37.6%
Proposed Rate Adjustments	0.0%	7.0%	7.0%	7.0%	6.0%	6.0%
Debt Service Coverage Ratio						
Before Rate Adjustment	3.33	1.77	1.64	1.32	1.02	0.96
After Rate Adjustment	3.33	2.12	2.34	2.25	2.01	2.22

[1] Note: FY 2019/20 includes the revenues at the adopted rate levels from the prior rate study. Therefore, no rate adjustment is included in FY 2019/20.

It is important to note the “Balance/(Deficiency) of Funds” row in Table 2-5 is cumulative. That is, any adjustments in the initial years will reduce the deficiency in the later years. Rates need to be adjusted approximately 37.6% in order to adequately fund annual O&M expenses, annual repair and replacement funding, and the system’s capital needs over the five-year period. The size and timing of the adjustments is critical as it is proposed that the City set rates for a two year period. This is important as the rate transition plan, or proposed rate adjustments, have been developed for a 5-year period. Any adjustments to the proposed rate adjustments shown in the early years will result in the need for to adjust rates, more or less, in the future years depending upon the adjustments made in the early years. The graph illustrates the projected revenues, expenses, and reserve fund.

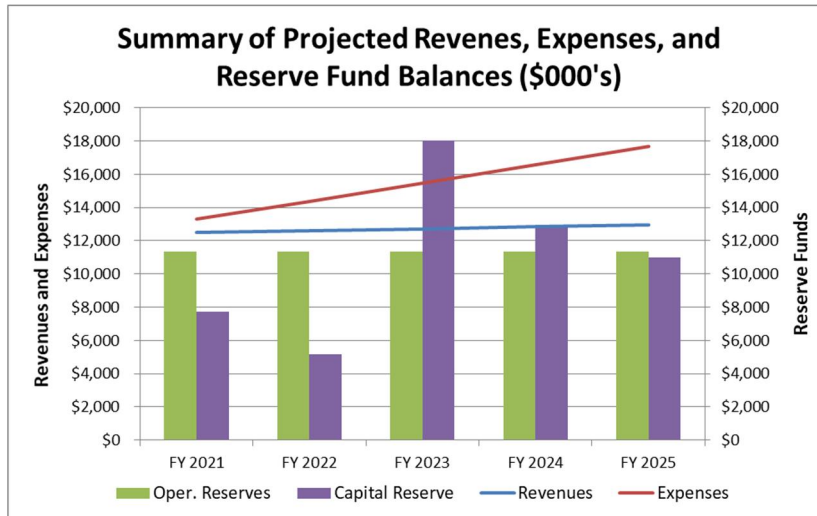


Table 2 – 5 shows the total deficiency of revenues before any sewer rate adjustments ranges from \$842,000 in FY 2020/2021 to \$4.7 million by FY 2024/2025. A 7.0% annual sewer revenue adjustment is proposed in FY 2020/2021, FY 2021/2022, FY 2022/2023 and a 6.0% adjustment in FY 2023/2024, FY 2024/2025. The projected rate adjustments allow the City to meet three key prudent financial metric criteria, these are:

- Debt Service Coverage Ratios – DSC target of 2.0.
- Adequate Renewal and Replacement Funding – Annual renewal and replacement funding needs exceed depreciation over the 5-year plan.
- Maintain Prudent Reserve Fund Levels – Operating reserve target equal to annual minimum of 180 days of O&M; Capital project reserve target equal to two years of annual depreciation.

The revenue requirement developed in this sewer rate study will allow the City to develop cost-based rates that meet the City’s goals and objectives for maintaining the existing system and funding future capital needs. The rate transition plan developed provides a gradual increase in rates over a 5-year period.

Meeting these three key criteria are critical to the City being able to fund/finance capital projects with long-term debt in the future. By adjusting rates the City is demonstrating to the outside financial community its willingness and commitment to maintain a strong financial position.

The revenue requirement developed in this sewer rate study will allow the City to develop cost-based rates that meet the City’s goals and objectives for maintaining the existing system and

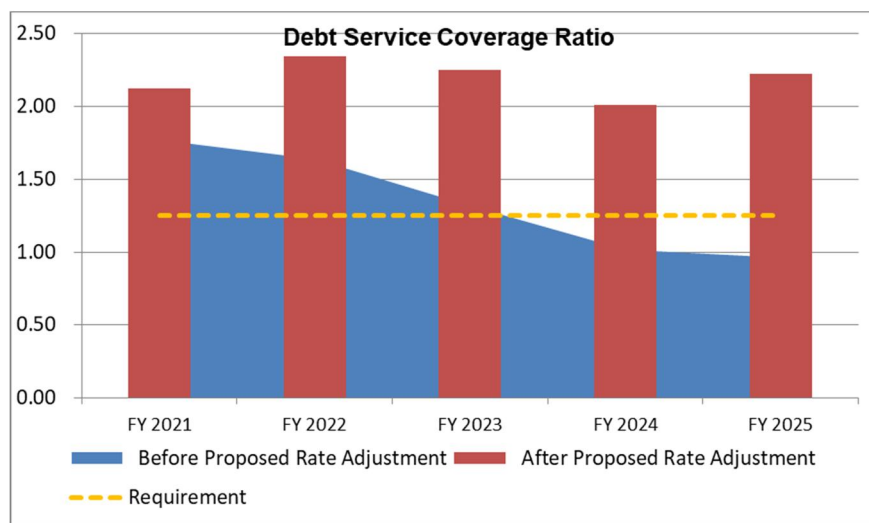
funding past deferred capital projects. The rate transition plan provides smooth increases in rates over a 5-year period.

It is important to note the annual deficiencies shown in Table 2-5 are cumulative. Any rate adjustments in the initial years will reduce the overall deficiency in the remaining years. The results of the revenue requirement analysis indicate, absent any rate adjustments, a deficiency of funds over the planning period. The deficiency ranges from approximately \$842,000 in FY 2020/2021 to \$4.7 million in FY 2024/2025. Over this time period, the overall deficiency in rates is approximately 37.6%.

2.2.9 Debt Service Coverage Ratios

Generally, revenue bonds contain covenants requiring rates to be set at an adequate level to assure repayment of the annual principal and interest debt obligations. The financial measure of rate adequacy is typically determined using a debt service coverage ratio (DSC). The DSC ratio is financial measure of the utility’s ability to repay the debt. In general, the DSC ratio is set at a level such that revenues less operating expenses will be 2.00 times greater than the maximum annual debt service on the outstanding debt. That is, rates will be sufficient to pay projected O&M and have an additional annual debt service payment.

As noted above, the City has established a target of maintaining a 2.00 DSC ratio. At present rate levels, the sewer utility is above the minimum legally required DSC ratio. However, absent any rate adjustments, the sewer system DSC ratio is declining because the capital plan assumes additional debt will be issued to pay for capital projects. Financially, this



means that the City’s debt service payments are projected to increase over time and absent any rate adjustments, the City will not be meeting the minimum DSC. However, with the proposed rate adjustments the coverage ratios continue to be strong and above the target of 2.0 DSC ratio.¹

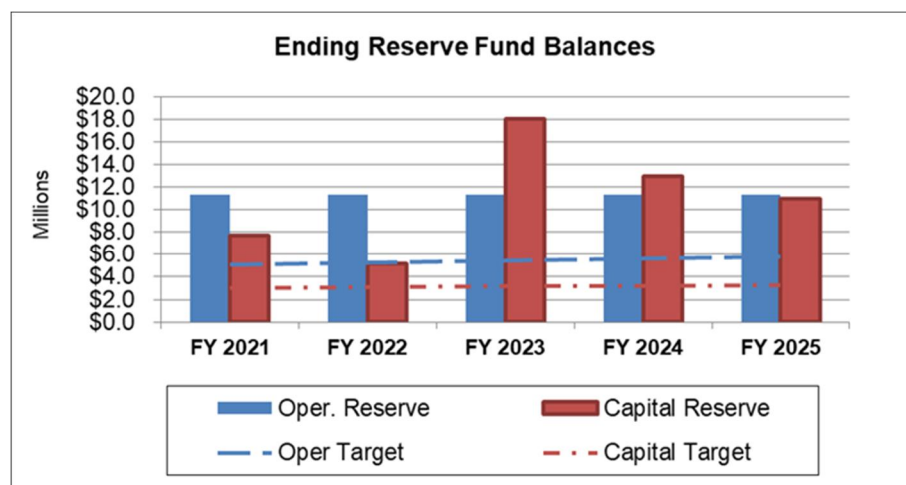
In developing this study, it has been assumed that for financial planning purposes, a minimum target DSC ratio would be 2.00. This is an important target as financially planning around the

¹ A debt service coverage (DSC) ratio is an indicator of the amount of funds available to pay debt service after O&M expenses and other pre-debt obligations have been met. A DSC ratio of 1.25 means the utility has 25% more funds available to pay debt service than the amount of the debt service payment(s). For example, assuming a utility has a \$1.0 million debt service payment, a DSC of 1.25 means that the utility has \$1.25 million available to pay debt service (i.e. \$1.25 million ÷ \$1.0 million = 1.25 DSC).

absolute minimum level (1.25 bond requirement) can result in a technical default on the bonds if unplanned expenditures occur or revenues are lower than anticipated in a given year. Planning a minimum target DSC of 2.0 was hinted at by the Bond community during the recent 2019 bond issues. A higher DSC ratio can result in a higher bond rating and lower interest rates and bond costs.

2.2.10 Review of the Sewer Reserve Levels

Reserves are an important part of a utility’s financial picture. There can be many different purposes for reserves. They are also a good indicator of the long-term financial health of the utility. The City’s sewer utility current has one reserve fund, however, for rate setting purposes it was split into two reserve funds: an operating reserve fund, and capital reserve fund. The



operating fund reserve has a minimum ending fund balance target of 180 days of O&M expenses which is approximately \$5 million for FY 2020/2021. The capital fund reserve has a target minimum of approximately two years of annual depreciation expense or approximately \$3 million for FY 2020/2021. Taken

together, the City’s minimum reserve is \$8 million for FY 2020/2021 increasing to \$9 million by FY 2024/2025. Over this planning period, the City is projected to maintain adequate operating and capital reserves and not fall below these recommended minimum reserve levels. The annual cash flow and ending reserve balances should be scrutinized each year to make sure that the uses of funds does not place the reserve below the minimum level. Additionally, as the sewer reserves approach the minimums, the need for rate adjustments should be evaluated so as to avoid future, large rate adjustments for customers. It should also be noted that the funding source for the capital reserve is through current, and future, long-term debt issuances.

2.2.11 Consultant’s Conclusions

Based on the City’s revenue requirement analysis the proposed overall sewer rate adjustment should be annually adjusted by 7.0% for three years of FY 2020/2021 through FY 2022/2023, and 6.0% for two years of FY 2023/2024 and FY 2024/2025. These proposed rate adjustments are needed to fully fund the projected operating costs of the sewer utility and the annual capital improvement needs. HDR has reached this conclusion for the following reasons:

- Rate adjustments are necessary to continue to fund the City’s annual renewal and replacement needs and move towards more prudent financial metrics of debt service coverage ratio and reserve levels.
- Rate adjustments are necessary to fund the City’s capital needs, and finance these with long term debt.

- The proposed rate adjustments maintain the City's sewer system strong financial health, which is important as the City continues to maintain the existing system.

The rate transition plan presented in this study provides the City with the ability to meet the goals and objectives for the sewer system.

2.3 Summary

This section of the report has provided a discussion of the City's revenue requirement analysis. The revenue requirement analysis developed a financial plan to support the City's operating and capital needs for the sewer utility. The next section will discuss the cost of service analysis developed for the City.



3.0 Development of the Sewer Cost of Service Analysis

3.1 Introduction

A cost of service analysis is concerned with the equitable and proportional allocation of the total revenue requirement between the various customer classes of service (e.g., residential, non-residential-low strength, non-residential-high strength). The previously developed revenue requirement was utilized in the development of the cost of service analysis.

In order to determine the equitable and proportional distribution of costs to each customer class of service on the sewer system, a cost of service analysis is conducted. As outlined in the WEF MOP #27, the cost of service functionalizes, allocates, and distributes the sewer revenue requirements to each of the classes of service in a proportional and equitable manner. Provided below is a detailed discussion of the cost of service analysis for the sewer utility.

