

CITY OF HOLLISTER

Wastewater Cost of Service and Rate Study

Final Report/ January 29, 2018





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January 29, 2018

Mr. Bill Avera
City Manager
City of Hollister
375 5th Street
Hollister, CA 95023

Subject: Wastewater Financial Plan and Rate Study

Dear Mr. Avera:

Raftelis Financial Consultants Inc. (Raftelis) is pleased to present this report on the Wastewater Financial Plan and Rate Study (Study) to the City of Hollister (City). The report presents a five -year financial plan for fiscal years (FY) 2018 to FY 2022. It also provides a Cost of Service analysis and updated rates based on said analysis, as well as updated capacity charges and septage rates. This report summarizes the recommendations and findings of the study.

As part of this study, Raftelis developed a 10-year financial planning model which was provided to the City. The model will allow the City to review and analyze future revenue adjustments.

We appreciate the assistance you and City staff have provided us during the course of the study. If you have any questions, please call me at 510.813.8704.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Sally Van Etten'.

Sally Van Etten
Project Manager

A handwritten signature in blue ink, appearing to read 'Victor Smith'.

Victor Smith
Consultant

Contents

1. Executive Summary	1
1.1 Objectives of the Study	1
1.2 Proposed Revenue Adjustments	1
1.3 Proposed Wastewater Rates.....	2
2. Project Background	3
2.2. Legal Framework	4
2.2.1. California Constitution – Article xiii d, Section 6 (Proposition 218)	4
2.2.2. Cost Based Rate-Setting Methodology	4
3. Financial Plan	1
3.1. Data and Assumptions	1
3.1.1. Current Rate Structure	1
3.1.2. Growth Rates	2
3.2. Current Revenues.....	4
3.3. Revenue Requirements	9
3.3.1. Operations and Maintenance Expenses.....	9
3.3.2. Capital Improvement Program	12
3.3.3. Debt Service.....	13
3.3.3.1. Debt Coverage Requirements.....	13
3.3.4. Reserve Requirements.....	13
3.4. Proposed Financial Plan	13
3.4.1. Revenue Adjustments.....	15
4. Cost of Service	18
4.1. Plant Mass Balance Analysis.....	18
4.1.1. Estimated Residential Flow Generation	21
4.2. Revenue Requirement	21
4.3. Unit Cost Derivation	22
4.3.1. Functional Costs to Cost Components	22
4.3.2. Units of Service	25
4.3.3. Unit Cost calculation and Customer Class Cost of Service	26
4.4. Rates and Charges Derivation	27
4.4.1. Residential Rates	27

4.4.2.	Non-Residential Rates	28
4.4.3.	Septage Rates	29
4.4.4.	COS Based Rates	29
5.	Sewer Facilities Impact Fees	31
5.1.	Economic and Legal Framework for Facilities impact fees	31
5.1.1.	Economic Framework	31
5.1.2.	Legal Framework	32
5.2.	Approach Overview	32
5.3.	Facilities Impact fees Calculations	33
5.3.1.	Current Value of the City’s Systems	33
5.3.2.	Outstanding Debt Principal	35
5.3.3.	Buy-In Component Calculations	35
5.3.4.	Incremental Component Calculations	36
5.3.5.	Hybrid Facilities Impact fee Calculation	37
5.3.6.	Non-Residential Impact fee Calculation	37

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1. EXECUTIVE SUMMARY

The City of Hollister (City) engaged Raftelis Financial Consultants (Raftelis) to prepare a financial plan and rate study (Study) for its wastewater enterprise. The City last updated its rates in FY 2011 with a large increase. The City is seeking to develop a revenue plan that funds all identified wastewater needs, including major rate funded capital projects totaling over \$5 million across the next five years. Debt represents one of the City's major operating expenses. The City recently refinanced its major debt issuances resulting in lower annual payments. The City is interested in lowering its recovered revenue with the additional flexibility earned by the refinance.

The proposed financial plan aims to strike a balance between rate reduction and capital improvement needs while maintaining the City's debt covenants. The proposed revenue adjustments would fund planned capital projects for the next five years while maintaining the total wastewater operating and capital funds at a healthy level.

The proposed financial plan involves a revenue adjustment that reduces total revenue by 5%. However, the Study also involves a new Cost of Service (COS) analysis which involves reallocating costs proportionally to the customer classes that cause them. Consequently, the 5% revenue reduction does not correspond to a 5% rate reduction across the board.

1.1 OBJECTIVES OF THE STUDY

The major objectives of the study include the following:

1. Ensure revenue sufficiency to meet the operation and maintenance (O&M) and capital needs of the City's wastewater enterprise
2. Plan for rate and revenue stability, and build adequate operating and capital reserves to ensure the overall financial health of the wastewater enterprise under varying conditions
3. Develop updated rates for each customer class

This executive summary provides an overview of the study and includes findings and recommendations for wastewater rates and fees. It additionally provides calculations and documentation for an update of the City's wastewater capacity charges and its septage rates.

1.2 PROPOSED REVENUE ADJUSTMENTS

At current rates, annual wastewater revenues are adequate to fund annual operating costs and result in increasing unrestricted ending balances. Revenues and reserves are more than adequate to fund capital projects planned over the next five fiscal years and also maintain debt covenants. The City is proposing a revenue reduction to avoid over-collecting funds. Table 1-1 shows the proposed revenue adjustments through the Study period.

City of Hollister
Wastewater Financial Plan Study Report

Table 1-1: Proposed Revenue Adjustments

Fiscal Year	Proposed Annual Revenue Adjustments
2018	-5.0 %
2019 – 2022	0.0 %

1.3 PROPOSED WASTEWATER RATES

The City has three residential classes and three non-residential classes. The City’s residential classes are Single Family, Multi-Family and Mobile Home. These customers pay a monthly fixed charge based on class type. The City’s non-residential classes are Low Strength, Moderate Strength and School. Low Strength and Moderate Strength pay a fixed charge as well as a quantity charge for every hundred cubic feet (hcf) of water they use. The School customer class pays a fixed charge based on the number of students in the school (student population is used as a proxy for flow). The City also charges for septage dumping at the treatment plant on a per-gallon basis. The proposed residential and non-residential service charges and quantity charges to be implemented starting in January 2018 are shown in Table 1-2. Per the City’s direction, Raftelis made no changes to the City’s current rate structure.

Table 1-2: Proposed Rates FY 2018

Customer Class	Fixed Charge	Quantity Charge (\$/hcf)
Single Family	\$80.38	#N/A
Multi-Family	\$70.07	#N/A
Mobile Home	\$49.17	#N/A
Low Strength	\$46.23	\$8.70
Moderate Strength	\$95.74	\$10.37
Schools*	\$1.73	
Septage Customers**	\$0.26	

* monthly rate per student

** rate per gallon

2. PROJECT BACKGROUND

The City of Hollister (City) is located in San Benito County, near the San Luis Reservoir. The City provides uninterrupted wastewater collection, treatment and disposal, storm water transmission, and pollution control services. The City serves approximately 13,000 residential sewer accounts and 350 commercial accounts.

The Hollister Wastewater Treatment Division owns the Industrial Wastewater Treatment Plant and the Domestic Water Reclamation Facility. The Domestic Water Reclamation Facility is operated by Veolia. The 4-million gallon per day Domestic Water Reclamation Facility treats domestic, commercial and industrial wastewater in the City of Hollister and produces Title 22 reclaimed water for park irrigation, agricultural use, airport greenery, and ground water recharge. The Industrial Wastewater Treatment Plant primarily treats waste from the tomato cannery located in the City. The Industrial Plant also collects a portion of the City's storm water runoff, however the industrial plant's costs are not included in this study.

The current wastewater rates, adopted in FY 2010-11 include fixed monthly charges for single family, multi-family, mobile homes and commercial customers. Low strength commercial/industrial customers and Moderate Strength commercial/industrial customers have a variable rate in addition to the fixed monthly charge. Elementary, Middle and High Schools are charged a fixed monthly charge per student. In April 2016, the City refinanced its wastewater bonds which resulted in annual debt savings. As a result of this refinance, the City's annual wastewater expenses have been reduced. The City engaged Raftelis to determine if this reduction could lead to a rate reduction for ratepayers.

As a part of the study, Raftelis evaluated the City's existing wastewater accounts and rates to confirm existing revenues and to develop projections for future revenues over the planning period. In addition, the City's wastewater revenue requirements, including operations and maintenance (O&M) expenses, capital expenditures, and debt service associated with existing and proposed debt issues, were evaluated and projected over the planning period. Lastly, Raftelis worked extensively with City staff to develop the proposed financial plan and determine the level of revenue reduction that is feasible for the City

In order to conduct the Study, Raftelis collected current and historical data from the City. This data included the number of equivalent dwelling units (EDUs) for residential customers, billable water usage, operating budgets, and capital improvement projects. FY 2016 actual usage and account data along with FY 2017 budgeted expenses were used as the starting point for the development of the financial plan.

2.2. LEGAL FRAMEWORK

2.2.1. CALIFORNIA CONSTITUTION – ARTICLE XIII D, SECTION 6 (PROPOSITION 218)

Proposition 218, reflected in the California Constitution as Article XIII D, was enacted in 1996 to ensure that rates and fees are reasonable and proportional to the cost of providing service. The principal requirements for fairness of the fees, as they relate to public wastewater service are as follows:

1. A property-related charge (such as water and sewer rates) imposed by a public agency on a parcel shall not exceed the costs required to provide the property related service.
2. Revenues derived by the charge shall not be used for any purpose other than that for which the charge was imposed.
3. The amount of the charge imposed upon any parcel shall not exceed the proportional cost of service attributable to the parcel.
4. No charge may be imposed for a service unless that service is actually used or immediately available to the owner of property.
5. A written notice of the proposed charge shall be mailed to the record owner of each parcel at least 45 days prior to the public hearing, when the agency considers all written protests against the charge.

2.2.2. COST BASED RATE-SETTING METHODOLOGY

Proposition 218 requires that wastewater rates and charges should be recovered from classes of customers in proportion to the cost of serving those customers.” It also requires that wastewater not be arbitrary and capricious, meaning that the rate-setting methodology must be sound and that there must be a nexus between the costs and the rates charged. Raftelis follows industry standard rate setting methodologies set forth by the Water Environment Federation (WEF) *Manual of Practice No. 27, Financing and Charges for Wastewater Systems, 2004* to ensure this study meets Proposition 218 requirements.

To develop utility rates that comply with Proposition 218 and industry standards while meeting other emerging goals and objectives of the utility, there are four major steps discussed below.

1) Calculate Revenue Requirement

The rate-making process starts by determining the test year revenue requirement, which for this study is FY 2018. The revenue requirement should sufficiently fund the utility’s O&M, debt service, capital expenses, and reserve funding.

2) Cost of Service Analysis (COS)

The annual cost of providing wastewater service is distributed among customer classes commensurate with their service requirements. A COS analysis involves the following:

1. Functionalize costs. Examples of functions are collection, treatment, and customer service.
2. Allocate functionalized costs to cost components. Cost components include wastewater flow, biological oxygen demand (BOD), and total suspended solids (TSS).

City of Hollister

Wastewater Financial Plan Study Report

3. Distribute the cost components. Distribute cost components, using unit costs, to customer classes in proportion to their burden on the wastewater system.

3) *Rate Design and Calculations*

Rates do more than simply recover costs. Within the legal framework and industry standards, properly designed rates should support and optimize a blend of various utility objectives, such as affordability for essential needs and revenue stability. Rates may also act as a public information tool in communicating these objectives to customers.

4) *Rate Adoption*

Rate adoption is the last step of the rate-making process to comply with Proposition 218. Raftelis documented the rate study results in this Study Report to serve as the City's administrative record and to help educate the public about the proposed changes, the rationale and justifications behind the changes, and their anticipated financial impacts in lay person's terms.

3. FINANCIAL PLAN

The financial plan shows the overall revenue adjustments needed by comparing all revenue requirements against current revenues. Revenue requirements include operating and capital expenses, debt payments, and reserve and coverage requirements.

3.1. DATA AND ASSUMPTIONS

In order to make projections for future revenues and expenses, it is necessary to compile and organize data and make certain assumptions. This section describes the data needed and the assumptions used to make such projections.

3.1.1. CURRENT RATE STRUCTURE

The City’s current residential wastewater rates consist of a fixed monthly charge and a volumetric rate per hundred cubic feet (hcf) for non-residential (commercial/industrial), a charge per student for schools and a charge per gallon for septage customers. The City has three different categories of non-residential customers, Low Strength, Moderate Strength and High Strength (although the City currently has no High Strength customers).

Table 3-1 shows the current rate structure for all customer types, including fixed charges and usage rates.

Table 3-1: Current Rate Structure

Customer Class	Fixed Charge	Usage Rate
Single Family	\$86.32	
Multi Family	\$75.25	
Mobile Home	\$52.80	
Commercial/Industrial		
Low Strength	\$40.62	\$7.54/hcf
Commercial/Industrial		
Moderate Strength	\$75.46	\$9.05/hcf
Schools		\$3.14/student
Septage Customers		\$0.05/per gallon ¹

¹ The septage rate was changed in January of 2017 per Raftelis’ recommendation. Previously it had been \$0.05 per gallon.

City of Hollister
Wastewater Financial Plan Study Report

3.1.2. GROWTH RATES

Table 3-2 shows the key account growth assumptions Raftelis used in this rate study, based on direction from City staff. A Single Family Residential (SFR) customer growth factor of 7% was assumed in FY 2018, dropping to 4% thereafter. was used for A growth factor of 0% was used for all other customers, except in FY 2018 where the City reported that it is anticipating five new restaurants (moderate strength commercial accounts), resulting in an increase of 5.30%.

The financial plan assumes that per capita water usage will remain relatively constant compared to FY 2016 levels, with the exception in FY 2018 where the City is anticipating the additional five restaurants midway through the year.² Note that the City provides wastewater service to two distinct areas: Inside City and Sunnyslope. These two areas pay the same rates, but have separate growth factors to account for the geographical differences between the two areas. Growth rates for Sunnyslope were set to 0% across the board for the entire study period.

Table 3-2: Growth Assumptions used in the Study

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
<u>Inside City</u>						
SFR	0.00%	7.00%	4.00%	4.00%	4.00%	4.00%
MFR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mobile Homes	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Commercial/Industrial						
Low Strength Accounts	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Low Strength Consumption	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Commercial/Industrial						
Moderate Strength Accounts	0.00%	5.30%	0.00%	0.00%	0.00%	0.00%
Moderate Strength Consumption	0.00%	2.65%	2.58%	0.00%	0.00%	0.00%
School (Students) *	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Septage Customers**	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

² This is why the usage factor only increases by half of the growth factor in that year, the remainder of the proportional usage increases in FY 2019. Note that the usage factor is lower in FY 2019 than FY 2018 to account for compounding.

City of Hollister
Wastewater Financial Plan Study Report

The following inflation factors were used to escalate the City's annual operating and capital expenses for its wastewater enterprise. The Model provides flexibility to use different inflation factors for different types of expenses. These factors are shown in Table 3-3.

City of Hollister
Wastewater Financial Plan Study Report

Table 3-3: Inflation Factors used in the Study

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
General	3.0%	3.0%	3.0%	3.0%	3.0%
Salaries	3.0%	3.0%	3.0%	3.0%	3.0%
Personnel	2.0%	2.0%	2.0%	2.0%	2.0%
Benefits	5.0%	5.0%	5.0%	5.0%	5.0%
Supplies & Materials	2.0%	3.0%	3.0%	3.0%	3.0%
Energy/Utilities	3.0%	5.0%	5.0%	5.0%	5.0%
Capital	3.0%	3.0%	3.0%	3.0%	3.0%
Cumulative Inflation	3.0%	6.1%	9.3%	12.6%	15.9%

3.2. CURRENT REVENUES

Raftelis projected the utility’s current and future revenues by using account and usage data from FY 2016 current rates along with account growth assumptions shown in Table 3-2 above. The resulting projections are discussed in this section.

Table 3-4 shows actual and projected Residential account numbers based on actual FY 2016 account totals and projected accounts and quantity charges based on the escalation factors shown in Table 3-2.

Table 3-4: Actual and Projected Residential Accounts

	<i>Actual</i> FY 2016	<i>Projected</i> FY 2017	<i>Projected</i> FY 2018	<i>Projected</i> FY 2019	<i>Projected</i> FY 2020	<i>Projected</i> FY 2021	<i>Projected</i> FY 2022
Inside City Customers							
SFR	5,210	5,210	5,575	5,798	6,030	6,272	6,523
MFR	1,398	1,398	1,398	1,398	1,398	1,398	1,398
Mobile Homes	235	235	235	235	235	235	235
Subtotal	6,843	6,843	7,208	7,431	7,663	7,905	8,156
Sunnyslope Customers							
SFR	3,252	3,252	3,252	3,252	3,252	3,252	3,252
MFR	694	694	694	694	694	694	694
Mobile Homes	-	-	-	-	-	-	-
Subtotal	3,946	3,946	3,946	3,946	3,946	3,946	3,946
Total Residential Accounts	10,789	10,789	11,154	11,377	11,609	11,851	12,102

Table 3-5 shows actual and projected Non-Residential accounts by strength categories based on FY 2016 account totals and escalated based on the factors shown in Table 3-2. Estimated water consumption by

City of Hollister
Wastewater Financial Plan Study Report

non-residential account categories is also shown. Water consumption is used as a proxy for wastewater flow because wastewater is not metered.

Table 3-5: Actual and Projected Non-Residential Accounts and Usage

	<i>Actual</i> FY 2016	<i>Projected</i> FY 2017	<i>Projected</i> FY 2018	<i>Projected</i> FY 2019	<i>Projected</i> FY 2020	<i>Projected</i> FY 2021	<i>Projected</i> FY 2022
Inside City							
Commercial/Industrial Low Strength Accounts	373	373	373	373	373	373	373
Low Strength Consumption	123,094	123,094	123,094	123,094	123,094	123,094	123,094
Commercial/Industrial Moderate Strength Accounts	76	76	81	81	81	81	81
Moderate Strength Consumption	44,625	44,625	45,808	46,991	46,991	46,991	46,991
School (Students) *	4,801	4,801	4,801	4,801	4,801	4,801	4,801
Septage Customers**	1,000,076	434,783	434,783	434,783	434,783	434,783	434,783
Accounts	449	449	454	454	454	454	454
Consumption	167,719	167,719	168,902	170,085	170,085	170,085	170,085
Sunnyslope							
Commercial/Industrial Low Strength Accounts	6	6	6	6	6	6	6
Low Strength Consumption	309	309	309	309	309	309	309
Commercial/Industrial Moderate Strength Accounts	-	-	-	-	-	-	-
Moderate Strength Consumption	-	-	-	-	-	-	-
School (Students) *	2,937	2,937	2,937	2,937	2,937	2,937	2,937
Septage Customers**	-	-	-	-	-	-	-
Accounts	6	6	6	6	6	6	6
Consumption	309	309	309	309	309	309	309

The City of Hollister serves accounts both inside the City of Hollister (“Inside City” accounts) as well as some accounts City located in the Sunnyslope neighborhood area. Sunnyslope area accounts are provided water by the Sunnyslope County Water District but discharge wastewater that is treated by the Domestic Water Reclamation Facility. Raftelis calculated the utility’s projected fixed revenue by multiplying the account totals in Table 3-4 and Table 3-5 by the relevant current rates found in Table 3-1. Revenues for Inside City accounts for FY 2017 through FY 2022 are shown in Table 3-6. Septage quantities are projected to decrease due to the large increase in cost per gallon discharged.

City of Hollister
Wastewater Financial Plan Study Report

Table 3-6: Inside City Revenue FY 2017-FY 2022

	Estimated FY 2017	Projected FY 2018	Projected FY 2019	Projected FY 2020	Projected FY 2021	Projected FY 2022
Residential Revenues						
Single Family	\$5,396,726	\$5,774,808	\$6,005,800	\$6,246,115	\$6,496,788	\$6,756,784
Multi Family	\$1,262,394	\$1,262,394	\$1,262,394	\$1,262,394	\$1,262,394	\$1,262,394
Mobile Homes	\$148,896	\$148,896	\$148,896	\$148,896	\$148,896	\$148,896
Subtotal Fixed Charge Revenues	\$6,808,016	\$7,186,098	\$7,417,090	\$7,657,405	\$7,908,078	\$8,168,074
Non-Residential Revenues						
Commercial/Industrial Low Strength						
Accounts	\$181,815	\$181,815	\$181,815	\$181,815	\$181,815	\$181,815
Consumption						
Commercial/Industrial Moderate Strength	\$928,129	\$928,129	\$928,129	\$928,129	\$928,129	\$928,129
Accounts	\$68,820	\$73,347	\$73,347	\$73,347	\$73,347	\$73,347
Consumption						
School (Students)	\$403,856	\$414,562	\$425,269	\$425,269	\$425,269	\$425,269
	\$180,902	\$180,902	\$180,902	\$180,902	\$180,902	\$180,902
Subtotal Non-Residential	\$1,763,521	\$1,778,755	\$1,789,461	\$1,789,461	\$1,789,461	\$1,789,461
Subtotal Inside City Revenues	\$8,571,538	\$8,964,853	\$9,206,552	\$9,446,866	\$9,697,540	\$9,957,536
Septage Customers	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000

Totals in Table 3-6 may not add exactly due to rounding.

Sunnyslope revenues for FY 2017 through FY 2022 are shown in Table 3-7.

City of Hollister
Wastewater Financial Plan Study Report

Table 3-7: Sunnyslope Revenue FY 2017-FY 2022

	Estimated FY 2017	Projected FY 2018	Projected FY 2019	Projected FY 2020	Projected FY 2021	Projected FY 2022
Residential Revenues						
Single Family	\$3,368,552	\$3,368,552	\$3,368,552	\$3,368,552	\$3,368,552	\$3,368,552
Multi Family	\$626,682	\$626,682	\$626,682	\$626,682	\$626,682	\$626,682
Mobile Homes	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal Fixed Charge Revenues	\$3,995,234	\$3,995,234	\$3,995,234	\$3,995,234	\$3,995,234	\$3,995,234
Non-Residential Revenues						
Commercial/Industrial Low Strength Accounts	\$2,925	\$2,925	\$2,925	\$2,925	\$2,925	\$2,925
Commercial/Industrial Low Strength Consumption	\$2,330	\$2,330	\$2,330	\$2,330	\$2,330	\$2,330
Commercial/Industrial Moderate Strength Accounts	\$0	\$0	\$0	\$0	\$0	\$0
Commercial/Industrial Moderate Strength Consumption	\$0	\$0	\$0	\$0	\$0	\$0
School (Students)	\$110,666	\$110,666	\$110,666	\$110,666	\$110,666	\$110,666
Subtotal Non-Residential	\$115,921	\$115,921	\$115,921	\$115,921	\$115,921	\$115,921
Subtotal Sunnyslope Revenues	\$4,111,154	\$4,111,154	\$4,111,154	\$4,111,154	\$4,111,154	\$4,111,154
Septage Customers	\$0	\$0	\$0	\$0	\$0	\$0

Totals in Table 3-7 may not add exactly due to rounding.