In recent years, increasing emphasis has been placed on cost of service studies by government agencies, customers, utility regulatory commissions, and other parties. This interest has been generated in part by continued inflationary trends, increased operating and capital expenditures, and concerns of equity in rates among customers. Following the generally-accepted guidelines and principles of a cost of service analysis will inherently lead to rates which are equitable, cost-based, and not viewed as arbitrary or capricious in nature.

3.2 Objectives of a Cost of Service Study

There are two primary objectives in conducting a cost of service study:

- Distribute the allocated the revenue requirement among the customer classes of service
- Derive average unit costs for subsequent rate designs

The objectives of a cost of service analysis are different from determining the revenue requirement. As noted in the previously, a revenue requirement analysis determines the utility's overall financial (revenue) needs, while the cost of service study determines the proportional and equitable manner in which to collect the revenue requirement.

The second rationale for conducting a cost of service analysis is to design the rates such that they properly reflect the costs incurred by the City to provide sewer service. For example, the City may incur costs related to flow or total volume, the strength of the wastewater flow, and customer cost components. Each of these types of costs may be collected in a slightly different manner to allow for the development of a rate that collects costs in the same manner as they are incurred.

In order to determine the cost to serve each customer class on a system, three basic analytical tasks are completed: functionalization, allocation, and distribution of the sewer costs. Each of these steps in the cost of service analysis is discussed in detail below.

3.3 Determining the Customer Class of Service

One of the first tasks of a cost of service analysis is determine the classes of service for the analysis. In determining classes of service, the objective is to group customers together into similar or homogeneous groups based upon wastewater flow and strength characteristics and/or sewer facility requirements. Based on the current rate schedules the classes of service used within the sewer study are:

- Residential
- Non-Residential – Low Strength
- Non-Residential – High Strength

In determining classes of service for cost of service purposes, the objective is to group customers together into similar or homogeneous groups based upon facility requirement and/or flow characteristics.

3.4 General Cost of Service Procedures

In order to determine the cost to serve each customer class of service on the City’s system, a cost of service analysis is conducted. A cost of service study utilizes a three-step approach to review costs. These were previously discussed in our general overview in Section 1, and take the form of functionalization, allocation, and distribution. Provided below is a detailed discussion of the sewer cost of service study conducted for the City, and the specific steps taken within the analysis.

3.4.1 Functionalization of Costs

The first analytical step of the sewer cost of service study is called functionalization. Functionalization is the arrangement of sewer expenses and asset (plant) data by major operating functions. This is generally accomplished through the utility’s system of accounts. In this study, the City’s system of accounts was used to functionalize sewer plant assets and operating expenses.

3.4.2 Allocation of Costs

The second analytical task performed is the allocation of the functionalized expenses to cost components. This task reviews each cost and attempts to determine why the sewer cost was incurred and what type of need was being met (e.g. volume, strength, customer etc.). The cost classifiers used for the sewer utility cost of service study are as follows:

Terminology of a Cost of Service Analysis

Functionalization – The arrangement of the cost data by functional category (e.g. treatment, collection etc.).

Allocation – The assignment of functionalized costs to cost components (e.g. volume, strength, and customer related).

Distribution – Distributing the allocated costs to each customer class based on the proportional contribution to that specific cost component.

Volume Costs – Costs that are classified as volume related vary with the total flow of sewer (e.g. chemical use at the treatment facility).

Strength Costs – Costs classified as strength related refer to the wastewater treatment function. Typically, strength-related costs are further defined as biochemical oxygen demand (BOD) and suspended solids (SS). Customers with higher wastewater strength characteristics cost more to treat. Facilities are often designed and sized around meeting these costs.

Direct Assignment – Costs that can be clearly identified as belonging to a specific customer class.

- **Volume Related Costs.** Volume-related costs are those that tend to vary according to the quantity of wastewater collected and treated. An example of a volume related cost is electricity for pumping of wastewater.
- **Strength Related Costs.** Strength related costs are those costs associated with the additional handling and treatment of high “strength” wastewater. Strength of wastewater is typically measured in biochemical oxygen demand (BOD) and total suspended solids (SS). Increased levels of BOD or SS generally equate to increased treatment costs. Pre-treatment is generally required if the discharge is known to regularly exceed the typical (i.e. domestic level) waste strength.
- **Customer Related Costs.** Customer-related costs vary with the addition or deletion of a customer. Customer related costs typically include the costs of billing, collecting, and accounting. Customer-related costs may also be further categorized as actual or weighted. The differences in these costs are similar to those noted for the water utility.
- **Revenue Related.** Some costs associated with the sewer utility may vary with the amount of revenue received by the utility. An example of a revenue related cost would be a state utility tax which is based on gross utility revenue.
- **Direct Assignment.** Certain costs associated with operating the utility may be directly traced to a specific sewer customer or class of service. These costs are then directly assigned to that specific class of service. It should be noted there were not any costs that were directly assigned during the development of the City’s cost of service analysis.

A more detailed discussion of the specific cost of service methodology used for the sewer utility is provided below.

3.4.3 Development of Distribution Factors

Once the allocation process is complete, and the customer groups have been defined, the various allocated costs were distributed to all customers. The City’s allocated costs were distributed using the following distribution factors:

- **Volume Distribution Factor:** Volume-related costs are generally distributed on the basis of contribution to wastewater flows. In order to develop this distribution factor, some knowledge of the contribution to flows must be determined. The assumed wastewater contribution by customer class for FY 2020/2021 was the basis for the development of the volume allocation factor. Sewer flows were calculated based on the average of the last three years most recent winter billing period.
- **Strength Distribution Factor:** Strength-related costs are allocated between biochemical oxygen demand (BOD) and suspended solids (SS). Both of these types of costs are distributed to the various classes of service based upon the relative estimated strengths that each class of service contributed to the overall flow at the plant.
- **Customer Distribution Factor:** Customer costs within the cost of service study are distributed to the various customer classes of service based upon their respective customer counts. Two types of customer distribution factors were developed, actual and weighted.

- **Revenue Related Distribution Factor:** The revenue related distribution factor was developed from the projected rate revenues for FY 2020/21 for each customer group.

The development of distribution factors is based on generally accepted principles as developed in the WEF MOP #27. Given the development of the distribution factors, the final step in the cost of service study is to distribute the allocated costs to the various customer classes of service.

3.4.4 Functionalization and Allocation of Sewer Plant in Service

The next step of the cost of service is the functionalization and allocation of sewer plant in service. In performing the functionalization of plant in service, HDR utilized the City’s historical plant records. The plant assets were functionalized into funds of operations, and capital. The allocation process included reviewing each group of assets and determining which cost classifiers the assets were related to. For example, the City’s assets were allocated as: volume-related, strength-related, customer-related, or revenue-related. Provided below is a brief discussion of the allocation process used.

The City’s system assets are collection in nature. In this study, the collection plant was classified as 50% volume and 50% actual customer. Table 3-1 shows the detail of the classification for the City’s sewer plant in service. A more detailed exhibit of the City’s functionalization and classification of plant investment can be found in the Sewer Technical Appendix.

Table 3 - 1 Summary of the Allocation of Sewer Plant in Service					
Category	Volume Related	BOD Related	SS Related	Actual Customer	Direct Assign
Improvements	50%	0%	0%	50%	0%
Machinery & Equipment	100%	0%	0%	0%	0%

3.4.5 Functionalization and Allocation of Operating Expenses

Operating expenses are generally functionalized and allocated in a manner similar to the corresponding plant account. For example, maintenance of collection lines is typically allocated in the same manner (allocation percentages) as the plant account for collection lines. This approach to allocation of operating expenses was used for this analysis.

Table 3 - 2
Summary of the Allocation of Sewer Expenses

Category	Volume Related	BOD Related	SS Related	Actual Customer	Weighted Customer
SVCW Treatment	39%	28%	28%	0%	0%
Planning and Project Management, Project Operations, (Overall)	42%	13%	15%	19%	10%
Computer, Administrative Charge	0%	0%	0%	0%	100%

For the City’s study, the revenue requirement for FY 2020/2021 were functionalized, allocated, and distributed. As noted earlier, the City utilized a cash basis revenue requirement, which was comprised of operation and maintenance expenses, debt service, and capital additions funded from rates. The SVCW treatment costs were allocated based on the SVCW wholesale contract for billing. A more detailed review of the allocation of revenue requirement can be found in the Technical Appendix.

3.4.6 Major Assumptions of the Cost of Service Study

A number of key assumptions were used within the City’s cost of service study. Below is a brief discussion of the major assumptions used.

- The methodology used within the sewer cost of service study was based upon and is consistent with the methodology used in the City’s sewer comprehensive rate study conducted in prior years.
- The test period used for the sewer cost of service analysis was FY 2020/2021. The revenue and expense data was previously developed within the revenue requirement study.
- A cash basis approach was utilized which conforms to generally accepted sewer cost of service approaches and methodologies.
- The allocation of plant in service was developed based upon generally accepted cost allocation techniques. Furthermore, they were developed using the City-specific data.
- Customer volumes used within this study were provided for each class of service by the City through Mid Penn’s average winter billing data.
- Strength distribution factors were based on overall strength levels at the treatment plant within the City’s records.

3.5 Summary of the Cost of Service Analysis

Table 3 - 2 Summary of the Cost of Service Analysis (\$000's)				
Classes of Service	Present Rate Revenues	Distributed Costs	\$ Difference	% Difference
Residential	\$10,698	\$11,438	(\$740)	6.9%
Non-Residential				
Low Strength	997	1,077	(80)	8.1%
High Strength	<u>337</u>	<u>359</u>	<u>(22)</u>	<u>6.4%</u>
Total	\$12,032	\$12,874	(\$842)	7.0%

The results of the cost of service analysis indicated some minor cost differences between the customer classes of service. It should be noted that the cost of service analysis developed by HDR is not a simple fixed/variable analysis. Rather, the cost of service analysis allocates costs between the various customer classes of service based on each customer classes proportional share of volume, strength and customer-related costs. While minor cost differences exist, the overall allocation of costs between low strength customers (e.g., residential and low strength non-residential) and high strength customers is reasonable. In addition, it was noted that customers have been adjusting their water consumption habits which has a direct impact on the rates charged in future years. Previous studies shows a direct downward consumption pattern possibly due to the recent drought. Although this study showed a slight increase in flow from previous years there is still lower flows then what the City has shown in the past. This change in flow pattern may be due to the economy, changes in rates for both water and sewer in the area, or other outside factors. Given these changes, the results, and current rates, reflect a reasonable and equitable (e.g., proportional) allocation of costs. As the City continues to monitor rates and cost of service results through future studies, cost of service adjustments may be made as the results are driven by customer consumption. Given that, no adjustments in the cost relationships between the customer classes of service are recommended at this time.

3.6 Consultant’s Conclusions and Recommendations

While minor cost differences exist, the overall allocation of costs between low strength customers (e.g., residential and low strength non-residential) and high strength customers appears to be reasonable. In addition, it was noted that customers have been adjusting their water consumption habits and consumptive use has changed over the last several years, which has a direct impact on the rates charged in future years. As the City continues to monitor rates and cost of service results through future studies, cost of service adjustments may be made as the results are driven by customer consumption. Given that, no adjustments in the cost relationships between the customer classes of service are recommended at this time. As a result, the overall proposed revenue/rate adjustments will be applied equally across all customer groups.

3.7 Summary

This section of the study has provided a summary of the cost of service analysis developed for the City. This analysis was prepared using generally accepted cost of service techniques and principles. The next section of the study will review the present and proposed sewer rates for the City.

4.0 Development of the Sewer Rate Design

4.1 Introduction

The final step of the City's comprehensive sewer rate study is the design of sewer rates to collect the desired levels of revenues, based on the results of the prior analyses. In reviewing sewer rate designs, consideration is given to the level of the rates and the structure of the rates.

4.2 Rate Design Goals and Objectives

Prudent rate administration dictates that several criteria must be considered when setting utility rates. Some of these rate design criteria are listed below:

- ✓ Rates which are easy to understand from the customer's perspective.
- ✓ Rates which are easy for the utility to administer.
- ✓ Consideration of the customer's ability to pay.
- ✓ Continuity, over time, of the rate making philosophy.
- ✓ Policy considerations (encourage efficient use, economic development, etc.).
- ✓ Provide revenue stability from month to month and year to year.
- ✓ Promote efficient allocation of the resource.
- ✓ Equitable and non-discriminatory (cost-based).

Many contemporary rate economists and regulatory agencies recognize the last consideration, equitable and cost-based rates, should be of paramount importance and provide the primary guidance to utilities on rate structure and policy.

It is important that the City provide its customers with a proper price signal as to what their consumption or usage is costing. This goal may be approached through rate level and structure. When developing the proposed rate designs, all the above listed criteria were taken into consideration. However, it should be noted that it is difficult, if not impossible, to design a rate that meets all the goals and objectives listed above. For example, it may be difficult to design a rate that takes into consideration the customer's ability to pay, and one which is cost-based. In designing rates, there are always trade-offs between these various goals and objectives.

4.3 Development of Cost Based Sewer Rates

As mentioned, developing cost-based and equitable rates is of paramount importance in developing proposed sewer rates. While always a key consideration in developing rates, meeting the legal requirements, and documenting the steps taken to meet the requirements, has been in the forefront with the recent legal challenges in the State of California on utility rates. Given this, the development of the City's proposed sewer rates have been developed to meet the legal requirements of California Constitution article XIII D, section 6 (Article XIII D). A key component of Article XIII D is the development of rates which reflect the cost of providing service and are proportionally allocated between the various customer classes of service. HDR would point out that there is no single methodology for equitably assigning costs to the various customer groups. The Water Environment Federation Manual of Practice #27 provides various methodologies which may be used to establish cost-based rates. Unfortunately, Article XII D is not prescriptive

and does not provide a specific methodology for establishing rates. Given that, HDR developed the City's proposed sewer rates based on generally accepted rate setting methodologies to meet the requirements of Article XIII D.

HDR is of the opinion that the proposed rates meet the legal requirements of Article XIII D. HDR reaches this conclusion based upon the following:

- **The revenue derived from sewer rates does not exceed the funds required to provide the property related service (i.e., sewer service).** The proposed rates are designed to collect the overall revenue requirement of the City's sewer system.
- **The revenues derived from sewer rates shall not be used for any purpose other than that for which the fee or charge is imposed.** The revenues derived from the City's sewer rates are used exclusively to operate and maintain the City's sewer system.
- **The amount of a fee or charge imposed upon a parcel or person as an incident of property ownership shall not exceed the proportional costs of the service attributable to the parcel.** The cost of service analysis has focused exclusively on the issue of proportional assignment of costs to customer classes of service. The proposed rates have appropriately grouped customers into customer classes of service (residential and non-residential) that reflect the varying wastewater volumes and system requirements (i.e., the benefits they receive from and burdens they place on the system) of each customer class of service. The grouping of customers and rates into these classes of service creates the equity and fairness expected under Proposition 218 by having differing rates by customer classes of service which reflect both the level of revenue to be collected by the utility, and the manner in which these costs are incurred and equitably assigned to customer classes of service based upon their proportional impacts.

4.4 Present and Proposed Sewer Rates

The City's sewer rate is comprised of two components, a collection system component and a treatment system component. The collection system component is based on all the costs to operate the City's sewer system, except for treatment costs. The treatment costs are based on the current treatment costs projections and can be adjusted as the City is notified of cost changes by the wholesale provider. Each parcel's sewer charge is the sum of the base charge and flow charges for both collection and treatment. The proposed sewer rate designs maintain their current rate structure.

For the five year rate period, the proposed rates include a 9% flow adjustment factor that updates the 14% drought regulation factor which was implemented during the 2016 rate study. Mid-Peninsula Water District consumption billing data for the winter period, for FY 2019/2020 was not available at the time of the study. The three year periods of FY 2016/2017, 2017/2018, and 2018/2019 billing information was reviewed and an average of the three years developed the 9% flow adjustment factor. The winter water consumption has increased but not returned to prior levels. The flow adjustment factor will allow the City to maintain sufficient revenues during the next five year period given continued changing winter water consumption levels. The flow adjustment factor will be reviewed again during the next rate study and adjusted at that time.

The same formula for this adjustment will remain as follows:

Formula: Actual Volume Usage x (1 + (flow adjustment factor)) = adjusted volume usage

Example: 8 HCF x (1+ .09) = 8.72 HCF adjusted volume usage

Table 4-1 provides the present and proposed rates for the residential and non-residential customers for the next five fiscal years.

Table 4 – 1 Present and Proposed Sewer Rates (Annually)						
	Present Rates	Proposed Rates FY 2020/21	Proposed Rates FY 2021/22	Proposed Rates FY 2022/23	Proposed Rates FY 2023/24	Proposed Rates FY 2024/25
COLLECTION						
<u>Residential</u>						
Base Charge	\$337.96	\$361.62	\$386.93	\$414.02	\$438.86	\$465.19
Flow Charge (\$/HCF) ^[1]	\$4.81	\$5.15	\$5.51	\$5.89	\$6.25	\$6.62
<u>Non-Residential</u>						
Base Charge	\$337.96	\$361.62	\$386.93	\$414.02	\$438.86	\$465.19
Flow Charge Low Strength (\$/HCF) ^[1]	\$4.81	\$5.15	\$5.51	\$5.89	\$6.25	\$6.62
Flow Charge High Strength (\$/HCF) ^[1]	\$9.35	\$10.00	\$10.70	\$11.45	\$12.14	\$12.87
TREATMENT						
<u>Residential</u>						
Base Charge	\$177.62	\$190.05	\$203.36	\$217.59	\$230.65	\$244.49
Flow Charge (\$/HCF) ^[1]	\$2.38	\$2.55	\$2.72	\$2.92	\$3.09	\$3.28
<u>Non-Residential</u>						
Base Charge	\$177.62	\$190.05	\$203.36	\$217.59	\$230.65	\$244.49
Flow Charge Low Strength (\$/HCF) ^[1]	\$2.38	\$2.55	\$2.72	\$2.92	\$3.09	\$3.28
Flow Charge High Strength (\$/HCF) ^[1]	\$4.63	\$4.95	\$5.30	\$5.67	\$6.01	\$6.37
COMBINED						
<u>Residential</u>						
Base Charge	\$515.58	\$551.67	\$590.29	\$631.61	\$669.50	\$709.67
Flow Charge (\$/HCF) ^[1]	\$7.19	\$7.69	\$8.23	\$8.81	\$9.34	\$9.90
<u>Non-Residential</u>						
Base Charge	\$515.58	\$551.67	\$590.29	\$631.61	\$669.50	\$709.67
Flow Charge Low Strength (\$/HCF) ^[1]	\$7.19	\$7.69	\$8.23	\$8.81	\$9.34	\$9.90
Flow Charge High Strength (\$/HCF) ^[1]	\$13.98	\$14.96	\$16.01	\$17.13	\$18.15	\$19.24

[1] Present average bill 8 HCF X 1.14 = 9.12 HCF; \$515.58/12 = \$42.97 monthly base combined charge
Proposed average bill 8 HCF X 1.09 = 8.72 HCF; \$551.67/12 = \$45.97 monthly base combined charge

The above rates are based upon the rate transition plan developed from the revenue requirement analysis. As noted above, the rate is split between collection and treatment to allow the City to pass-through any increases in the wholesale treatment costs. All components of the rate structure – fixed and variable – are proposed to be increased to meet the target revenue levels based on the rate transition plan.

It should be noted in FY 2021, the 7% revenue requirement rate adjustment translates to an overall average monthly bill adjustment of 4.2% for a typical residential customer. At present rates, a typical residential customer with 8 hundred cubic feet of winter water average would have a monthly bill of \$108.54 ($\$515.58/12 = \$42.97 + 9.12 \text{ HCF} \times \$7.19 = \$108.54$). Under the proposed rates, the same customer would have a monthly bill of \$113.06 in FY 2021, a \$4.51 monthly increase ($\$551.67/12 = \$45.97 + 8.72 \text{ HCF} \times \$7.69 = \$113.06$). This equates to an overall bill change of 4.2% ($\$113.06 - \$108.54 = \$4.51$ or $\$4.51/\$108.54 = 4.2\%$). Table 4-2 shows the average residential bill for the rate period of FY 2021 to FY 2025.

**Table 4 – 2
Present and Proposed Sewer Rates (Monthly)**

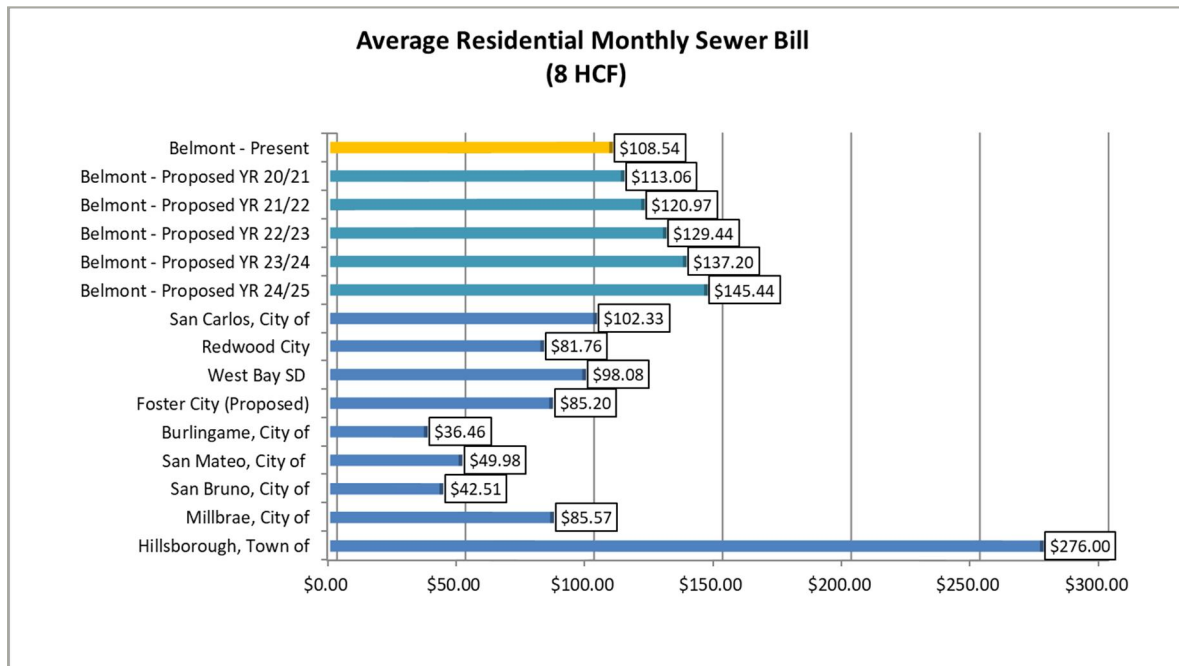
	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
<i>Proposed Revenue Adjustment</i>	7.0%	7.0%	7.0%	6.0%	6.0%
Present Average Monthly Bill ^[1]	\$108.54				
After Proposed Rate Adj. ^[2]	\$113.06	\$120.97	\$129.44	\$137.20	\$145.44
Monthly Bill Difference	\$4.51	\$7.92	\$8.46	\$7.77	\$8.23
Cumulative Bill Difference	\$4.51	\$12.43	\$20.89	\$28.66	\$36.90
<i>% Change to Monthly Bill</i>	4.2%	7.0%	7.0%	7.0%	6.0%

[1] – Current average bill is $\$515.58/12 = \$42.97 + 9.12 \text{ HCF} \times \$7.19 = \$108.54$.

[2] – Proposed average bill $\$551.67/12 = \$45.97 + 8.72 \text{ HCF} \times \$7.69 = \$113.06$.

4.5 Average Residential Local Bill Comparison

A comparison of the City's current average residential rate to other local surrounding sewer utilities has been developed. Provided in the chart below is a comparison of the City's current rate, and the proposed rates.



As can be seen in the above graph, with the potential adjustments, the City's sewer rates remain very competitive, while funding O&M, increased renewal and replacements, and deferred capital costs.

4.6 Summary of the Sewer Rate Study

This completes the analysis for the City's sewer rate study. The proposed sewer rates were developed using generally accepted rate making methods and principles. The proposed sewer rate adjustments for FY 2020/2021 through 2024/2025 are needed to adequately support the operating and capital needs of the City's sewer system. Adoption of the proposed sewer rates are projected to provide adequate funding for the sewer utility over the planning period, while financially positioning the utility for anticipated future capital and operation needs. Even with these proposed annual adjustments, it is prudent for the City to annually revisit the sewer rates to confirm their ability to cover expenses and maintain the identified financial metrics (e.g., reserve targets, debt service coverage ratios).