Total operating revenues are calculated by adding the total Inside City revenues to total Sunnyslope revenues. These total operating revenues are shown in Table 3-8.

City of Hollister
Wastewater Financial Plan Study Report

Table 3-8: Total Operating Revenues FY 2017-FY 2022

	<i>Estimated</i> FY 2017	<i>Projected</i> FY 2018	<i>Projected</i> FY 2019	<i>Projected</i> FY 2020	<i>Projected</i> FY 2021	<i>Projected</i> FY 2022
Total Inside City Revenues	\$8,571,538	\$8,964,853	\$9,206,552	\$9,446,866	\$9,697,540	\$9,957,536
Total Sunnyslope Revenues	\$4,111,154	\$4,111,154	\$4,111,154	\$4,111,154	\$4,111,154	\$4,111,154
TOTAL CALCULATED REVENUES	\$12,682,692	\$13,076,007	\$13,317,706	\$13,558,021	\$13,808,694	\$14,068,690

The utility has several categories of non-operating revenues as well, these are shown along with operating revenues below, resulting in Total Revenues for the utility. These are shown for FY 2017 through FY 2022 in Table 3-9. Septage revenue is included in category 440 – Charges for services. It is excluded from Calculated Operating Revenue because these revenues are fairly variable.

Table 3-9: Total Utility Revenues FY 2017-FY 2020

	<i>Estimated</i> FY 2017	<i>Projected</i> FY 2018	<i>Projected</i> FY 2019	<i>Projected</i> FY 2020	<i>Projected</i> FY 2021	<i>Projected</i> FY 2022
Other Operating Revenue						
Category: 410 – FRANCHISES	\$0	\$0	\$0	\$0	\$0	\$0
Category: 420 - LICENSES & PERMITS	\$800	\$800	\$800	\$800	\$800	\$800
Category: 440 - CHARGES FOR SERVICES ³	\$103,000	\$103,000	\$103,000	\$103,000	\$103,000	\$103,000
Category: 450 - USES OF ASSETS	\$0	\$0	\$0	\$0	\$0	\$0
Category: 460 - FINES & FORFEITURES	\$175,000	\$175,000	\$175,000	\$175,000	\$175,000	\$175,000
Category: 490 - OTHER	\$0	\$0	\$0	\$0	\$0	\$0
Calculated Operating Revenue	\$12,682,692	\$13,076,007	\$13,317,706	\$13,558,021	\$13,808,694	\$14,068,690
TOTAL REVENUE	\$12,961,492	\$13,354,807	\$13,596,506	\$13,836,821	\$14,087,494	\$14,347,490

³ Septage Revenues are included in Charges for Services rather than Calculated Operating Revenues. There is an additional estimated \$3,000 of revenue projected annually in NSF charges in this Category.

3.3. REVENUE REQUIREMENTS

To determine the revenue requirements for the wastewater utility, Raftelis reviewed the O&M and capital expenses, capital financing, and debt service and reserves requirements. These are described below.

3.3.1. OPERATIONS AND MAINTENANCE EXPENSES

The City's FY 2017 and FY 2018 budgeted expenses were used as the basis for projecting O&M costs for the planning period. In order to project O&M expenses for future years, Raftelis used inflation factors shown in Table 3-3 for the planning period. Table 3-10 shows budgeted and projected O&M expenses for the Wastewater Fund. The items in the budget below correspond with the City's overall budgetary department and category numbers. The entries start with either a four digit or three digit number. The four digit numbers identify each department by its budgetary department number, the three digit numbers indicate the budget number of the expense category.

These O&M Expenses are subtotaled in bold for each budgetary department heading.

City of Hollister
Wastewater Financial Plan Study Report

Table 3-10: O&M Expenses

	Budgeted	Projected	Projected	Projected	Projected	Projected
	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
1100 - NON DEPARTMENT						
740 - CONTRACTUAL Total:	\$592,686	\$464,500	\$478,435	\$161,257	\$166,095	\$171,077
764 - OTHER EXPENSES Total:	\$392,909	\$392,909	\$404,696	\$416,837	\$429,342	\$442,223
1100 - NON DEPARTMENT Total:	\$985,595	\$857,409	\$883,131	\$578,094	\$595,437	\$613,300
1120 - CITY MANAGER						
701 - PERSONNEL Total:	\$14,100	\$14,842	\$15,413	\$16,008	\$16,627	\$17,271
735 - SERVICES & SUPPLIES Total:	\$0	\$0	\$0	\$0	\$0	\$0
1120 - CITY MANAGER Total:	\$14,100	\$34,842	\$36,013	\$37,226	\$38,481	\$39,781
1155 - FINANCE						
701 - PERSONNEL Total:	\$235,720	\$210,852	\$218,957	\$227,394	\$236,177	\$245,322
735 - SERVICES & SUPPLIES Total:	\$29,790	\$31,618	\$32,629	\$33,672	\$34,751	\$35,865
740 - CONTRACTUAL Total:	\$66,647	\$74,147	\$76,371	\$78,663	\$81,022	\$83,453
1155 - FINANCE Total:	\$332,157	\$316,617	\$327,957	\$339,729	\$351,951	\$364,641
1157 - INFORMATION SYSTEMS						
701 - PERSONNEL Total:	\$82,944	\$85,154	\$88,376	\$91,728	\$95,216	\$98,845
735 - SERVICES & SUPPLIES Total:	\$4,300	\$5,600	\$5,768	\$5,941	\$6,119	\$6,303
740 - CONTRACTUAL Total:	\$28,400	\$29,500	\$30,385	\$31,297	\$32,235	\$33,203
750 - CAPITAL Total:	\$22,000	\$0	\$0	\$0	\$0	\$0
1157 - INFORMATION SYSTEMS Total:	\$137,644	\$120,254	\$124,529	\$128,966	\$133,571	\$138,350
4000 - ENGINEERING						
701 - PERSONNEL Total:	\$167,990	\$141,199	\$146,352	\$151,705	\$157,267	\$163,046
735 - SERVICES & SUPPLIES Total:	\$43,399	\$12,575	\$12,952	\$13,341	\$13,741	\$14,153
740 - CONTRACTUAL Total:	\$14,000	\$15,000	\$15,450	\$15,914	\$16,391	\$16,883
750 - CAPITAL Total:	\$0	\$0	\$0	\$0	\$0	\$0
4000 - ENGINEERING Total:	\$225,389	\$168,774	\$174,754	\$180,959	\$187,399	\$194,082
4100 - RISK MANAGEMENT						
701 - PERSONNEL Total:	\$0	\$0	\$0	\$0	\$0	\$0
735 - SERVICES & SUPPLIES Total:	\$0	\$0	\$0	\$0	\$0	\$0
4100 - RISK MANAGEMENT Total:	\$0	\$0	\$0	\$0	\$0	\$0

City of Hollister
Wastewater Financial Plan Study Report

	Budgeted FY 2017	Projected FY 2018	Projected FY 2019	Projected FY 2020	Projected FY 2021	Projected FY 2022
4300 - CODE ENFORCEMENT						
701 - PERSONNEL Total:	\$82,732	\$69,411	\$71,910	\$74,504	\$77,199	\$79,997
735 - SERVICES & SUPPLIES Total:	\$21,225	\$12,525	\$12,936	\$13,361	\$13,800	\$14,254
740 - CONTRACTUAL Total:	\$120	\$120	\$124	\$127	\$131	\$135
750 - CAPITAL Total:	\$0	\$2,500	\$2,575	\$2,652	\$2,732	\$2,814
4300 - CODE ENFORCEMENT Total:	\$104,077	\$84,556	\$87,544	\$90,644	\$93,861	\$97,200
4990 - SEWER DOMESTIC						
701 - PERSONNEL Total:	\$24,105	\$20,952	\$21,828	\$22,742	\$23,697	\$24,694
735 - SERVICES & SUPPLIES Total:	\$1,048,615	\$980,483	\$1,024,884	\$1,071,366	\$1,120,030	\$1,170,980
740 - CONTRACTUAL Total:	\$1,438,000	\$1,474,790	\$1,547,730	\$1,624,292	\$1,704,658	\$1,789,017
750 - CAPITAL Total:	\$210,000	\$210,000	\$216,300	\$222,789	\$229,473	\$236,357
4990 - SEWER DOMESTIC Total:	\$2,720,720	\$2,686,225	\$2,810,741	\$2,941,189	\$3,077,857	\$3,221,047
4991 - SEWER INDUSTRIAL						
701 - PERSONNEL Total:	\$771	\$0	\$0	\$0	\$0	\$0
735 - SERVICES & SUPPLIES Total:	\$80,605	\$57,540	\$59,298	\$61,111	\$62,979	\$64,906
740 - CONTRACTUAL Total:	\$80,500	\$250,000	\$257,500	\$265,225	\$273,182	\$281,377
4991 - SEWER INDUSTRIAL Total:	\$161,876	\$307,540	\$316,798	\$326,336	\$336,161	\$346,283
4995 - SEWER COLLECTION						
701 - PERSONNEL Total:	\$1,145,522	\$1,225,571	\$1,270,927	\$1,318,073	\$1,367,085	\$1,418,040
735 - SERVICES & SUPPLIES Total:	\$309,600	\$326,276	\$337,282	\$348,680	\$360,483	\$372,707
740 - CONTRACTUAL Total:	\$60,500	\$45,130	\$46,484	\$47,878	\$49,315	\$50,794
750 - CAPITAL Total:	\$5,000	\$300,500	\$309,515	\$318,800	\$328,364	\$338,215
4995 - SEWER COLLECTION Total:	\$1,520,622	\$1,897,477	\$1,964,208	\$2,033,432	\$2,105,247	\$2,179,757
5005 - VEHICLE MAINTENANCE						
701 - PERSONNEL Total:	\$116,186	\$150,946	\$156,367	\$161,994	\$167,838	\$173,905
735 - SERVICES & SUPPLIES Total:	\$34,190	\$35,538	\$36,604	\$37,702	\$38,833	\$39,998
5005 - VEHICLE MAINTENANCE Total:	\$150,376	\$186,484	\$192,971	\$199,696	\$206,671	\$213,904
7000 - PARKS						
701 - PERSONNEL Total:	\$159,918	\$249,750	\$259,226	\$269,086	\$279,346	\$290,023
735 - SERVICES & SUPPLIES Total:	\$60,854	\$59,696	\$61,557	\$63,477	\$65,459	\$67,503
740 - CONTRACTUAL Total:	\$4,000	\$4,000	\$4,120	\$4,244	\$4,371	\$4,502
750 - CAPITAL Total:	\$0	\$0	\$0	\$0	\$0	\$0
7000 - PARKS Total:	\$224,772	\$313,446	\$324,903	\$336,807	\$349,175	\$362,028
Expense Total:	\$6,577,328	\$6,973,624	\$7,243,550	\$7,193,078	\$7,475,811	\$7,770,373

City of Hollister
Wastewater Financial Plan Study Report

3.3.2. CAPITAL IMPROVEMENT PROGRAM

Table 3-11 below shows the Capital Improvement Program (CIP) for the City’s wastewater enterprise inflated using the 3% capital inflation factor shown in Table 3-3. Projects which are significant drivers for the City’s CIP include the Nash Road Sewer Pipe Upgrade and Sunset Drive Sewer Pipe Upgrades. The City’s CIP is split into Upgrade and Expansion-oriented projects. The Sewer Enterprise uses operating revenues to pay for Upgrade Projects and capacity fee revenues to pay for Expansion Projects. Fund 660 is the City’s wastewater operating fund. Fund 661 is the City’s wastewater capital expansion fund.