Technical Appendix

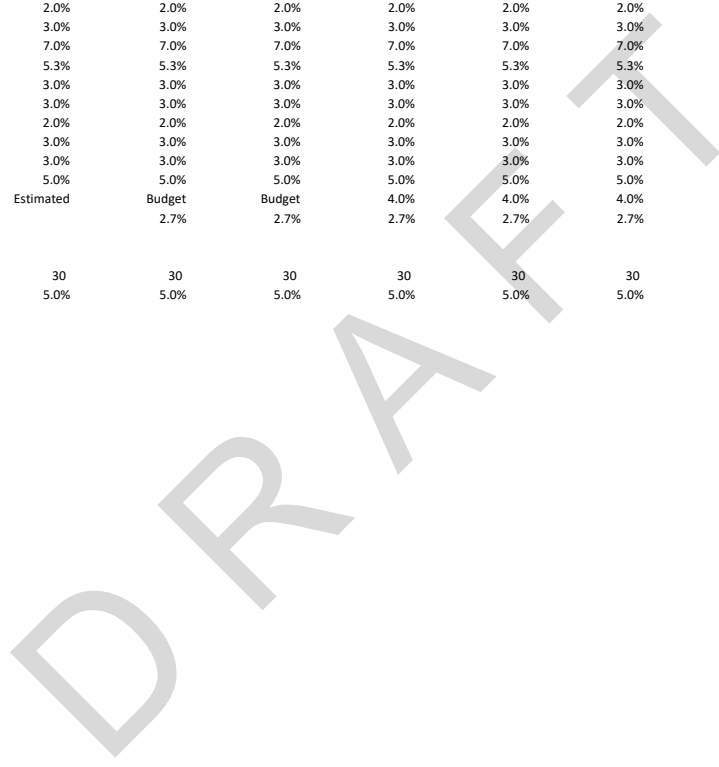
City of Belmont
Sewer Cost of Service Study - Rate Transition Plan
Summary of Revenue Requirement
Exhibit 1

	Actual	Estimated	Budget	Projected							
	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27	FY 2027/28
Sources of Funds											
Operating Revenues	\$10,292,423	\$10,914,835	\$12,325,163	\$12,032,606	\$12,152,933	\$12,274,462	\$12,397,206	\$12,521,179	\$12,646,390	\$12,772,854	\$12,900,583
Other Revenue	452,174	696,016	685,206	447,299	429,652	419,480	470,756	450,516	442,667	495,504	481,922
Total Sources of Funds	\$10,744,597	\$11,610,851	\$13,010,368	\$12,479,905	\$12,582,584	\$12,693,941	\$12,867,962	\$12,971,694	\$13,089,057	\$13,268,358	\$13,382,504
Applications of Funds											
Collection O&M Expense	\$3,886,170	\$3,781,850	\$4,173,730	\$4,296,761	\$4,425,093	\$4,558,361	\$4,696,795	\$4,840,636	\$4,990,140	\$5,145,576	\$5,307,228
Treatment O&M Expenses	3,318,408	2,973,317	3,441,263	3,564,586	3,707,170	3,855,456	4,009,675	4,170,062	4,336,864	4,510,339	4,690,752
Repair and Replacement Funding	1,509,304	1,500,000	1,600,000	1,750,000	1,900,000	2,050,000	2,200,000	2,350,000	2,500,000	2,650,000	2,800,000
I/I Capital Funding	0	500,000	595,000	611,000	627,000	644,000	661,000	679,000	697,000	716,000	735,000
Total Debt Service	1,388,846	1,388,696	1,514,186	2,411,596	2,502,346	2,979,296	3,742,446	3,745,196	4,100,040	4,674,696	4,674,696
Change in Working Capital +/-	641,868	1,285,809	1,613,515	688,244	1,181,935	1,369,109	1,259,178	1,900,502	1,922,141	1,814,828	2,248,584
Total Revenue Requirements	\$10,744,596	\$11,429,672	\$12,937,694	\$13,322,187	\$14,343,544	\$15,456,223	\$16,569,093	\$17,685,396	\$18,546,185	\$19,511,439	\$20,456,260
Total Balance/(Deficiency)	\$0	\$181,179	\$72,674	(\$842,282)	(\$1,760,960)	(\$2,762,282)	(\$3,701,131)	(\$4,713,702)	(\$5,457,128)	(\$6,243,081)	(\$7,073,756)
Cumulative Balance as a % of Rate Revenues	0.0%	-1.7%	-0.6%	7.0%	14.5%	22.5%	29.9%	37.6%	43.2%	48.9%	54.8%
Proposed Rate Adjustment	0.0%	0.0%	0.0%	7.0%	7.0%	7.0%	6.0%	6.0%	4.0%	4.0%	4.0%
Additional Revenue from Adjustment	\$0	\$0	\$0	\$842,282	\$1,760,960	\$2,762,282	\$3,701,131	\$4,713,702	\$5,457,128	\$6,243,081	\$7,073,756
Total Balance/(Deficiency)	\$0	\$181,179	\$72,674	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Additional Rate Adjustment Required	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Residential Bill Comparison (8 HCF X Adjustment Factor)											
Monthly											
After Proposed Rate Adjustment			\$108.54	\$113.06	\$120.97	\$129.44	\$137.20	\$145.44	\$151.26	\$157.31	\$163.60
Monthly Bill Difference				\$4.51	\$7.92	\$8.46	\$7.77	\$8.23	\$5.82	\$6.05	\$6.29
Cumulative Bill Difference				\$4.51	\$12.43	\$20.89	\$28.66	\$36.90	\$42.71	\$48.76	\$55.06
Debt Service Coverage Ratio (Revenue Bonds Only)											
Before Proposed Rate Adjustment	2.38	3.23	3.33	1.77	1.64	1.32	1.02	0.96	0.83	0.70	0.65
After Proposed Rate Adjustment	2.38	3.23	3.33	2.12	2.34	2.25	2.01	2.22	2.16	2.03	2.16
Ending Reserve Balances	\$0	\$0	\$23,510,812	\$19,099,056	\$16,555,991	\$29,375,101	\$24,315,028	\$22,352,697	\$35,562,005	\$32,166,559	\$29,354,870
Target Minimum (Operating + Capital)	\$0	\$0	\$7,873,000	\$8,082,000	\$8,312,000	\$8,554,000	\$8,807,000	\$9,061,000	\$9,326,000	\$9,593,000	\$9,881,000

City of Belmont
 Sewer Cost of Service Study
 Exhibit 2
 Data Assumptions

	Actual	Estimated	Budget	Projected							
	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27	FY 2027/28
Escalation Factors											
Revenues											
Rate Revenue	Actual	1.0%	1.0%	0.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Other Revenues	Actual	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Interest	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
Fiat	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Expenses											
Labor	Actual	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Profess/Contractual	Actual	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Data Processing	Actual	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Benefits - Medical	Actual	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
Benefits - Other	Actual	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%
Materials & Supplies	Actual	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Equipment/Vehicles	Actual	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Education/Training	Actual	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Indirect Expense	Actual	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Miscellaneous	Actual	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Utilities	Actual	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
SVCW Treatment	Actual	Estimated	Budget	Budget	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Inflation			2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%
Revenue Bond Issue											
Term in Years	30	30	30	30	30	30	30	30	30	30	30
Rate	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%

4.0% Jan 2019, SVCW Long Range Plan, pg 46



	Actual FY 2017/18	Estimated FY 2018/19	Budget FY 2019/20	Projected							Notes	
				FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27		FY 2027/28
REVENUES												
<i>Operating Revenues</i>												
6805 Sewer Use Fees - Rate Revenues	\$10,292,423	\$10,914,835	\$12,325,163	\$12,032,606	\$12,152,933	\$12,274,462	\$12,397,206	\$12,521,179	\$12,646,390	\$12,772,854	\$12,900,583	As Rate Revenue
Total Rate Revenues	\$10,292,423	\$10,914,835	\$12,325,163	\$12,032,606	\$12,152,933	\$12,274,462	\$12,397,206	\$12,521,179	\$12,646,390	\$12,772,854	\$12,900,583	
<i>Miscellaneous Revenues</i>												
6705 Public Works Service Charges	\$17,362	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	As Flat
6706 City CIP Chargeback	79,737	234,000	212,000	212,000	212,000	212,000	212,000	212,000	212,000	212,000	212,000	As Flat
6850 Sewer Lateral Certificate Fee	2,100	2,850	2,850	2,850	2,850	2,850	2,850	2,850	2,850	2,850	2,850	As Flat
7111 Interest Earnings - Investments	213,342	320,760	331,950	94,043	76,396	66,224	117,500	97,260	89,411	142,248	128,666	As Interest
7252 Reimbursements	0	0	0	0	0	0	0	0	0	0	0	As Flat
Standby Charges	139,633	138,406	138,406	138,406	138,406	138,406	138,406	138,406	138,406	138,406	138,406	As Flat
Total Miscellaneous Revenues	\$452,174	\$696,016	\$685,206	\$447,299	\$429,652	\$419,480	\$470,756	\$450,516	\$442,667	\$495,504	\$481,922	
TOTAL REVENUES	\$10,744,597	\$11,610,851	\$13,010,368	\$12,479,905	\$12,582,584	\$12,693,941	\$12,867,962	\$12,971,694	\$13,089,057	\$13,268,358	\$13,382,504	
EXPENSES												
<i>Planning and Project Management (701)</i>												
<i>Personnel</i>												
8101 Regular Salaries	\$497,208	\$470,366	\$632,831	\$645,239	\$657,891	\$670,791	\$683,944	\$697,354	\$711,028	\$724,970	\$739,185	As Labor
8103 Temporary Part-Time	43	10,798	22,575	23,018	23,469	23,929	24,398	24,877	25,365	25,862	26,369	As Labor
8111 Overtime - Scheduled	930	127	0	0	0	0	0	0	0	0	0	As Labor
8119 Termination Pay	0	6,503	30,906	31,512	32,130	32,760	33,402	34,057	34,725	35,406	36,100	As Labor
8211 PERS Retirement	69,774	83,024	110,226	116,068	122,220	128,697	135,518	142,701	150,264	158,228	166,614	As Benefits - Other
8232 Medicare Social Security	7,483	7,314	10,534	11,271	12,060	12,905	13,808	14,774	15,809	16,915	18,099	As Benefits - Medical
8233 Life & Disability Insurance	4,459	3,047	3,068	3,283	3,513	3,758	4,022	4,303	4,604	4,927	5,271	As Benefits - Medical
8241 Dental Insurance	4,724	4,236	7,308	7,820	8,367	8,953	9,579	10,250	10,967	11,735	12,557	As Benefits - Medical
8242 Vision Insurance	1,045	840	1,281	1,371	1,467	1,569	1,679	1,797	1,922	2,057	2,201	As Benefits - Medical
8253 Auto Allowance	960	960	960	1,011	1,064	1,121	1,180	1,243	1,309	1,378	1,451	As Benefits - Other
8259 Deferred Compensation	8,715	7,816	15,564	16,389	17,258	18,172	19,135	20,149	21,217	22,342	23,526	As Benefits - Other
8271 Section 125 - Health Insurance	87,621	81,561	122,038	130,581	139,721	149,502	159,967	171,165	183,146	195,966	209,684	As Benefits - Medical
8281 Other Post Employment Benefits	39,709	47,807	64,984	68,428	72,055	75,874	79,895	84,129	88,588	93,284	98,228	As Benefits - Other
8283 GASB '68 Pension Expansion	390,520	0	0	0	0	0	0	0	0	0	0	As Benefits - Other
8285 Worker's Compensation	19,042	24,695	2,292	2,413	2,541	2,676	2,818	2,967	3,125	3,290	3,465	As Benefits - Other
Total Personnel	\$1,132,233	\$749,094	\$1,024,567	\$1,058,404	\$1,093,756	\$1,130,707	\$1,169,346	\$1,209,767	\$1,252,069	\$1,296,359	\$1,342,749	
<i>Supplies & Services</i>												
8351 Other Professional/Technical	\$2,145	\$8,000	\$70,000	\$71,373	\$72,772	\$74,199	\$75,654	\$77,137	\$78,650	\$80,192	\$81,764	As Profess/Contractual
8359 Computer Software Licenses	2,354	5,000	5,000	5,150	5,305	5,464	5,628	5,796	5,970	6,149	6,334	As Data Processing
8522 Liability Insurance Charge	12,024	7,701	11,561	11,908	12,265	12,633	13,012	13,402	13,804	14,219	14,645	As Miscellaneous
8531 Postage/Delivery Services	0	100	100	103	106	109	113	116	119	123	127	As Materials & Supplies
8532 Telephone	4,072	5,000	5,000	5,250	5,513	5,788	6,078	6,381	6,700	7,036	7,387	As Utilities
8550 Printing & Binding	0	200	200	206	212	219	225	232	239	246	253	As Materials & Supplies
8580 Travel & Training	2,432	4,000	6,000	6,120	6,242	6,367	6,495	6,624	6,757	6,892	7,030	As Education/Training
8591 Membership & Dues	3,485	5,000	6,000	6,120	6,242	6,367	6,495	6,624	6,757	6,892	7,030	As Education/Training
8599 Miscellaneous	791	15,000	5,000	5,150	5,305	5,464	5,628	5,796	5,970	6,149	6,334	As Miscellaneous
8610 General Supplies	599	2,000	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	As Materials & Supplies
8612 Small Tools	0	750	1,000	1,030	1,061	1,093	1,126	1,159	1,194	1,230	1,267	As Miscellaneous
8680 Books/Manuals/Subscriptions	0	285	400	412	424	437	450	464	478	492	507	As Miscellaneous
Total Supplies & Services	\$27,902	\$53,036	\$112,261	\$114,881	\$117,569	\$120,325	\$123,152	\$126,052	\$129,027	\$132,079	\$135,211	
<i>Administrative & Other</i>												
8307 Vehicle Usage Charge	\$9,432	\$9,704	\$13,358	\$13,759	\$14,172	\$14,597	\$15,035	\$15,486	\$15,950	\$16,429	\$16,922	As Equipment/Vehicles
8308 Computer Usage Charge	38,724	56,378	140,177	144,382	148,714	153,175	157,770	162,504	167,379	172,400	177,572	As Data Processing
8309 Building Maintenance Charge	9,588	9,475	38,001	39,141	40,315	41,525	42,770	44,054	45,375	46,736	48,139	As Miscellaneous
8310 Administrative Charge	85,200	82,913	134,099	138,122	142,266	146,534	150,930	155,457	160,121	164,925	169,873	As Miscellaneous
Total Administrative & Other	\$142,944	\$158,470	\$325,635	\$335,404	\$345,466	\$355,830	\$366,505	\$377,500	\$388,825	\$400,490	\$412,505	
Total Planning and Project Management (701)	\$1,303,079	\$960,600	\$1,462,463	\$1,508,689	\$1,556,790	\$1,606,862	\$1,659,003	\$1,713,319	\$1,769,921	\$1,828,929	\$1,890,465	

	Actual FY 2017/18	Estimated FY 2018/19	Budget FY 2019/20	Projected							Notes		
				FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27		FY 2027/28	
Sanitary Sewer Operations (710)													
<i>Personnel</i>													
8101	Regular Salaries	\$490,773	\$502,963	\$496,071	\$505,798	\$515,715	\$525,828	\$536,138	\$546,650	\$557,369	\$568,298	\$579,441	As Labor
8103	Temporary Part Time	0	0	0	0	0	0	0	0	0	0	0	As Labor
8111	Overtime - Scheduled	5,865	18,472	48,764	49,720	50,695	51,689	52,703	53,736	54,790	55,864	56,959	As Labor
8112	Standby Pay	55,657	35,860	64,726	65,995	67,289	68,609	69,954	71,325	72,724	74,150	75,604	As Labor
8119	Separation Pay	20,407	1,290	3,981	4,059	4,139	4,220	4,303	4,387	4,473	4,561	4,650	As Labor
8211	PERS Retirement	93,019	86,851	89,891	94,655	99,672	104,955	110,517	116,375	122,542	129,037	135,876	As Benefits - Other
8232	Medicare Social Security	9,259	8,896	9,878	10,569	11,309	12,101	12,948	13,854	14,824	15,862	16,972	As Benefits - Medical
8233	Life & Disability Insurance	4,272	3,355	2,573	2,753	2,946	3,152	3,373	3,609	3,861	4,132	4,421	As Benefits - Medical
8235	State Unemployment Insurance	0	0	0	0	0	0	0	0	0	0	0	As Benefits - Other
8241	Dental Insurance	5,440	5,794	5,528	5,915	6,329	6,772	7,246	7,753	8,296	8,877	9,498	As Benefits - Medical
8242	Vision Insurance	1,528	1,572	1,469	1,572	1,682	1,800	1,926	2,060	2,205	2,359	2,524	As Benefits - Medical
8253	Auto Allowance	480	480	480	505	532	560	590	621	654	689	726	As Benefits - Other
8259	Deferred Compensation	7,117	7,416	12,667	13,338	14,045	14,790	15,574	16,399	17,268	18,183	19,147	As Benefits - Other
8271	Section 125 - Health Insurance	119,600	106,332	92,957	99,464	106,426	113,876	121,848	130,377	139,503	149,269	159,717	As Benefits - Medical
8281	Benefit Stabilization	56,196	49,819	55,341	58,274	61,363	64,615	68,039	71,645	75,443	79,441	83,652	As Benefits - Other
8282	Compensated Absences	(13,280)	0	0	0	0	0	0	0	0	0	0	As Labor
8285	Worker's Compensation	58,663	55,784	30,924	32,563	34,289	36,106	38,020	40,035	42,157	44,391	46,744	As Benefits - Other
	Total Personnel	\$914,996	\$884,884	\$915,250	\$945,182	\$976,432	\$1,009,072	\$1,043,177	\$1,078,828	\$1,116,109	\$1,155,112	\$1,195,931	
<i>Supplies & Services</i>													
8305	After Hours PD Dispatch	\$10,000	\$10,000	\$10,000	\$10,196	\$10,396	\$10,600	\$10,808	\$11,020	\$11,236	\$11,456	\$11,681	As Profess/Contractual
8311	Property Tax Admin Fee	44,107	57,840	58,908	58,908	59,497	60,092	60,693	61,300	61,913	62,532	63,157	As Rate Revenue
8351	Other Professional/Technical	140,274	152,000	188,000	191,686	195,445	199,277	203,184	207,168	211,231	215,372	219,595	As Profess/Contractual
8411	Water	11,000	12,000	12,000	12,600	13,230	13,892	14,586	15,315	16,081	16,885	17,729	As Utilities
8417	Other Waste Water Treatment Fees	180,664	80,000	87,200	91,560	96,138	100,945	105,992	111,292	116,856	122,699	128,834	As Utilities
8418	S.V.C.W. Sewer Treatment	3,318,408	2,973,317	3,441,263	3,564,586	3,707,170	3,855,456	4,009,675	4,170,062	4,336,864	4,510,339	4,690,752	As SVCW Treatment
8430	Repair & Maintenance Service	4,136	25,000	25,000	25,750	26,523	27,318	28,138	28,982	29,851	30,747	31,669	As Miscellaneous
8441	Land/Building Rentals	56,000	56,000	56,000	57,680	59,410	61,193	63,028	64,919	66,867	68,873	70,939	As Miscellaneous
8442	Equipment Rentals	0	0	1,000	1,030	1,061	1,093	1,126	1,159	1,194	1,230	1,267	As Equipment/Vehicles
8522	Liability Insurance Charges	322,836	597,760	263,891	271,808	279,962	288,361	297,012	305,922	315,100	324,553	334,289	As Equipment/Vehicles
8530	Communications	17,613	2,000	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	As Materials & Supplies
8532	Telephone	4,011	4,500	4,500	4,635	4,774	4,917	5,065	5,217	5,373	5,534	5,700	As Materials & Supplies
8580	Travel & Training	4,547	8,000	10,000	10,200	10,404	10,612	10,824	11,041	11,262	11,487	11,717	As Education/Training
8590	Payment in Lieu of Tax	204,204	204,204	204,204	204,204	204,204	204,204	204,204	204,204	204,204	204,204	204,204	As Flat
8591	Membership & Dues	4,311	5,000	6,000	6,120	6,242	6,367	6,495	6,624	6,757	6,892	7,030	As Education/Training
8599	Miscellaneous	373	10,000	12,000	12,360	12,731	13,113	13,506	13,911	14,329	14,758	15,201	As Miscellaneous
8610	General Supplies	5,337	14,000	14,000	14,420	14,853	15,298	15,757	16,230	16,717	17,218	17,735	As Materials & Supplies
8612	Small Tools	18,311	18,000	18,000	18,540	19,096	19,669	20,259	20,867	21,493	22,138	22,800	As Materials & Supplies
8613	Safety Equipment	12,555	15,000	15,000	15,450	15,914	16,391	16,883	17,389	17,911	18,448	19,002	As Miscellaneous
8632	Natural Gas & Electricity	43,954	40,000	40,000	42,000	44,100	46,305	48,620	51,051	53,604	56,284	59,098	As Utilities
8639	Fuel	14,774	16,000	16,000	16,800	17,640	18,522	19,448	20,421	21,442	22,514	23,639	As Utilities
8641	Repair & Maintenance Supplies	61,408	90,000	58,000	59,740	61,532	63,378	65,280	67,238	69,255	71,333	73,473	As Miscellaneous
	Total Supplies & Services	\$4,478,823	\$4,390,621	\$4,542,966	\$4,692,333	\$4,862,443	\$5,039,188	\$5,222,833	\$5,413,651	\$5,611,926	\$5,817,956	\$6,032,048	
<i>Administrative & Other</i>													
8307	Vehicle Usage Charge	\$218,856	\$248,275	\$336,961	\$347,070	\$357,482	\$368,206	\$379,253	\$390,630	\$402,349	\$414,420	\$426,852	As Equipment/Vehicles
8308	Computer Usage Charge	66,864	105,426	99,681	102,671	105,752	108,924	112,192	115,558	119,024	122,595	126,273	As Data Processing
8309	Building Maintenance Charge	16,548	15,698	42,518	43,794	45,107	46,461	47,854	49,290	50,769	52,292	53,861	As Miscellaneous
8310	Administrative Charge	152,276	130,146	117,414	120,936	124,565	128,301	132,150	136,115	140,198	144,404	148,737	As Miscellaneous
	Total Administrative & Other	\$454,544	\$499,545	\$596,574	\$614,471	\$632,905	\$651,893	\$671,449	\$691,593	\$712,341	\$733,711	\$755,722	
	Total Sanitary Sewer Operations (710)	\$5,848,363	\$5,775,050	\$6,054,790	\$6,251,986	\$6,471,780	\$6,700,152	\$6,937,459	\$7,184,071	\$7,440,376	\$7,706,778	\$7,983,700	
Sanitary Sewer Capital Operations (730)													
8310	Administrative Charge	\$53,136	\$19,517	\$97,740	\$100,672	\$103,692	\$106,803	\$110,007	\$113,307	\$116,707	\$120,208	\$123,814	As Miscellaneous
8599	Miscellaneous	0	0	0	0	0	0	0	0	0	0	0	As Profess/Contractual
9030	Improvement Other Than Building	0	0	0	0	0	0	0	0	0	0	0	As Miscellaneous
	Total Sanitary Sewer Capital Operations (730)	\$53,136	\$19,517	\$97,740	\$100,672	\$103,692	\$106,803	\$110,007	\$113,307	\$116,707	\$120,208	\$123,814	
	Total Operating & Maintenance Expense	\$7,204,578	\$6,755,167	\$7,614,993	\$7,861,347	\$8,132,263	\$8,413,817	\$8,706,469	\$9,010,697	\$9,327,004	\$9,655,915	\$9,997,980	