Table 3-11: Inflated Capital Improvement Program

	Budgeted	Projected	Projected	Projected	Projected	Projected
	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Upgrade Projects - Fund 660						
GLP Lift Station Upgrade	\$60,000	\$0	\$0	\$0	\$0	\$0
Line Street Sewer Pipe Upgrade	\$0	\$955,500	\$0	\$0	\$0	\$0
Airport Lift Station Upgrade	\$106,700	\$0	\$0	\$0	\$0	\$0
Nash Road Sewer Pipe Upgrade	\$0	\$0	\$0	\$1,585,640	\$0	\$0
City Phone Sys/Network Infrastructure	\$30,428	\$0	\$0	\$0	\$0	\$0
West Street Sewer Pipe Upgrade	\$0	\$0	\$0	\$559,600	\$0	\$0
Sunset Drive Sewer Pipe Upgrade	\$0	\$0	\$0	\$1,392,760	\$0	\$0
Subtotal Upgrade Projects - Fund 660	\$197,128	\$955,500	\$0	\$3,538,000	\$0	\$0
Expansion Projects - Fund 661						
GLP Lift Station Upgrade	\$0	\$0	\$0	\$0	\$0	\$0
Line Street Sewer Pipe Upgrade	\$0	\$409,500	\$0	\$0	\$0	\$0
Airport Lift Station Upgrade	\$0	\$0	\$0	\$0	\$0	\$0
Nash Road Sewer Pipe Upgrade	\$0	\$0	\$0	\$679,560	\$0	\$0
City Phone Sys/Network Infrastructure	\$0	\$0	\$0	\$0	\$0	\$0
West Street Sewer Pipe Upgrade	\$0	\$0	\$0	\$62,000	\$0	\$0
Sunset Drive Sewer Pipe Upgrade	\$0	\$0	\$0	\$928,440	\$0	\$0
Subtotal Expansion Projects - Fund 661	\$0	\$409,500	\$0	\$1,670,000	\$0	\$0
TOTAL CIP PROJECTS	\$197,128	\$1,365,000	\$0	\$5,208,000	\$0	\$0

3.3.3. DEBT SERVICE

Table 3-12 below shows the existing debt service payment schedule for the City’s wastewater enterprise. The City currently has one bond outstanding and recently refinanced its debt in FY 2016.

Table 3-12: Total Debt Service for the City’s Wastewater Enterprise

	<i>Estimated</i> FY 2017	<i>Budgeted</i> FY 2018	<i>Projected</i> FY 2019	<i>Projected</i> FY 2020	<i>Projected</i> FY 2021	<i>Projected</i> FY 2022
2016 Wastewater Revenue Refunding Bonds						
Interest	\$3,408,706	\$2,924,350	\$2,860,900	\$2,773,700	\$2,660,450	\$2,541,450
Principal	\$1,630,000	\$2,115,000	\$2,180,000	\$2,265,000	\$2,380,000	\$2,500,000
Total	\$5,038,706	\$5,039,350	\$5,040,900	\$5,038,700	\$5,040,450	\$5,041,450

3.3.3.1. DEBT COVERAGE REQUIREMENTS

The City’s existing debt covenant requires the City’s wastewater enterprise to maintain Net System Revenues⁴ equal to 110% of the Total Debt Service for each fiscal year. In addition, the City’s debt covenant requires that such revenues and debt service exclude interest amounts earned on reserves. The City meets its debt coverage requirements in each year of the plan in Table 3-13 below.

3.3.4. RESERVE REQUIREMENTS

The City’s reserve policy requires an Emergency Reserve equal to at least 15% of its annual operating budget for the following fiscal year set aside for the purpose of responding to emergencies. The City also maintains a Rate Stabilization Reserve. The Rate Stabilization Reserve target is set to 15% of total rate revenues.

3.4. PROPOSED FINANCIAL PLAN

Given the above information, and especially in light of the City’s favorable debt refinancing, the City intends to reduce its overall collected wastewater revenue by 5% in FY 2018. The revenues and revenues requirements are shown with the proposed revenue reduction in Table 3-13 below. The proposed financial plan indicates that even with the proposed revenue reduction, the City is fully covering its debt coverage requirements, and is maintaining its reserve target levels through the study period.

⁴ Net System Revenues is defined as the City’s wastewater operating revenues less its O&M and debt expenses.

City of Hollister
Wastewater Financial Plan Study Report

Table 3-13: Projected Cash Flow for the City's Wastewater Enterprise

	Estimated FY 2017	Budgeted FY 2018	Projected FY 2019	Projected FY 2020	Projected FY 2021	Projected FY 2022
Sewer Revenue under Existing Rates	\$12,682,692	\$13,076,007	\$13,317,706	\$13,558,021	\$13,808,694	\$14,068,690
Total Additional Revenues from Revenue Adjustment	\$0	-\$326,900	-\$665,885	-\$677,901	-\$690,435	-\$703,434
Total Revenue from Rates	\$12,682,692	\$12,749,107	\$12,651,821	\$12,880,120	\$13,118,259	\$13,365,255
Other Operating Revenue						
Category: 410 - FRANCHISES	\$0	\$0	\$0	\$0	\$0	\$0
Category: 420 - LICENSES & PERMITS	\$800	\$800	\$800	\$800	\$800	\$800
Category: 440 - CHARGES FOR SERVICES	\$103,000	\$103,000	\$103,000	\$103,000	\$103,000	\$103,000
Category: 450 - USES OF ASSETS	\$0	\$0	\$0	\$0	\$0	\$0
Category: 460 - FINES & FORFEITURES	\$175,000	\$175,000	\$175,000	\$175,000	\$175,000	\$175,000
Category: 490 - OTHER	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL REVENUE	\$12,961,492	\$13,027,907	\$12,930,621	\$13,158,920	\$13,397,059	\$13,644,055
O&M Expenses	\$6,577,328	\$6,973,624	\$7,243,550	\$7,193,078	\$7,475,811	\$7,770,373
CIP Spending (Upgrade Projects)	\$197,128	\$984,165	\$0	\$3,866,068	\$0	\$0
Current Debt Service	\$5,038,706	\$5,039,350	\$5,040,900	\$5,038,700	\$5,040,450	\$5,041,450
Proposed Debt Service	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL EXPENSES	\$11,813,162	\$12,997,139	\$12,284,450	\$16,097,846	\$12,516,261	\$12,811,823
Non-Cumulative Annual Cash Balance	\$1,148,330	\$30,768	\$646,171	-\$2,938,926	\$880,799	\$832,233
Debt Coverage	126.7%	120.1%	112.8%	118.4%	117.5%	116.5%
Req'd Debt Coverage - 110%	110%	110%	110%	110%	110%	110%

City of Hollister
Wastewater Financial Plan Study Report

	Estimated FY 2017	Budgeted FY 2018	Projected FY 2019	Projected FY 2020	Projected FY 2021	Projected FY 2022
Upgrade Projects (Fund 660)						
Beginning Balance	\$5,763,783	\$6,943,882	\$7,009,534	\$7,710,906	\$4,834,708	\$5,768,523
Annual Cash Balance	\$1,148,330	\$30,768	\$646,171	-\$2,938,926	\$880,799	\$832,233
Ending Balance before Interest	\$6,912,113	\$6,974,650	\$7,655,705	\$4,771,980	\$5,715,506	\$6,600,755
<i>Interest</i>	<i>\$31,769</i>	<i>\$34,884</i>	<i>\$55,202</i>	<i>\$62,728</i>	<i>\$53,016</i>	<i>\$62,157</i>
Ending Balance after Interest	\$6,943,882	\$7,009,534	\$7,710,906	\$4,834,708	\$5,768,523	\$6,662,912
O&M Target	\$1,742,405	\$1,801,946	\$1,842,667	\$1,834,767	\$1,877,439	\$1,921,773
Rate Stabilization Target	\$1,902,404	\$1,912,366	\$1,897,773	\$1,932,018	\$1,967,739	\$2,004,788
Total Reserve Target	\$3,644,809	\$3,714,312	\$3,740,441	\$3,766,785	\$3,845,178	\$3,926,562
Impact Fee Fund (Expansion Fund 661)						
Beginning Balance	\$47,000	\$47,235	\$1,183,283	\$2,128,610	\$1,291,421	\$2,326,327
Impact Fees	\$0	\$1,554,764	\$937,068	\$974,887	\$1,016,908	\$1,054,727
Capital Expenses	\$0	-\$421,785	\$0	-\$1,824,854	\$0	\$0
Ending Balance before Interest	\$47,000	\$1,180,214	\$2,120,351	\$1,278,643	\$2,308,329	\$3,381,055
<i>Interest</i>	<i>\$235</i>	<i>\$3,069</i>	<i>\$8,259</i>	<i>\$12,777</i>	<i>\$17,999</i>	<i>\$28,537</i>
Ending Balance after Interest	\$47,235	\$1,183,283	\$2,128,610	\$1,291,421	\$2,326,327	\$3,409,591

3.4.1. REVENUE ADJUSTMENTS

Raftelis reviewed the City’s operating and capital expenses, existing debt and the revenues under the current rates to determine the necessary revenue adjustments over the planning period. Based on Raftelis’s analysis, the following revenue reduction is proposed for the planning period. This adjustment is proposed to be made in January of FY 2018.

Table 3-14: Proposed Revenue Adjustments

Fiscal Year	Proposed Annual Revenue Adjustments
2018	-5.0 %
2019 – 2022	0.0 %

As shown in Table 3-13 above, the projected rate revenues (which include the proposed rate adjustments) are sufficient to maintain a debt coverage ratio above the required 110% requirement and to maintain its reserve target levels for both its operating reserve fund and its rate stabilization reserve fund.

City of Hollister
Wastewater Financial Plan Study Report

Figure 3-1 shows the proposed operating financial plan graphically. It includes operating costs in dark blue, debt service in light purple, transfers to reserves to fund capital costs (summarized as “Rate Funded Cap Projects”) in orange, and transfers to the operating fund shown in green. The transfer below the x-axis in FY 2020 indicates a drawdown of reserves to fund capital projects. The lines representing the revenues under the current rates and revenues with the proposed revenue adjustments discussed above are included. Figure 3-1 shows that proposed revenue adjustments will generate sufficient revenues for the City to successfully meet its ongoing operating costs and to fund its annual debt service. Funds not used to meet O&M expenses, capital projects, or annual debt service are used to fund reserves. Annual operating costs are projected to grow from \$13.0 to \$13.6 million across the study period, with a slight dip in FY 2019.

Figure 3-1: Operating Financial Plan

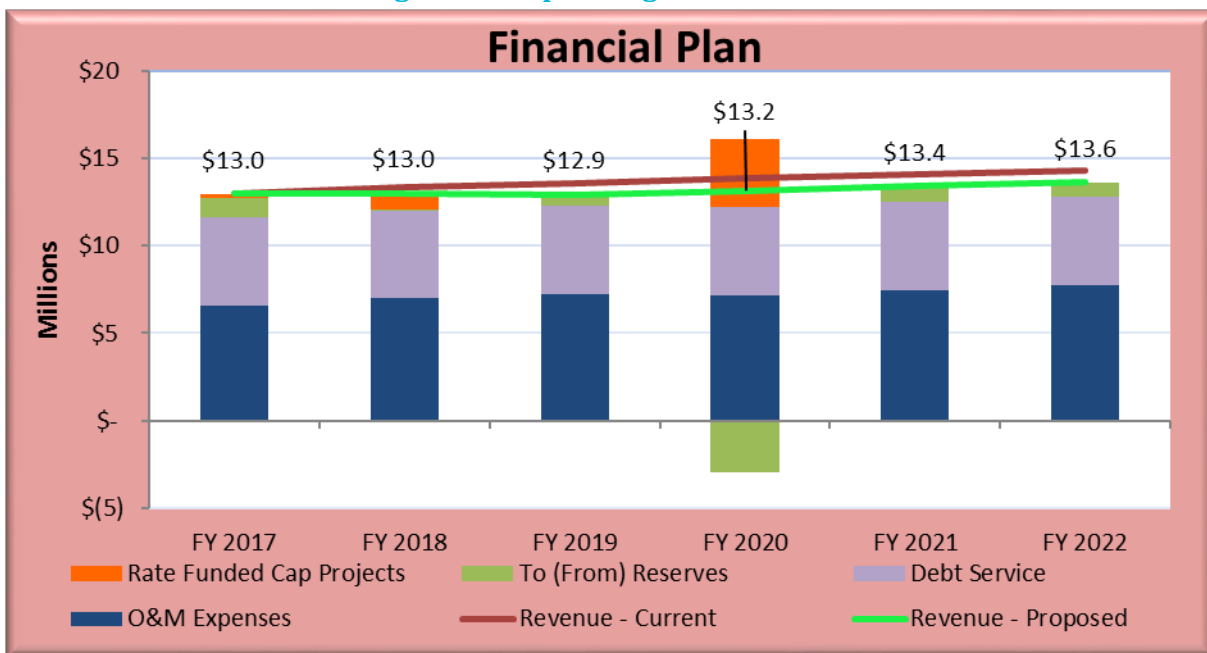
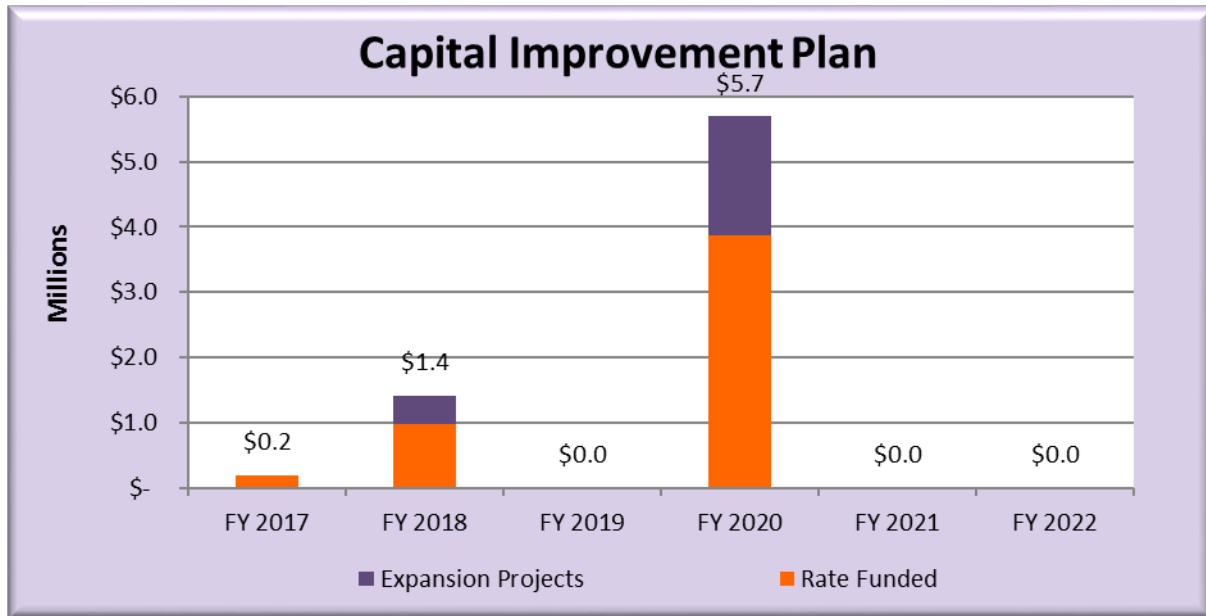


Figure 3-2 shows the total capital expenses each year for the City’s wastewater enterprise. Rate funded projects are shown by orange bars, expansion projects, those that are funded by impact fees are shown in purple. The total includes spending on both Expansion and Rate Funded projects.

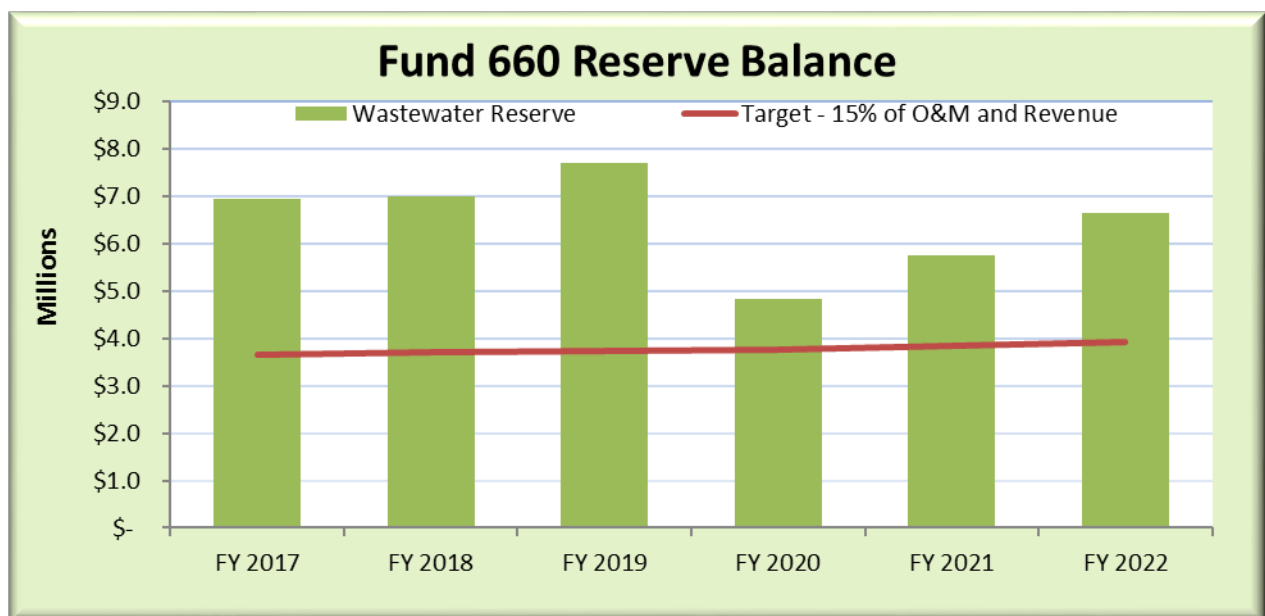
City of Hollister
Wastewater Financial Plan Study Report

Figure 3-2: CIP Funding Sources



Under the proposed financial plan, the City will be able to successfully meet or slightly exceed its reserve target levels across the entire study period as shown Figure 3-3. The large dip in the Fund 660 reserve balance in FY 2020 is a result of spending on three large planned rate-funded capital projects: the Nash Road Sewer Pipe Upgrade, the West Street Sewer Pipe Upgrade, and the Sunset Drive Sewer Pipe Upgrade.

Figure 3-3: Fund 660 Reserve Balances



4. COST OF SERVICE

This section of the Report discusses the allocation of O&M expenses and capital costs to cost components (consistent with industry standards), the determination of unit costs, and calculation of wastewater costs by customer class.

Costs of providing wastewater service are largely dependent on the quantity (flows) and quality (strengths) of the wastewater. Quality of wastewater flows are measured by the presence of pollutants to be removed during the treatment process under the National Pollutant Discharge Elimination System (NPDES) permit. These pollutants are classified as biological oxygen demand (BOD) and total suspended solids (TSS).

To determine the cost of serving the various customer classes, costs first need to be allocated to the appropriate wastewater parameters. The following sections describe the allocation of operating and capital costs to the appropriate parameters, or functions, of the wastewater system. We analyze the total costs of wastewater service by system function in order to equitably distribute costs of service to the various customer classes. We allocate wastewater utility costs of service in a manner consistent with the guidelines of the Water Environment Federation (WEF) *Manual of Practice No. 27, Financing and Charges for Wastewater Systems, 2004*. The wastewater COS analysis consists of seven major steps, as outlined below:

1. Determine non-residential customer flow and strength loadings based on water usage
2. Estimate the flow and strength of the residential customer class using plant balance analysis, which takes into consideration infiltration and inflow (I&I)
3. Functionalize O&M and capital costs into functional categories such as Collection, Treatment, and Billing and Customer Service
4. Allocate each functional category into cost components such as Flow, Strength, and Billing and Customer Service
5. Develop customer class characteristics (units of service) by cost component
6. Calculate the cost component rates by dividing the total cost in each cost component in Step 4 by the customer class unit of service in Step 5
7. Calculate the cost by customer class by multiplying the unit cost in Step 6 by the customer class units of service in Step 5

4.1. PLANT MASS BALANCE ANALYSIS

A plant mass balance analysis is used to estimate and validate the wastewater loadings (flow and strength) generated by each customer class. While wastewater discharged into the sewer collection

City of Hollister
Wastewater Financial Plan Study Report

system is not metered, we do have data on the flow and strength of influent entering the treatment plant. Additionally, while non-residential customer flows and strengths can be estimated based on their water usage; non-residential customer strength concentrations are estimated according to industry standards⁵. Non-residential flows were calculated by applying a 90% return factor to them. Our analysis assumes that 90% of the water that non-residential accounts used would return to the wastewater treatment plant, consistent with industry standards, as shown in Table 4-1, shown below. The remaining loadings, net of the total influent flow to the treatment plant (row 1), infiltration and inflow (I&I) (row 2), less non-residential and septage flows (row 9), are assigned to residential customers (row 10) of Table 4-1. Based on this mass-balance analysis, the estimated residential flow is determined to be 1.73 mgd or 45.8 gallons per capita per day (based on a residential population of 37,726), which is a reasonable estimate of the amount of indoor water usage per person based on the State set target of 55 gallons per capita per day, and the ongoing drought conditions in 2016. The estimated residential strength concentration is 261 and 307 milligrams per liter (mg/l) of BOD and TSS (Equation 4-2), respectively, which is also a reasonable estimate of residential strength concentration based on the LACSD Study.

Table 4-1: 2016 Plant Balance Analysis

Line	FY 2016 Data	Cost Component			(Yearly Data)		
		A	B	C	D	E	F
		WW Flow	BOD	TSS	Flow	BOD	TSS
		(mgd)	(mg/L)	(mg/L)	hcf	lb/yr	lb/yr
1	Total Flow	2.19	251.3	290.9	1,073,209	1,682,510	1,947,688
2	Infiltration and Inflow	0.11	15	15	53,660	5,021	5,021
3	Net Flow from All Customers	2.08	264	305	1,019,548	1,677,488	1,942,667
4	Non-Residential						
5	Low Strength Consumption	0.23	250	250	111,063	173,211	173,211
6	Moderate Strength Consumption	0.08	350	350	41,227	90,016	90,016
7	School (Students)	0.04	130	100	18,621	15,101	11,616
8	Septage Customers	0.00	5,400	12,000	581	19,581	43,513
9	Subtotal Non-Residential Flow	0.35	278	298	171,492	297,909	318,356
10	Net Residential Flow	1.73			848,056	1,379,579	1,624,310
		(hcf)	(mg/L)	(mg/L)			
11	Estimated Flow and Strength of 1 Single Family	161	261	307			

⁵ Estimated using available City of Los Angeles and Los Angeles County Sanitation District (LACSD) wastewater generation and strength loading data.