	Actual	Estimated	Budget	Projected							Notes	
	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27		FY 2027/28
Repair and Replacement Funding	\$1,509,304	\$1,500,000	\$1,600,000	\$1,750,000	\$1,900,000	\$2,050,000	\$2,200,000	\$2,350,000	\$2,500,000	\$2,650,000	\$2,800,000	FY 2019 Approx. Depr. \$1,452,365
I/I Capital Funding Transfer	\$0	\$500,000	\$595,000	\$611,000	\$627,000	\$644,000	\$661,000	\$679,000	\$697,000	\$716,000	\$735,000	
Deferred Capital Funding (Debt Service)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Debt Service												
2016 Sewer Revenue Refunding	\$767,305	\$764,855	\$762,105	\$770,355	\$767,105	\$767,705	\$767,505	\$771,255	\$768,505	\$764,505	\$769,255	Debt Schedule
2016 Sewer Revenue	621,541	623,841	630,991	620,741	625,741	621,341	621,941	621,191	620,191	628,941	621,941	Debt Schedule
2019 Sewer Revenue	0	0	121,090	1,020,500	1,109,500	1,110,625	1,111,000	1,110,625	1,109,500	1,107,625	1,109,875	FA Provided
New Low Interest Loan	0	0	0	0	0	0	0	0	0	0	0	
New Revenue Bond	0	0	0	0	0	479,625	1,242,000	1,242,125	1,242,125	1,242,125	1,242,125	FA Provided
	0	0	0	0	0	0	0	0	359,719	931,500	931,500	FA Provided
Total Debt Service	\$1,388,846	\$1,388,696	\$1,514,186	\$2,411,596	\$2,502,346	\$2,979,296	\$3,742,446	\$3,745,196	\$4,100,040	\$4,674,696	\$4,674,696	
Change in Working Capital +/-												
Operating (Cash) Reserve Transfer	\$641,868	\$1,285,809	\$1,613,515	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Capital Reserve Transfer	0	0	0	688,244	1,181,935	1,369,109	1,259,178	1,900,502	1,922,141	1,814,828	2,248,584	
Change in Working Capital +/-	\$641,868	\$1,285,809	\$1,613,515	\$688,244	\$1,181,935	\$1,369,109	\$1,259,178	\$1,900,502	\$1,922,141	\$1,814,828	\$2,248,584	
TOTAL REVENUE REQUIREMENT	\$10,744,596	\$11,429,672	\$12,937,694	\$13,322,187	\$14,343,544	\$15,456,223	\$16,569,093	\$17,685,396	\$18,546,185	\$19,511,439	\$20,456,260	
Total Balance/(Deficiency) of Funds	\$0	\$181,179	\$72,674	(\$842,282)	(\$1,760,960)	(\$2,762,282)	(\$3,701,131)	(\$4,713,702)	(\$5,457,128)	(\$6,243,081)	(\$7,073,756)	
Total Incr. as a % of Current Rates				7.0%	14.5%	22.5%	29.9%	37.6%	43.2%	48.9%	54.8%	
Proposed Rate Adjustment				7.0%	7.0%	7.0%	6.0%	6.0%	4.0%	4.0%	4.0%	
Additional Revenue from Rate Increase				\$842,282	\$1,760,960	\$2,762,282	\$3,701,131	\$4,713,702	\$5,457,128	\$6,243,081	\$7,073,756	
Balance/(Deficiency) of Funds				\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Deficiency as a % of Retail Rate Revenues				0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Residential Bill Comparison (8 HCF X Adjustment Factor)												
Monthly												
After Proposed Rate Adjustment			\$108.54	\$113.06	\$120.97	\$129.44	\$137.20	\$145.44	\$151.26	\$157.31	\$163.60	
Monthly Bill Difference				\$4.51	\$7.92	\$8.46	\$7.77	\$8.23	\$5.82	\$6.05	\$6.29	
Cumulative Bill Difference				\$4.51	\$12.43	\$20.89	\$28.66	\$36.90	\$42.71	\$48.76	\$55.06	
Percentage overall change to bill				4.2%	11.0%	17.3%	22.1%	26.9%	29.4%	32.2%	35.0%	
Debt Service Coverage Ratio (Revenue Bonds Only)												
Before Proposed Rate Adjustment	2.38	3.23	3.33	1.77	1.64	1.32	1.02	0.96	0.83	0.70	0.65	Minimum 1.0/Target 1.25
After Proposed Rate Adjustment	2.38	3.23	3.33	2.12	2.34	2.25	2.01	2.22	2.16	2.03	2.16	Minimum 1.0/Target 1.25

City of Belmont
 Sewer Cost of Service Study
 Exhibit 4
 Capital Improvement Projects

Capital Improvement Projects	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27	FY 2027/28	Total	Notes
Total Sewer Capital	\$1,500,000	\$11,002,000	\$6,850,000	\$5,625,000	\$10,600,000	\$8,519,250	\$6,212,833	\$6,212,833	\$7,860,274	\$7,860,274	\$72,242,464	
Less: Funding Sources												
Grants	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Reserves	0	9,402,000	5,100,000	3,725,000	8,550,000	6,319,250	3,862,833	3,712,833	5,210,274	5,060,274	50,942,464	
Additional Long-Term Debt	0	0	0	0	0	0	0	0	0	0	0	
Total Funding Sources	\$0	\$9,402,000	\$5,100,000	\$3,725,000	\$8,550,000	\$6,319,250	\$3,862,833	\$3,712,833	\$5,210,274	\$5,060,274	\$50,942,464	
Total Capital Improvement Funded Through Rates	\$1,500,000	\$1,600,000	\$1,750,000	\$1,900,000	\$2,050,000	\$2,200,000	\$2,350,000	\$2,500,000	\$2,650,000	\$2,800,000	\$21,300,000	FY 2019 Approx. Depr. \$1,452,365
I/I Capital Funding	\$500,000	\$595,000	\$611,000	\$627,000	\$644,000	\$661,000	\$679,000	\$697,000	\$716,000	\$735,000	\$6,465,000	FY 2019 Approx. Depr. \$234,197
	\$1,500,000	\$1,600,000	\$1,750,000	\$1,900,000	\$2,050,000	\$2,200,000	\$2,350,000	\$2,500,000	\$2,650,000	\$2,800,000		

DRAFT

City of Belmont
 Sewer Cost of Service Study
 Exhibit 5A
 Revenue At Present Rates for 2017-2018

Use Description	Billing Units	0.14	Rate Per Billing Unit	Total
Standby Charge	569		\$245.40	\$139,632.60
Residential Collection				
Base Charge \$/Unit	10,384		\$284.45	\$2,953,728.80
Flow Charge \$/HCF	614,183	700,169	\$4.05	2,835,682.91
Total				\$5,789,411.71
Treatment				
Base Charge \$/Unit	10,384		\$149.50	\$1,552,408.00
Flow Charge \$/HCF	614,183	700,169	\$2.00	1,400,337.24
Total				\$2,952,745.24
Total Residential Revenue				\$8,742,156.95
Commercial Collection				
LS - Base Charge \$/Unit	408		\$284.45	\$116,055.60
HS - Base Charge \$/Unit	73		\$284.45	20,764.85
Low Strength Flow Charge \$/HCF	138,773	158,201	\$4.05	640,714.94
High Strength Flow Charge \$/HCF	25,689	29,285	\$7.87	230,476.57
Total	778,645	887,655		\$1,008,011.96
Treatment				
LS - Base Charge \$/Unit	408		\$149.50	\$60,996.00
HS - Base Charge \$/Unit	73		\$149.50	10,913.50
Low Strength Flow Charge \$/HCF	138,773	158,201	\$2.00	316,402.44
High Strength Flow Charge \$/HCF	25,689	29,285	\$3.90	114,213.29
Total				\$502,525.23
Total Commercial Revenue				\$1,510,537.20
Summary of Revenues at Present Rates				
Total Number of Billing Units				
Standby				569
Residential				10,384
LS Commercial				408
HS Commercial				73
Total				11,434
Total Annual Flow				
Residential				614,183
LS Commercial				138,773
HS Commercial				25,689
Total				778,645
Total Revenue				
Standby Charge Revenue				\$139,633
Residential Revenue				\$8,742,157
LS Commercial				1,134,169
HS Commercial				376,368
Total				\$10,252,694
Total Revenue				\$10,392,327

CAFR 2018 \$10,311,885
 \$80,442
 0.8%

City of Belmont
 Sewer Cost of Service Study
 Exhibit 5B
 Revenue At Present Rates for 2018-2019

Use Description	Billing Units	0.14	Rate Per Billing Unit	Total
Standby Charge	564		\$245.40	\$138,405.60
Residential				
Collection				
Base Charge \$/Unit	10,097		\$310.05	\$3,130,574.85
Flow Charge \$/HCF	441,250	503,025	\$4.41	2,218,340.25
Total				\$5,348,915.10
Treatment				
Base Charge \$/Unit	10,082		\$162.96	\$1,642,962.72
Flow Charge \$/HCF	405,463	462,228	\$2.18	1,007,656.65
Total				\$2,650,619.37
Total Residential Revenue				\$7,999,534.47
Commercial				
Collection				
LS - Base Charge \$/Unit	831		\$310.05	\$257,651.55
HS - Base Charge \$/Unit	45		\$310.05	13,952.25
Low Strength Flow Charge \$/HCF	293,454	334,538	\$4.41	1,475,310.64
High Strength Flow Charge \$/HCF	20,261	23,098	\$8.58	198,176.89
Total	754,965	860,660		\$1,945,091.33
Treatment				
LS - Base Charge \$/Unit	831		\$162.96	\$135,419.76
HS - Base Charge \$/Unit	45		\$162.96	7,333.20
Low Strength Flow Charge \$/HCF	293,454	334,538	\$2.18	729,291.88
High Strength Flow Charge \$/HCF	20,261	23,098	\$4.25	98,164.55
Total				\$970,209.39
Total Commercial Revenue				\$2,915,300.72
Summary of Revenues at Present Rates				
Total Number of Billing Units				
Standby				564
Residential				10,097
LS Commercial				831
HS Commercial				45
Total				11,537
Total Annual Flow				
Residential				441,250
LS Commercial				293,454
HS Commercial				20,261
Total				754,965
Total Revenue				
Standby Charge Revenue				\$138,406
Residential Revenue				\$7,999,534
LS Commercial				2,597,674
HS Commercial				317,627
Total				\$10,914,835
Total Revenue				\$11,053,241

CAFR 2019 \$10,850,538
 \$202,703
 1.9%

City of Belmont
 Sewer Cost of Service Study
 Exhibit 5C
 Revenue At Present Rates for 2019-2020

Use Description	Billing Units	0.14	Rate Per Billing Unit	Total
Standby Charge	564		\$245.40	\$138,405.60
Residential Collection				
Base Charge \$/Unit	10,630		\$337.96	\$3,592,514.80
Flow Charge \$/HCF	665,755	758,961	\$4.81	3,650,600.97
Total				\$7,243,115.77
Treatment				
Base Charge \$/Unit	10,630		\$177.62	\$1,888,100.60
Flow Charge \$/HCF	665,755	758,961	\$2.38	1,806,326.47
Total				\$3,694,427.07
Total Residential Revenue				\$10,937,542.83
Commercial Collection				
LS - Base Charge \$/Unit	293		\$337.96	\$99,022.28
HS - Base Charge \$/Unit	45		\$337.96	15,208.20
Low Strength Flow Charge \$/HCF	107,921	123,030	\$4.81	591,774.01
High Strength Flow Charge \$/HCF	<u>20,629</u>	<u>23,517</u>	\$9.35	219,884.51
Total	794,305	905,508		\$925,889.00
Treatment				
LS - Base Charge \$/Unit	293		\$177.62	\$52,042.66
HS - Base Charge \$/Unit	45		\$177.62	7,992.90
Low Strength Flow Charge \$/HCF	107,921	123,030	\$2.38	292,811.26
High Strength Flow Charge \$/HCF	20,629	23,517	\$4.63	108,883.99
Total				\$461,730.81
Total Commercial Revenue				\$1,387,619.81
Summary of Revenues at Present Rates				
Total Number of Billing Units				
Standby				564
Residential				10,630
LS Commercial				293
HS Commercial				45
Total				11,532
Total Annual Flow				
Residential				665,755
LS Commercial				107,921
HS Commercial				20,629
Total				794,305
Total Revenue				
Standby Charge Revenue				\$138,406
Residential Revenue				\$10,937,543
LS Commercial				1,035,650
HS Commercial				351,970
Total				\$12,325,163
Total Revenue				\$12,463,568

Estimated 2020 \$11,936,993
 \$526,575
 4.4%

City of Belmont
 Sewer Cost of Service Study
 Exhibit 5D
 Projected Revenue At Present Rates for 2020-2021