City of Hollister
Wastewater Financial Plan Study Report

Unit (EDU)

Table 4-1 also shows the estimated loadings by customer class, including the estimated BOD and TSS loadings for non-residential flows. For this portion of the analysis Los Angeles County Sanitation Districts (LACSD) and the City of Los Angeles detailed standard loadings by user category. The loadings used a combination of actual field studies, literature surveys, and water consumption analysis to establish the average values for flow, bio-chemical oxygen demand (BOD), and total suspended solids (TSS) for various user categories. The standard loadings (BOD and TSS) are recorded as milligrams per liter (mg/L). All commercial low strength flows are assumed to have loadings of BOD and TSS around 250 mg/L. Medium strength flows are assumed to have BOD and TSS loadings of around 350 mg/L. These values are consistent with the City’s previous wastewater rate study. The City currently has no high strength category. Schools are assumed to have a loading equal to 130 mg/L of BOD and 100 mg/L of TSS, and are assumed to generate 10 gallons per student per day of school, the school year is assumed to be 180 days. Septic Loading (from septage customers) was assumed to be 5,400 mg/L of BOD and 12,000 mg/L of TSS based on LACSD study values.

BOD loadings in pounds per year (lbs/yr) are equal to flow in MGD (A) multiplied by BOD concentration in mg/L (column B), multiplied by 366 for the number of days in the year (2016 was a leap year), and converting unit of 8.34 lbs/MGD. The domestic (i.e. residential) strength concentration in mg/L are calculated from net plant loadings less the non-residential, school, and septage loadings and domestic flow in MGD and converting factors.

The calculations showing the Net and Non-Residential total of BOD and TSS in pounds per day (lbs/day) are shown in Equation 4-1 below by dividing the net flow by the number of days in a year

Equation 4-1: Strength in lbs/day Calculation

$$Net\ Flow\ BOD\ (lbs/day) = \frac{1,677,488 \frac{lbs}{year}}{366\ days} = 4,583\ lbs/day$$

$$Non - Residential\ Flow\ BOD\ (lbs/day) = \frac{297,909 \frac{lbs}{year}}{366\ days} = 814\ lbs/day$$

$$Net\ Flow\ TSS\ (lbs/day) = \frac{1,942,667 \frac{lbs}{year}}{366\ days} = 5,308\ lbs/day$$

$$Non - Residential\ Flow\ TSS\ (lbs/day) = \frac{318,356 \frac{lbs}{year}}{366\ days} = 870\ lbs/day$$

Equation 4-2 shows the calculation steps in determining Residential BOD and TSS concentrations. The lbs/day values were determined in Equation 4-1. Note the 8.34 lbs/MGD conversion factor is a constant in converting lbs/MGD to mg/L, and that there is rounding in these calculations.

Equation 4-2: Residential Strength Concentration Calculations

$$BOD\ (lbs/day) = 4,583 - 814 = 3,769\ lbs/day$$

$$TSS\ (lbs/day) = 5,308 - 870 = 4,438\ lbs/day$$

City of Hollister
Wastewater Financial Plan Study Report

$$BOD (mg/L) = 3,769 \text{ lbs/day} \div 1.73 \text{ MGD} \div 8.34 \text{ lbs/MGD} = 261 \text{ mg/L}$$

$$TSS (mg/L) = 4,438 \text{ lbs/day} \div 1.73 \text{ MGD} \div 8.34 \text{ lbs/MGD} = 307 \text{ mg/L}$$

4.1.1. ESTIMATED RESIDENTIAL FLOW GENERATION

The estimated daily flow per EDU was estimated by dividing the Net Residential Flow by the number of EDUs and the number of days per year. This study assumed that a Single Family Residence (SFR) is 1.0 EDU, a Multi-Family Residence is 0.87 EDUs and a mobile home is 0.61 EDUs. Per the City’s direction, these are the same values used in the previous rate study. The shown EDU ratio values are rounded, their precise values can be found by dividing the current monthly rate paid by the MFR or Mobile Home customer class by the current monthly rate paid by the SFR customer class. The total number of adjusted EDUs is shown in Table 4-2.

Table 4-2: EDU Calculation

EDU Calculation	DUs	Current EDU Ratio	Adjusted EDUs
Single Family Residence	8,827	1.00	8,827
Multi-Family Residence	2,092	0.87	1,824
Mobile Home	235	0.61	144
Total	11,154		10,794

The calculation to determine the flow per EDU per day (in gallons) was done by dividing the total from Table 4-1 row 11 column D multiplied by 748 (there are 748 gallons in each hcf), by 366 days (in 2016) multiplied by 10,794 EDUs. This is shown Equation 4-3.

Equation 4-3: Domestic Flow Calculation

$$GPD \text{ per EDU (gallons/day)} = \frac{848,056 \text{ hcf} * 748 \text{ gallons per hcf}}{366 \text{ days} * 10,794 \text{ EDUs}} = 161 \frac{\text{gallons}}{\text{EDU}} / \text{day}$$

4.2. REVENUE REQUIREMENT

Proposition 218 requires a nexus between billed service charges and the costs of providing service. Based on the proposed financial plan, the cost of service analysis translates this requirement into actual rates. The first step in the cost of service analysis is to determine the amount of revenue required to be collected from rates. As part of the cost of service analysis, we adjust for revenues from sources other than rates and charges (e.g. revenues from miscellaneous services such as septage dumping and other income) which are deducted from the total. Table 4-3 shows the total revenue required from rates for the rate-setting year of FY 2018.

Additionally, the cost of service subtracts certain adjustments. There is an adjustment for the annual cash balance, which in FY 2018 was \$30,768. It is shown as a negative below since the financial plan has a positive cash balance and the rates were designed to collect 5% less revenue in FY 2018 than the previous rate structure would have collected, which results in a cash balance of \$30,768. The

City of Hollister
Wastewater Financial Plan Study Report

adjustment for annualizing the rate increase ensures that mid-year enacted rates collect revenues that are consistent with the correct revenue adjustment. The COS rates derived in this section are proposed to be adopted by approximately January 1, 2018. Note that Other Operating Revenues includes budgeted revenues from septage, as a result, the revenues to be recovered from rates does not include revenue from septage.

Table 4-3: FY 2018 Revenue Requirement

Revenue Requirements	Operating	Capital	Total
O&M Expenses	\$6,973,624		\$6,973,624
Rate Funded Capital		\$984,165	\$984,165
Debt Service		\$5,039,350	\$5,039,350
Total Expenses	\$6,973,624	\$6,023,515	\$12,997,139
Less Revenue from Other Sources			
Other Operating	\$278,800		\$278,800
Non-Operating	\$0		\$0
Total Revenue from Other Sources	\$278,800	\$0	\$278,800
Less Adjustments			
Adjustments for Cash Balance	(\$30,768)		(\$30,768)
Adjustment for Annualizing Rate Decrease	\$326,900		\$326,900
Total Adjustments	\$296,132	\$0	\$296,132
Revenue to be Collected from Rates	\$6,398,692	\$6,023,515	\$12,422,207

The above Table shows that the City’s rates have both an operating and capital component. The operating component consists of O&M expenses less offsets and adjustments while the capital component consists of rate funded capital costs and the City’s debt service. The total amount of revenue to be recovered from rates including operating and capital costs is \$12,422,207.

4.3. UNIT COST DERIVATION

The next section deals with the derivation of functional costs per unit of flow, BOD and TSS. From these unit costs the section will allocate costs across customer classes to determine the amount of revenue to be recovered from each customer class.

4.3.1. FUNCTIONAL COSTS TO COST COMPONENTS

The wastewater utility is comprised of various facilities, each designed and operated to fulfill a given function. In order to provide adequate service to its customers at all times, the utility must be capable of collecting the total amount of wastewater generated, as well as treating and removing various pollutants from the wastewater. Separating costs by function allows allocation of costs to cost components.

City of Hollister
Wastewater Financial Plan Study Report

In order to allocate costs of service to the different customer classes, we develop unit costs of service for various system functions. O&M expenses and capital costs are functionalized as collection, treatment, and general costs. These functional costs are then allocated to cost components—flow, BOD, and TSS based on the design of each facility. Different classes of customers have a range of impacts on the utility’s facilities based on the Strength and Flow characteristics described in the previous section.

The Capital Allocation was done based on the current asset allocation, based on replacement costs less depreciation (RCLD). Collection system and pumping station costs are allocated 100 percent to the flow cost component since the collection system is designed to handle wastewater flows. Treatment costs are allocated equally to flow, BOD, and TSS, per City Staff direction. The treatment allocations were confirmed by City staff based on their estimates of the treatment plant’s characteristics. Disposal was allocated based on the total number of pounds (lbs) per year of BOD and TSS, resulting in a 46% to 54% split. Land and Other capital costs are allocated 100 percent to the general cost component. Later in the process the general component will be redistributed based on the pro rata share of all other cost components. The Allocated Capital Revenue Requirement is determined by multiplying the Capital portion of the Revenue Requirement from Table 4-3 by the Capital Allocation percentages.

Table 4-4: Asset Allocation and Capital Allocation Percentages

Asset Allocation	Flow	BOD	TSS	General	Total
Percentages					
Disposal	0%	46%	54%	0%	100%
Treatment	33%	33%	33%	0%	100%
Pumping	100%	0%	0%	0%	100%
Collection	100%	0%	0%	0%	100%
Land	0%	0%	0%	100%	100%
Other	0%	0%	0%	100%	100%
Asset Value (RCLD)					
Disposal	\$0	\$1,161,322	\$1,367,335	\$0	\$2,528,656
Treatment	\$40,360,782	\$40,360,782	\$40,360,782	\$0	\$121,082,346
Pumping	\$169,966	\$0	\$0	\$0	\$169,966
Collection	\$974,658	\$0	\$0	\$0	\$974,658
Land	\$0	\$0	\$0	\$5,000,000	\$5,000,000
Other	\$0	\$0	\$0	\$20,112	\$20,112
Total	\$41,505,406	\$41,522,104	\$41,728,117	\$5,020,112	\$129,775,738
Capital Allocation %	32.0%	32.0%	32.2%	3.9%	100%
Allocated Capital Revenue Requirement	\$1,926,465	\$1,927,240	\$1,936,802	\$233,007	\$6,023,515

The percentages shown in Table 4-4 above are rounded.

Raftelis worked with City Staff to allocate the Department categories (from Table 3-10) to cost components. Table 4-5 shows the FY 2018 O&M expenses percentage allocations by the different

City of Hollister
Wastewater Financial Plan Study Report

functional categories and translates the percentage allocations to total dollars to each cost component. The budgeted totals in the second half of the below table are the budget values for FY 2018. The percentages resulting from the Budget Allocation are used to allocate the O&M portions of the City's operating budget for wastewater to determine the total of the Revenue Requirement also shown in Table 4-3. This occurs in the last two lines of Table 4-5, resulting in the Allocated O&M Revenue Requirement.

The four-digit numbers in the below table indicate the budgetary headings of the department, and are the same headings shown initially in Table 3-10, and the totals are the same as those of FY 2018.