Use Description	Billing Units	0.09	Rate Per Billing Unit	Total
Standby Charge	564		\$245.40	\$138,405.60
Residential				
Collection				
Base Charge \$/Unit	10,630		\$337.96	\$3,592,514.80
Flow Charge \$/HCF	665,755	725,673	\$4.81	3,490,486.89
Total				\$7,083,001.69
Treatment				
Base Charge \$/Unit	10,630		\$177.62	\$1,888,100.60
Flow Charge \$/HCF	665,755	725,673	\$2.38	1,727,101.62
Total				\$3,615,202.22
Total Residential Revenue				\$10,698,203.91
Commercial				
Collection				
LS - Base Charge \$/Unit	293		\$337.96	\$99,022.28
HS - Base Charge \$/Unit	45		\$337.96	15,208.20
Low Strength Flow Charge \$/HCF	107,921	117,634	\$4.81	565,819.01
High Strength Flow Charge \$/HCF	20,629	22,486	\$9.35	210,240.45
Total	794,305	865,792		\$890,289.94
Treatment				
LS - Base Charge \$/Unit	293		\$177.62	\$52,042.66
HS - Base Charge \$/Unit	45		\$177.62	7,992.90
Low Strength Flow Charge \$/HCF	107,921	117,634	\$2.38	279,968.66
High Strength Flow Charge \$/HCF	20,629	22,486	\$4.63	104,108.37
Total				\$444,112.59
Total Commercial Revenue				\$1,334,402.54
Summary of Revenues at Present Rates				
Total Number of Billing Units				
Standby				564
Residential				10,630
LS Commercial				293
HS Commercial				45
Total				11,532
Total Annual Flow				
Residential				665,755
LS Commercial				107,921
HS Commercial				20,629
Total				794,305
Total Revenue				
Standby Charge Revenue				\$138,406
Residential Revenue				\$10,698,204
LS Commercial				996,853
HS Commercial				337,550
Total				\$12,032,606
Total Revenue				\$12,171,012

	2017-18	2018-19	2019-20	Average	2020-21
Billed HCF	778,645	754,965	794,305	775,972	794,305
% Adjustment Factor	0.14	0.14	0.14		0.09
Total HCF	887,655	860,660	905,508	884,608	865,792

City of Belmont
 Sewer Cost of Service Study
 Exhibit 6
 Development of the Volume Distribution Factor

	FY 2020/21 Annual Wastewater Flow (CCF) [1]	11.0% Inflow and Infiltration [2] [3]	Total Annual Flow at Plant (CCF)	Avg. Daily Flow At Plant (MGD) [4]	% of Total
Residential	665,755	73,233	738,988	1.51	83.8%
Commercial	107,921	11,871	119,792	0.25	13.6%
Commercial High S.	20,629	2,269	22,898	0.05	2.6%
	-----	-----	-----	-----	-----
Total Consumption	794,305	87,374	881,679	1.81	100.0%
			Estimated Plant Flow [4]	1.94	
Distribution Factor					(VOL)

Note:

[1] Based on 2019/20 customer's winter period consumption, plus estimated growth for FY 20/21

[2] Calculated based on billing report versus total plant flow.

- Inflow represents external groundwater that can enter the sewer at service connections where the pipe is broken, at defective joints, at connections to manholes, etc.
- Infiltration is water discharged to sewer from sources such as roof leaders, cellar, yard and drains from springs and other wet areas, storm sewers, catch basins, surface water runoff, etc

[3] Total I&I allocated to each class of service based on flow.

[4] City provided total flow for FY 2019/20 plus one year growth.

City of Belmont
 Sewer Cost of Service Study
 Exhibit 7
 Development of the Customer Distribution Factor

	Actual Customer	
	Number of Units	% of Total
Residential	10,630	96.9%
Commercial	293	2.7%
Commercial High S.	45	0.4%
	-----	-----
Total Customers	10,968	100.0%
Distribution Factor		(AC)

	Customer Service & Accounting			
	Number of Bills [1]	Weighting Factor	Weighted Customer	% of Total
Residential	7,674	1.0	7,674	95.8%
Commercial	293	1.0	293	3.7%
Commercial High S.	45	1.0	45	0.6%
	-----		-----	-----
Total Customers	8,012		8,012	100.0%
				(WCA)

Note:
 [1] Number of Residential bills from billing records.

DRAFT

City of Belmont
 Sewer Cost of Service Study
 Exhibit 8
 Development of the Strength Distribution Factor

	Biochemical Oxygen Demand			Suspended Solids			
	Annual Flow (CCF)	Avg. Factor (mg/l) [1]	Calculated Pounds [2]	% of Total	Avg. Factor (mg/l) [1]	Calculated Pounds [2]	% of Total
Residential	738,988	250	1,153,202	80.1%	220	1,014,818	80.1%
Commercial	119,792	250	186,938	13.0%	220	164,505	13.0%
Commercial High S.	22,898	700	100,052	6.9%	616	88,046	6.9%
	-----		-----	-----		-----	-----
Total Strength	881,679		1,440,192	100.0%		1,267,369	100.0%
Distribution Factor				(BOD)			(SS)

Note:

[1] Average BOD and SS strength factors based on typical residential customer from similar studies. High strength based on 2.8 times residential based on WA State Dept Health, Rule Development Committee Issue Research Report, Wastewater Quality/Strength/Content, page 6 of 18.

[2] Calculated pounds equals (annual flow (x) 748 (x) strength factor mg/l (x) 8.34 /1,000,000)

City of Belmont

Sewer Cost of Service Study

Exhibit 9

Development of the Revenue Related Distribution Factor

	Projected Year	% of
	FY 2020/21	Total
Residential	\$10,698,204	88.9%
Commercial	996,853	8.3%
Commercial High S.	337,550	2.8%
	-----	-----
Total Rate Revenues	\$12,032,606	100.0%
Distribution Factor		(RR)

DRAFT

City of Belmont
Sewer Cost of Service Study
Exhibit 10
Functionalization and Allocation of Plant in Service

	Total Plant FY 2018	Customer Related						Revenue (RR)	Direct (DA)	Basis of Allocation
		Operating Volume (VOL)	Biochemical Oxygen Demand (BOD)	Suspended Solids (SS)	Weighted for:					
					Actual Customer (AC)	Customer Acct/Svcs (WCA)				
Sewer Operations (501)										
Land	\$14,793	\$13,314	\$0	\$0	\$1,479	\$0	\$0	\$0	90.0% VOL 10% AC	
Improvements	8,442,998	4,221,499	0	0	4,221,499	0	0	0	50.0% VOL 50% AC	
Machinery and Equipment	251,905	251,905	0	0	0	0	0	0	100.0% VOL	
Total Sewer Operations (501)	\$8,709,696	\$4,486,718	\$0	\$0	\$4,222,978	\$0	\$0	\$0		
Sewer Capital (503)										
Land	\$670,010	\$603,009	\$0	\$0	\$67,001	\$0	\$0	\$0	90.0% VOL 10% AC	
Construction in Progress	0	0	0	0	0	0	0	0	50.0% VOL 50% AC	
Improvements	17,281,393	8,640,697	0	0	8,640,697	0	0	0	50.0% VOL 50% AC	
Machinery and Equipment	9,097	9,097	0	0	0	0	0	0	100.0% VOL	
Total Sewer Capital (503)	\$17,960,500	\$9,252,803	\$0	\$0	\$8,707,698	\$0	\$0	\$0		
TOTAL PLANT IN SERVICE	\$26,670,196	\$13,739,520	\$0	\$0	\$12,930,676	\$0	\$0	\$0		
Less: Accumulated Depreciation										
Improvements										
Sewer Operations (501)	(\$6,299,294)	(\$3,149,647)	\$0	\$0	(\$3,149,647)	\$0	\$0	\$0	As Sewer Operations (501)	
Sewer Capital (503)	(5,676,838)	(2,838,419)	0	0	(2,838,419)	0	0	0	As Sewer Capital (503)	
Total Accum Depr Imprv.	(\$11,976,132)	(\$5,988,066)	\$0	\$0	(\$5,988,066)	\$0	\$0	\$0		
Machinery and Equipment										
Sewer Operations (501)	(\$178,496)	(\$178,496)	\$0	\$0	\$0	\$0	\$0	\$0	As Sewer Operations (501)	
Sewer Capital (503)	(9,097)	(9,097)	0	0	0	0	0	0	As Sewer Capital (503)	
Total Accum Depr Mach & Equip	(\$187,593)	(\$187,593)	\$0	\$0	\$0	\$0	\$0	\$0		
Total Accumulated Depreciation	(\$12,163,725)	(\$6,175,659)	\$0	\$0	(\$5,988,066)	\$0	\$0	\$0		
Net Plant in Service	\$14,506,471	\$7,563,861	\$0	\$0	\$6,942,610	\$0	\$0	\$0		

City of Belmont
 Sewer Cost of Service Study
 Exhibit 11
 Functionalization and Allocation of
 Revenue Requirements

	Total FY 2020/21	Strength Related			Weighted for:		Revenue (RR)	Direct (DA)	Basis of Allocation
		Volume (VOL)	Biochemical Oxygen Demand (BOD)	Suspended Solids (SS)	Actual Customer (AC)	Customer Acct/Svcs (WCA)			
EXPENSES									
Planning and Project Management (701)									
<i>Personnel</i>									
Regular Salaries	\$645,239	\$336,436	\$0	\$0	\$308,803	\$0	\$0	\$0	As Net Plant In Svc
Temporary Part-Time	23,018	12,002	0	0	11,016	0	0	0	As Net Plant In Svc
Overtime - Scheduled	0	0	0	0	0	0	0	0	As Net Plant In Svc
Termination Pay	31,512	16,431	0	0	15,081	0	0	0	As Net Plant In Svc
PERS Retirement	116,068	60,519	0	0	55,549	0	0	0	As Net Plant In Svc
Medicare Social Security	11,271	5,877	0	0	5,394	0	0	0	As Net Plant In Svc
Life & Disability Insurance	3,283	1,712	0	0	1,571	0	0	0	As Net Plant In Svc
Dental Insurance	7,820	4,077	0	0	3,742	0	0	0	As Net Plant In Svc
Vision Insurance	1,371	715	0	0	656	0	0	0	As Net Plant In Svc
Auto Allowance	1,011	527	0	0	484	0	0	0	As Net Plant In Svc
Deferred Compensation	16,389	8,545	0	0	7,844	0	0	0	As Net Plant In Svc
Section 125 - Health Insurance	130,581	68,086	0	0	62,494	0	0	0	As Net Plant In Svc
Other Post Employment Benefits	68,428	35,679	0	0	32,749	0	0	0	As Net Plant In Svc
GASB '68 Pension Expansion	0	0	0	0	0	0	0	0	As Net Plant In Svc
Worker's Compensation	2,413	1,258	0	0	1,155	0	0	0	As Net Plant In Svc
Total Personnel	\$1,058,404	\$551,865	\$0	\$0	\$506,538	\$0	\$0	\$0	
<i>Supplies & Services</i>									
Other Professional/Technical	\$71,373	\$37,215	\$0	\$0	\$34,158	\$0	\$0	\$0	As Net Plant In Svc
Computer Software Licenses	5,150	2,685	0	0	2,465	0	0	0	As Net Plant In Svc
Liability Insurance Charge	11,908	6,209	0	0	5,699	0	0	0	As Net Plant In Svc
Postage/Delivery Services	103	54	0	0	49	0	0	0	As Net Plant In Svc
Telephone	5,250	2,737	0	0	2,513	0	0	0	As Net Plant In Svc
Printing & Binding	206	107	0	0	99	0	0	0	As Net Plant In Svc
Travel & Training	6,120	3,191	0	0	2,929	0	0	0	As Net Plant In Svc
Membership & Dues	6,120	3,191	0	0	2,929	0	0	0	As Net Plant In Svc
Miscellaneous	5,150	2,685	0	0	2,465	0	0	0	As Net Plant In Svc
General Supplies	2,060	1,074	0	0	986	0	0	0	As Net Plant In Svc
Small Tools	1,030	537	0	0	493	0	0	0	As Net Plant In Svc
Books/Manuals/Subscriptions	412	215	0	0	197	0	0	0	As Net Plant In Svc
Total Supplies & Services	\$114,881	\$59,901	\$0	\$0	\$54,981	\$0	\$0	\$0	
<i>Administrative & Other</i>									
Vehicle Usage Charge	\$13,759	\$7,174	\$0	\$0	\$6,585	\$0	\$0	\$0	As Net Plant In Svc
Computer Usage Charge	144,382	0	0	0	0	144,382	0	0	100% WCA
Building Maintenance Charge	39,141	20,409	0	0	18,732	0	0	0	As Net Plant In Svc
Administrative Charge	138,122	0	0	0	0	138,122	0	0	100% WCA
Total Administrative & Other	\$335,404	\$27,583	\$0	\$0	\$25,317	\$282,504	\$0	\$0	
Total Planning and Project Management (701)	\$1,508,689	\$639,349	\$0	\$0	\$586,836	\$282,504	\$0	\$0	