Table 4-5: O&M Allocation Factors and FY 2018 Budget Allocation

O&M Allocation Factors	Flow	BOD	TSS	General	Total
1100 - NON DEPARTMENT	100.0%	0.0%	0.0%	0.0%	100%
1120 - CITY MANAGER	0.0%	0.0%	0.0%	100.0%	100%
1155 - FINANCE	0.0%	0.0%	0.0%	100.0%	100%
1157 - INFORMATION SYSTEMS	0.0%	0.0%	0.0%	100.0%	100%
4000 - ENGINEERING	100.0%	0.0%	0.0%	0.0%	100%
4100 - RISK MANAGEMENT	0.0%	0.0%	0.0%	100.0%	100%
4300 - CODE ENFORCEMENT	0.0%	0.0%	0.0%	100.0%	100%
4990 - SEWER DOMESTIC	33.3%	33.3%	33.3%	0.0%	100%
4991 - SEWER INDUSTRIAL	33.3%	33.3%	33.3%	0.0%	100%
4995 - SEWER COLLECTION	100.0%	0.0%	0.0%	0.0%	100%
5005 - VEHICLE MAINTENANCE	0.0%	0.0%	0.0%	100.0%	100%
7000 - PARKS	0.0%	0.0%	0.0%	100.0%	100%

O&M Cost Centers	Flow	BOD	TSS	General	Total
1100 - NON DEPARTMENT	\$857,409	\$0	\$0	\$0	\$857,409
1120 - CITY MANAGER	\$0	\$0	\$0	\$34,842	\$34,842
1155 - FINANCE	\$0	\$0	\$0	\$316,617	\$316,617
1157 - INFORMATION SYSTEMS	\$0	\$0	\$0	\$120,254	\$120,254
4000 - ENGINEERING	\$168,774	\$0	\$0	\$0	\$168,774
4100 - RISK MANAGEMENT	\$0	\$0	\$0	\$0	\$0
4300 - CODE ENFORCEMENT	\$0	\$0	\$0	\$84,556	\$84,556
4990 - SEWER DOMESTIC	\$895,408	\$895,408	\$895,408	\$0	\$2,686,225
4991 - SEWER INDUSTRIAL	\$102,513	\$102,513	\$102,513	\$0	\$307,540
4995 - SEWER COLLECTION	\$1,897,477	\$0	\$0	\$0	\$1,897,477
5005 - VEHICLE MAINTENANCE	\$0	\$0	\$0	\$186,484	\$186,484
7000 - PARKS	\$0	\$0	\$0	\$313,446	\$313,446
Total	\$3,921,582	\$997,922	\$997,922	\$1,056,199	\$6,973,624
O&M Allocation %	56.2%	14.3%	14.3%	15.1%	100%
O&M Revenue Requirement	\$3,598,272	\$915,649	\$915,649	\$969,122	\$6,398,692

City of Hollister
Wastewater Financial Plan Study Report

After Adjustment (Table 4-3)

The Allocated Capital Revenue Requirement and the Allocated O&M Revenue Requirement add up to the City’s total revenue requirement. However, there is an intermediate step, which is reallocating General Costs to the flow, BOD and TSS cost components. This is done on a pro-rata basis. After reallocating the General costs to the other Cost Components, and after the Capital Component from Table 4-4 is added, the Final Cost Allocation is determined. This is shown in Table 4-6.

Table 4-6: Total Cost Recovery Allocation

	Flow	BOD	TSS	General	Total
Allocated O&M Revenue Requirement	\$3,598,272	\$915,649	\$915,649	\$969,122	\$6,398,692
Allocated Capital Revenue Requirement	\$1,926,465	\$1,927,240	\$1,936,802	\$233,007	\$6,023,515
Subtotal	\$5,524,737	\$2,842,889	\$2,852,451	\$1,202,129	\$12,422,207
Total Allocation Less					
General Costs %	49.2%	25.3%	25.4%	\$1,202,129	
General Costs Allocation (\$)	\$591,925	\$304,590	\$305,614	(\$1,202,129)	
Final Cost Allocation	\$6,116,662	\$3,147,479	\$3,158,066	\$0	\$12,422,207

The percentages shown in Table 4-6 are rounded.

4.3.2. UNITS OF SERVICE

In order to allocate costs of service to different customer classes, we calculate unit costs of service for each cost component using the following general formula:

$$Unit\ Cost\ of\ Service = \frac{Total\ annual\ component\ costs}{Total\ annual\ service\ units}$$

This calculation is completed for all cost components (flow, BOD, and TSS). General costs are distributed to flow, BOD, and TSS in proportion to these other costs. Table 4-7 shows the service units, such as annual flow, total pounds of BOD and TSS, number of accounts, and dwelling units for each customer class. These service units are determined from the plant balance and from customer and billing data. The units of service become the denominator in the equation to determine unit costs for each cost component. The Units of Service are shown in Table 4-7. As mentioned above, septage rates are not included in the revenue to be recovered from rates and will be dealt with in a subsequent section.

City of Hollister
Wastewater Financial Plan Study Report

Table 4-7: Units of Service

Customer Class	Accounts	Adjusted	WW Flow	BOD	TSS
		EDUs			
			hcf	lb/yr	lb/yr
Residential					
Single Family Residence	8,827	8,827	693,485	1,128,129	1,328,254
Multi-Family Residence	2,092	1,824	143,278	233,079	274,426
Mobile Homes	235	144	11,293	18,371	21,630
Subtotal Residential	11,154	10,794	848,056	1,379,579	1,624,310
Commercial					
Low Strength Commercial	379		111,063	173,211	173,211
Moderate Strength Commercial	81		41,227	90,016	90,016
Subtotal Commercial			152,290	263,227	263,227
Other					
Schools*	7,738		18,621	15,101	11,616
Septage Customers**			-	-	-
Subtotal Other			18,621	15,101	11,616
Subtotal Non-Residential			170,911	278,328	274,843
TOTAL			1,018,967	1,657,908	1,899,154

4.3.3. UNIT COST CALCULATION AND CUSTOMER CLASS COST OF SERVICE

After developing unit costs we distribute the cost components to each user class. The unit cost for each component is equal to the total cost divided by the total units of service. Dividing the Final Cost Allocation from Table 4-6 by the Total Units of Service from Table 4-7 yields the cost per unit of service, or Unit Cost. This is shown in Table 4-8. Note that the unit costs shown below have not been rounded; future calculations using these values are the result of multiplying unrounded numbers.

Table 4-8: Unit Cost Calculation

	WW Flow	BOD	TSS
Final Cost Allocation	\$6,116,662	\$3,147,479	\$3,158,066
Total Units of Service	1,018,967 hcf/yr	1,657,908 lb/yr	1,899,154 lb/yr
Unit Cost	\$6.00 \$/hcf	\$1.90 \$/lb	\$1.66 \$/lb

The unit cost of each component in Table 4-8 is applied to the projected FY 2018 service units of each customer class (Table 4-7), to derive the cost to serve each class. This is shown in Table 4-9. Total projected costs are shown in the Total COS column, furthest right in the table. Again, septage revenues are not included below. There is rounding in the calculations shown in Table 4-8, the unrounded unit

City of Hollister
Wastewater Financial Plan Study Report

costs are used in Table 4-9. For example, the calculated cost per hcf of wastewater to the thousandth cent is \$6.00281.

Table 4-9 shows the number of accounts and the number of students for easy recall in later tables that will divide the total customer class cost of service by the number of accounts.

Table 4-9: Customer Class Cost of Service

Customer Class	# of Accounts	WW Flow	BOD	TSS	Total COS
Unit Cost		\$6.00	\$1.90	\$1.66	
Unit		\$ / hcf	\$ / lb	\$ / lb	
Single Family Residence	8,827	\$4,162,855	\$2,141,714	\$2,208,728	\$8,513,298
Multi-Family Residence	2,092	\$860,072	\$442,492	\$456,337	\$1,758,901
Mobile Home	235	\$67,790	\$34,877	\$35,968	\$138,636
Low Strength Commercial	379	\$666,688	\$328,835	\$288,029	\$1,283,553
Moderate Strength Commercial	81	\$247,479	\$170,892	\$149,686	\$568,057
School (Students) *	7,738	\$111,777	\$28,669	\$19,316	\$159,763
TOTAL		\$6,116,662	\$3,147,479	\$3,158,066	\$12,422,207

*- # of accounts column shows number of students

4.4. RATES AND CHARGES DERIVATION

The proposed rates for this Study period follow from the cost of service analysis above. Due to the City’s favorable debt refinance, its need for revenue has decreased, thus rates for FY 2018 represent a 5% reduction in total revenue to be recovered. This does not translate to an even 5% across the board reduction in rates for all customer classes due to the reallocation of costs according to the COS process described above. **Note that all rates that follow are rounded up to the nearest cent.**

4.4.1. RESIDENTIAL RATES

To derive the monthly residential charges, we divide the costs to serve each class from Table 4-9 by the respective number of dwelling units and billing periods in the year (12) to determine the proposed rates for FY 2018.

City of Hollister
Wastewater Financial Plan Study Report

Table 4-10: Residential Cost of Service Rates

	Total Cost of Service	Number of Accounts	Monthly Rate
Single Family	\$8,513,298	8,827	\$80.38
Multi-Family	\$1,758,901	2,092	\$70.07
Mobile Home	\$138,636	235	\$49.17

4.4.2. NON-RESIDENTIAL RATES

Non-residential wastewater charges are divided between a monthly fixed charge based on strength factor and a commodity charge based on billed water usage. The fixed/variable percentage split for Commercial accounts was held constant at the current revenue recovery. In the current rates, the City recovers 16.38% of commercial revenue on fixed rates and 83.62% on variable revenue and does not wish to change these percentages. These percentages were applied to each class’s total revenue requirement, and the unit charges were determined by dividing the resulting totals by the class’s water use and accounts per year. Note that the water use shown is reflective of the total water use billed, not the amount shown in the units of service. This is due to the 90% return factor applied to the mass balance in Table 4-1. These rates are shown in Table 4-11.

Table 4-11: Commercial Cost of Service Rates

	Total Revenue Requirement	%Revenue Requirement Split	Revenue to be Recovered	Accounts	Water Use (hcf)	Fixed Charge per Month	Volumetric Rate (\$/ hcf)
Low Strength	\$1,283,553						
Fixed Charge		16.38%	\$210,253	379		\$46.23	
Volumetric Charge		83.62%	\$1,073,300		123,403		\$8.70
Moderate Strength	\$568,057						
Fixed Charge		16.38%	\$93,051	81		\$95.74	
Volumetric Charge		83.62%	\$475,006		45,808		\$10.37

The cost of service based rates for Schools are calculated by the class’s total revenue requirement by the total number of units of service for that class. For Schools, the unit of service is students. The rate per student is determined by dividing the total revenue requirement by the number of students multiplied by the number of billing periods per year (12).

Table 4-12: School Cost of Service Rates

	Total Revenue Requirement	Units of Service	Rate
Schools	\$159,763	7,738	\$1.73/ Student/ month

4.4.3. SEPTAGE RATES

Raftelis recently proposed a rate of \$0.23 per gallon in a memo sent in December, 2016. Raftelis calculated a new cost of service based rate is the updated unit rates that results from the updated FY 2018 budget.

Septage is not included in the above Cost of Service analysis except for the purposes of determining the mass balance. However, using the loading factors for septage in the mass balance and the unit rates from Table 4-8 it is possible to determine what the septage rate should be. Note that it is possible to do this calculation in many ways, including starting from the strengths in mg/L, but since we already have the unit costs in \$/ lb and \$/hcf and the projected septage flow in hcf and pounds of TSS and BOD, one way to do so is to multiply the total flows and strengths by the unit cost and divide the total by the projected number of gallons. Table 4-13 shows this process. The total is the result of multiplying the units by the unit rate. Note that there is rounding in this calculation.