City of Belmont
 Sewer Cost of Service Study
 Exhibit 11
 Functionalization and Allocation of
 Revenue Requirements

	Total FY 2020/21	Strength Related			Weighted for:		Revenue (RR)	Direct (DA)	Basis of Allocation
		Volume (VOL)	Biochemical Oxygen Demand (BOD)	Suspended Solids (SS)	Actual Customer (AC)	Customer Acct/Svcs (WCA)			
Sanitary Sewer Operations (710)									
<i>Personnel</i>									
Regular Salaries	\$505,798	\$263,730	\$0	\$0	\$242,068	\$0	\$0	\$0	As Net Plant In Svc
Temporary Part Time	0	0	0	0	0	0	0	0	As Net Plant In Svc
Overtime - Scheduled	49,720	25,925	0	0	23,795	0	0	0	As Net Plant In Svc
Standby Pay	65,995	34,411	0	0	31,584	0	0	0	As Net Plant In Svc
Separation Pay	4,059	2,116	0	0	1,943	0	0	0	As Net Plant In Svc
PERS Retirement	94,655	49,354	0	0	45,301	0	0	0	As Net Plant In Svc
Medicare Social Security	10,569	5,511	0	0	5,058	0	0	0	As Net Plant In Svc
Life & Disability Insurance	2,753	1,436	0	0	1,318	0	0	0	As Net Plant In Svc
State Unemployment Insurance	0	0	0	0	0	0	0	0	As Net Plant In Svc
Dental Insurance	5,915	3,084	0	0	2,831	0	0	0	As Net Plant In Svc
Vision Insurance	1,572	820	0	0	752	0	0	0	As Net Plant In Svc
Auto Allowance	505	264	0	0	242	0	0	0	As Net Plant In Svc
Deferred Compensation	13,338	6,955	0	0	6,384	0	0	0	As Net Plant In Svc
Section 125 - Health Insurance	99,464	51,862	0	0	47,602	0	0	0	As Net Plant In Svc
Benefit Stabilization	58,274	30,385	0	0	27,889	0	0	0	As Net Plant In Svc
Compensated Absences	0	0	0	0	0	0	0	0	As Net Plant In Svc
Worker's Compensation	32,563	16,979	0	0	15,584	0	0	0	As Net Plant In Svc
Total Personnel	\$945,182	\$492,830	\$0	\$0	\$452,352	\$0	\$0	\$0	
<i>Supplies & Services</i>									
After Hours PD Dispatch	\$10,196	\$5,316	\$0	\$0	\$4,880	\$0	\$0	\$0	As Net Plant In Svc
Property Tax Admin Fee	58,908	30,715	0	0	28,193	0	0	0	As Net Plant In Svc
Other Professional/Technical	191,686	0	0	0	0	191,686	0	0	100% WCA
Water	12,600	6,570	0	0	6,030	0	0	0	As Net Plant In Svc
Other Waste Water Treatment Fees	91,560	35,775	25,684	30,101	0	0	0	0	39% VOL 28% BOD 33% SS
S.V.C.W. Sewer Treatment	3,564,586	1,392,767	999,929	1,171,890	0	0	0	0	39% VOL 28% BOD 33% SS
Repair & Maintenance Service	25,750	13,426	0	0	12,324	0	0	0	As Net Plant In Svc
Land/Building Rentals	57,680	30,075	0	0	27,605	0	0	0	As Net Plant In Svc
Equipment Rentals	1,030	537	0	0	493	0	0	0	As Net Plant In Svc
Liability Insurance Charges	271,808	141,724	0	0	130,084	0	0	0	As Net Plant In Svc
Communications	2,060	1,074	0	0	986	0	0	0	As Net Plant In Svc
Telephone	4,635	0	0	0	0	4,635	0	0	100% WCA
Travel & Training	10,200	5,318	0	0	4,882	0	0	0	As Net Plant In Svc
Payment in Lieu of Tax	204,204	204,204	0	0	0	0	0	0	100.0% VOL
Membership & Dues	6,120	3,191	0	0	2,929	0	0	0	As Net Plant In Svc
Miscellaneous	12,360	6,445	0	0	5,915	0	0	0	As Net Plant In Svc
General Supplies	14,420	7,519	0	0	6,901	0	0	0	As Net Plant In Svc
Small Tools	18,540	9,667	0	0	8,873	0	0	0	As Net Plant In Svc
Safety Equipment	15,450	8,056	0	0	7,394	0	0	0	As Net Plant In Svc
Natural Gas & Electricity	42,000	42,000	0	0	0	0	0	0	100.0% VOL
Fuel	16,800	8,760	0	0	8,040	0	0	0	As Net Plant In Svc
Repair & Maintenance Supplies	59,740	31,149	0	0	28,591	0	0	0	As Net Plant In Svc
Total Supplies & Services	\$4,692,333	\$1,984,289	\$1,025,613	\$1,201,992	\$284,119	\$196,321	\$0	\$0	

City of Belmont
Sewer Cost of Service Study
Exhibit 11
Functionalization and Allocation of
Revenue Requirements

	Total FY 2020/21	Strength Related			Weighted for:		Revenue (RR)	Direct (DA)	Basis of Allocation
		Volume (VOL)	Biochemical Oxygen Demand (BOD)	Suspended Solids (SS)	Actual Customer (AC)	Customer Acct/Svcs (WCA)			
						0			
<i>Administrative & Other</i>									
Vehicle Usage Charge	\$347,070	\$180,967	\$0	\$0	\$166,103	\$0	\$0	\$0	As Net Plant In Svc
Computer Usage Charge	102,671	0	0	0	0	102,671	0	0	100% WCA
Building Maintenance Charge	43,794	22,835	0	0	20,959	0	0	0	As Net Plant In Svc
Administrative Charge	120,936	0	0	0	0	120,936	0	0	100% WCA
Total Administrative & Other	\$614,471	\$203,801	\$0	\$0	\$187,062	\$223,608	\$0	\$0	
Total Sanitary Sewer Operations (710)	\$6,251,986	\$2,680,920	\$1,025,613	\$1,201,992	\$923,533	\$419,929	\$0	\$0	
Sanitary Sewer Capital Operations (730)									
Administrative Charge	\$100,672	\$0	\$0	\$0	\$0	\$100,672	\$0	\$0	100% WCA
Miscellaneous	0	0	0	0	0	0	0	0	As Net Plant In Svc
Improvement Other Than Building	0	0	0	0	0	0	0	0	As Net Plant In Svc
Total Sanitary Sewer Capital Operations (730)	\$100,672	\$0	\$0	\$0	\$0	\$100,672	\$0	\$0	
Total Operating & Maintenance Expense	\$7,861,347	\$3,320,268	\$1,025,613	\$1,201,992	\$1,510,369	\$803,106	\$0	\$0	
Net Capital Funded Through Rates	\$2,361,000	1,231,056	0	0	1,129,944	0	0	0	As Net Plant In Svc
Deferred Capital Funding (Debt Service)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	As Net Plant In Svc
Debt Service									
				0					
2016 Sewer Revenue Refunding	\$770,355	\$401,673	\$0	\$0	\$368,682	\$0	\$0	\$0	As Net Plant In Svc
2016 Sewer Revenue	620,741	323,663	0	0	297,079	0	0	0	As Net Plant In Svc
2019 Sewer Revenue	1,020,500	532,102	0	0	488,398	0	0	0	As Net Plant In Svc
New Low Interest Loan	0	0	0	0	0	0	0	0	As Net Plant In Svc
New Revenue Bond	0	0	0	0	0	0	0	0	As Net Plant In Svc
Total Debt Service	\$2,411,596	\$1,257,437	\$0	\$0	\$1,154,159	\$0	\$0	\$0	
Change in Working Capital +/-	\$688,244	\$358,859	\$0	\$0	\$329,385	\$0	\$0	\$0	As Net Plant In Svc
TOTAL REVENUE REQUIREMENTS	\$13,322,187	\$6,167,621	\$1,025,613	\$1,201,992	\$4,123,857	\$803,106	\$0	\$0	
Less: Miscellaneous Revenue									
Public Works Service Charges	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	As Net Plant In Svc
City CIP Chargeback	212,000	110,540	0	0	101,460	0	0	0	As Net Plant In Svc
Sewer Lateral Certificate Fee	2,850	2,850	0	0	0	0	0	0	100% Vol
Interest Earnings - Investments	94,043	43,538	7,240	8,485	29,111	5,669	0	0	As Total Rev. Req.
Reimbursements	0	0	0	0	0	0	0	0	As Net Plant In Svc
Standby Charges	138,406	72,166	0	0	66,239	0	0	0	As Net Plant In Svc
Total Miscellaneous Revenues	\$447,299	\$229,094	\$7,240	\$8,485	\$196,810	\$5,669	\$0	\$0	
NET REVENUE REQUIREMENTS FROM RATES	\$12,874,889	\$5,938,527	\$1,018,373	\$1,193,507	\$3,927,046	\$797,436	\$0	\$0	
% Net Revenue Requirement	100.0%	46.1%	7.9%	9.3%	30.5%	6.2%	0.0%	0.0%	

City of Belmont
Sewer Cost of Service Study
Exhibit 12
Allocation of Revenue Requirements

Allocation Components	Net Revenue Requirement	Residential	Commercial		Distribution Factor
			Low Strength	High Strength	
Volume Related	\$5,938,527	\$4,977,438	\$806,859	\$154,230	(VOL)
Strength Related					
Bio-oxygen Demand	\$1,018,373	\$815,440	\$132,185	\$70,748	(BOD)
Suspended Solids	1,193,507	955,674	154,918	82,915	(SS)
Total Strength Related	\$2,211,880	\$1,771,114	\$287,103	\$153,663	
Customer Related					
Actual Customer	\$3,927,046	\$3,806,027	\$104,907	\$16,112	(AC)
Weighted Customer	797,436	763,795	29,162	4,479	(WCA)
Total Customer Related	\$4,724,483	\$4,569,822	\$134,070	\$20,591	
Revenue Related	\$0	\$0	\$0	\$0	(RR)
Direct Assignment	\$0	\$0	\$0	\$0	(DA)
NET REVENUE REQUIREMENT	\$12,874,889	\$11,318,374	\$1,228,031	\$328,484	

City of Belmont
 Sewer Cost of Service Study
 Exhibit 13
 Summary of the Cost of Service Analysis

	FY 2020/21 Expenses	Commercial		
		Residential	Low Strength	High Strength
Revenues at Present Rates	\$12,032,606	\$10,698,204	\$996,853	\$337,550
Allocated Revenue Requirement	\$12,874,889	\$11,318,374	\$1,228,031	\$328,484
Balance/(Deficiency) of Funds	(\$842,282)	(\$620,170)	(\$231,179)	\$9,066
Required % Change in Rates	7.0%	5.8%	23.2%	-2.7%
Proposed Rate Adjustment	7.0%			
Additional Revenue from Rate Adjustment	\$842,282	\$740,454	\$80,339	\$21,490
Proposed Adjustment Based on COSA	7.0%	6.9%	8.1%	6.4%

City of Belmont
 Sewer Cost of Service Study
 Exhibit 14
 Average Unit Cost

	Total	Residential	Commercial Low Strength	Commercial High Strength
Volume - \$/100 cf [1]	\$6.56	\$6.56	\$6.56	\$6.56
Strength - \$/100 cf	\$2.44	\$2.33	\$2.33	\$6.53
Revenue/Direct - \$/100 cf	\$0.00	\$0.00	\$0.00	\$0.00
	-----	-----	-----	-----
Total \$/100 cf	\$9.00	\$8.89	\$8.89	\$13.09
Customer Costs - \$/account/annual	\$430.75	\$429.90	\$457.58	\$457.58
Average Total Cost \$/100 cf	\$14.22	\$14.91	\$9.98	\$13.97
Average Current Revenue \$/100 cf	\$13.29	\$14.10	\$8.10	\$14.35
Notes: [1] Volume per 100 cubic feet is based on annualized average monthly winter water usage values.				
Annual Cost - \$/account/year	\$1,173.86	\$1,064.76	\$4,191.23	\$7,299.64
Annual Revenue - \$/account/year	\$1,097.06	\$1,006.42	\$3,402.23	\$7,501.11
Basic Data:				
Annual Volume(/100 cf)	905,508	758,961	123,030	23,517
Number of Accounts	10,968	10,630	293	45