Table 4-13: Septage Cost of Service Rates

	WW Flow hcf	BOD lb/yr	TSS lb/yr	Total Cost
Units	581	19,581	43,513	
Unit Rate	\$6.00	\$1.90	\$1.66	
Total	\$3,489	\$37,174	\$72,357	\$113,020

There are 748 gallons per hcf; 581 hcf is 435,588 gallons. Equation 4-4 shows the septage unit rate calculation.

Equation 4-4: Septage Unit Rate Calculation

$$Septage\ Unit\ Rate = \frac{\$113,020}{435,588\ gallons} = \$0.26/gallon$$

4.4.4. COS BASED RATES

Below are the proposed FY 2018 COS based rates resulting from this analysis.

City of Hollister
Wastewater Financial Plan Study Report

Table 4-14: FY 2018 Cost of Service Rates

Customer Class	Fixed Charge	Usage Rate
Single Family	\$80.38	#N/A
Multi-Family	\$70.07	#N/A
Mobile Home	\$49.17	#N/A
Low Strength	\$46.23	\$8.70
Moderate Strength	\$95.74	\$10.37
Schools*		\$1.73
Septage Customers**	\$0.26	

* rate per student
** rate per gallon

5. SEWER FACILITIES IMPACT FEES

Facility impact fees are the one-time capital charges that City imposes on customers that demand new or expanded connections to the City’s wastewater system facilities. The fees should generally reflect the estimated reasonable cost to the City of providing existing or additional system capacity to new development. Other common designations for these fees are impact, system development, developer, capital facilities, or facilities impact fees.

These charges are intended to reflect either: 1) the cost of existing system capacity that is required to provide service to new customers; or 2) increased demand for system capacity that results from renovations and/or additions to existing establishments.

5.1. ECONOMIC AND LEGAL FRAMEWORK FOR FACILITIES IMPACT FEES

For publicly owned water and wastewater systems, most of the assets are typically paid for by the contributions of existing customers through rates, charges, and taxes. In service areas that incorporate new customers, the infrastructure developed by previous customers is generally extended towards the service of new customers. Existing customers’ investment in the existing system capacity allows newly connecting customers to take advantage of unused surplus capacity. To ensure economic equality among new and existing customers, new connectors will pay back the value of the existing system capacity to existing customers, effectively putting them on par with existing customers. In other words, the new users are buying into the existing system for the portion that has already been invested in by existing customers.

5.1.1. ECONOMIC FRAMEWORK

The basic economic philosophy behind facilities impact fees is that the costs of providing water and wastewater service should be paid for by those that receive utility from the product. In order to effect fair distribution of the value of the system, the fee should reflect a reasonable estimate of the cost of providing capacity to new users, and not unduly burden existing users. Accordingly, many utilities adopts this philosophy as one of their primary guiding principles when developing their facilities impact fee structure.

The philosophy that service should be paid for by those that receive utility from the product is often referred to as “growth-should-pay-for-growth.” The principal is summarized in the American Water Works Association (AWWA) Manual M26, Water Rates and Related Charges:

“The purpose of designing customer-contributed-[facilities impact fees] is to prevent or reduce the inequity to existing customers that results when these customers must pay the increase in

City of Hollister

Wastewater Financial Plan Study Report

water rates that are needed to pay for added plant costs for new customers. Contributed capital reduces the need for new outside sources of capital, which ordinarily has been serviced from the revenue stream. Under a system of contributed capital, many water utilities are able to finance required facilities by use of a ‘growth-pays-for-growth’ policy.”

5.1.2. LEGAL FRAMEWORK ⁶

The City reserves broad authority over the pricing of water and wastewater facilities impact fees. The most salient limitation on this authority is the requirement that recovery costs on new development bear a reasonable relationship to the needs and benefits brought about by the development. Courts have long used a standard of reasonableness to evaluate the legality of facilities impact fees. The basic statutory standards governing water and wastewater facilities impact fees are embodied by Government Code Sections 66013, 66016, 66022 and 66023. Government Code Section 66013, in particular, contains requirements specific to pricing water and wastewater facilities impact fees:

“Notwithstanding any other provision of law, when a local agency imposes fees for water connections or sewer connections, or imposes capacity charges, those fees or charges shall not exceed the estimated reasonable cost of providing the service for which the fee or charge is imposed, unless a question regarding the amount the fee or charge in excess of the estimated reasonable cost of providing the services or materials is submitted to, and approved by, a popular vote of two-thirds of those electors voting on the issue.”

Section 66013 also includes the following general requirements:

- Local agencies must follow a process set forth in the law, making certain determinations regarding the purpose and use of the fee; they must establish a nexus or relationship between a development project and the public improvement being financed with the fee.
- The facilities impact fee revenue must be segregated from the general fund in order to avoid commingling of facilities impact fees and the general fund.

5.2. APPROACH OVERVIEW

Capacity charges for wastewater facilities can be calculated in a number of ways. For example, one commonly used method, the equity buy-in method, rests on the premise that new customers are entitled to service at the same price as existing customers. However, existing customers have already developed and financed the facilities that will service new customers. Under this approach, new customers pay the amount equal to the net investment already made by existing users, typically based

⁶ RFC does not practice law nor does it provide legal advice. The above discussion is to provide a general review of apparent state institutional constraints and is labeled “legal framework” for literary convenience only. The City should consult with its counsel for clarification and/or specific review of any of the above or other matters.

City of Hollister

Wastewater Financial Plan Study Report

on replacement cost less depreciation and divided by the current demand of the system or the number of customer equivalents to determine the fee.

Yet another approach is a capacity buy-in. This approach that when new users connect to a system, they use either surplus capacity in the existing system. Alternatively, if new development requires new facilities that must be added to the system to accommodate their needs, an incremental approach is used by which new development pays for its share of new facilities divided by the amount of new development projected to occur.

In Hollister, there is currently significant available capacity in the city's new wastewater treatment plant. In addition, the City has allocated the cost of planned new facilities between existing and projected new development. These allocated costs are attributed to new development only. At the City's direction, this updated analysis calculates a capacity buy-in charge for the existing facilities using a hybrid approach of a capacity buy-in component and incremental cost component. The analysis included an assessment of projected new development, a determination provided by the City the of amount of excess capacity in the existing wastewater treatment and distribution facilities, and a percentage assessment of the need for new planned wastewater facilities attributable to new development. We relied on the City to provide a list of its existing inventory of wastewater facility assets and of projected new facilities in order to do these calculations.

5.3. FACILITIES IMPACT FEES CALCULATIONS

The most appropriate approach to calculating facilities impact fees for City of Hollister is a hybrid approach. The City recently constructed a new wastewater treatment plant, but also has a fair bit of expansion CIP upcoming, indicating that the City is well suited to a hybrid facilities impact fee approach.

5.3.1. CURRENT VALUE OF THE CITY'S SYSTEMS

Raftelis determined Replacement Cost Less Depreciation (RCLD) as the appropriate method to determine the current value of the wastewater systems. RCLD is a commonly used method, and it is often preferred to alternative methods such as Original Cost Less Depreciation (OCLD), Original Cost (OC), and Replacement Cost (RC) because of its better reflection of the system's value in today dollars. In most cases – barring, for example, instances of water and wastewater systems that have depreciated significantly due to lack of replacement and repair – RCLD is more defensible because the replacement cost: 1) is inflation-adjusted and thus recovers the cost of replacing that capacity in current dollars; and 2) accounts for depreciation and thus addresses the fact that the system is not new and has been used by current users.

SYSTEMS ASSET VALUE

For the purpose of calculating the system's RCLD, the City provided original cost records for the fixed assets of the utility systems as of fiscal year-end 2015 (June 30, 2015). Original cost was inflated to replacement cost, the estimated expected cost of a similar facility constructed today. Costs for the wastewater system were escalated using the Construction Cost Index (CCI). The Construction Cost Index is based on an average of costs among 20 cities and is published by the Engineering News Record.

City of Hollister
Wastewater Financial Plan Study Report

City of Hollister
Wastewater Financial Plan Study Report

ACCUMULATED DEPRECIATION

The City provided accumulated depreciation associated with the original cost for each of its fixed asset accounts. To validate accumulated depreciation, Raftelis calculated the ratio of the replacement cost to the original cost for each fixed asset account to derive pro-rata accumulated depreciation for those asset accounts. The accumulated depreciation was then deducted from the replacement cost to determine RCLD.

Table 5-1: Current Asset Valuation

	OC	OCLD	RC	RCLD
Disposal	\$10,837,991	\$5,008,678	\$24,075,696	\$5,348,266
Treatment	\$123,122,453	\$98,435,304	\$153,041,964	\$121,082,346
Pumping	\$778,073	\$119,185	\$1,589,566	\$169,966
Collection	\$2,256,568	\$848,719	\$3,189,668	\$974,658
Land	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000
Other	\$210,864	\$207,558	\$212,483	\$208,934
Total	\$142,205,948	\$109,619,443	\$187,109,377	\$132,784,170

5.3.2. OUTSTANDING DEBT PRINCIPAL

The City recently refinanced its outstanding debt. The City’s wastewater enterprise has \$67,975,000 outstanding in debt. This amount represents debt that ratepayers will pay back through monthly service charges on an ongoing basis, so this amount is subtracted from total asset value as the total to be recovered as a buy-in component. Subtracting the outstanding debt principal from the current asset valuation yields the total adjusted system value. This calculation is shown below.

Table 5-2: Adjusted System Valuation

Adjusted System Valuation Calculation	
Asset Valuation	\$132,784,170
Less Outstanding Debt Principal	\$67,975,000
Total Adjusted System Value	\$64,809,170

5.3.3. BUY-IN COMPONENT CALCULATIONS

The final step for the buy-in component calculation is deriving a unit value expressed in terms of \$/GPD. The dollar per gallon per day value is calculated by dividing the above adjusted system value of the system by the average number of gallons per day treated by the system.

The City provided Raftelis with the wastewater treatment plant’s permitted dry capacity, which is 4 million GPD. By dividing the Adjusted System Value by the total number of gallons per day we find that

City of Hollister
Wastewater Financial Plan Study Report

the facilities impact fee per gallon per day is \$16.20, which was rounded to the nearest penny. This is shown below in Table 5-3.

Table 5-3: Buy-In Facilities Impact Fee Component in \$/GPD

Total Adjusted System Value	\$64,809,170
Divided by Permitted Capacity	4,000,000 GPD
Buy-In Component	\$16.20/GPD

Raftelis’ estimate for expected wastewater generation (in gallons per day) for SFR customers is 161 GPD (this estimate is found in Table 4-1) and was rounded to the nearest gallon. The buy-in component for SFR facilities impact fees were calculated by multiplying the expected wastewater generation in gallons per day by \$16.20, the facilities impact fee per gallon per day. Note that the below calculation is the result of multiplying rounded numbers.

Table 5-4: SFR Buy-In Component

Buy-In Capacity Component/ GPD	\$16.20/GPD
Multiplied by Average Single Family Demand	161 GPD
SFR Buy-In Facility Impact Fee Component	\$2,608

5.3.4. INCREMENTAL COMPONENT CALCULATIONS

Raftelis used the City’s upcoming growth-related CIP as the basis for calculating the incremental component of the facilities impact fee. Currently the City has \$2,079,500 in Growth Related CIP planned. This slate of CIP has a capacity of 210,000 GPD. Dividing the total growth-related CIP by the capacity in the incremental facility yields the Incremental Facilities Impact Fee component in \$/GPD. The Incremental Component was found to be \$9.90 per GPD when rounded to the nearest penny.

Table 5-5: Incremental Component Calculation in \$/GPD

Growth-Related CIP	\$2,079,500
Divided by Incremental Facility Capacity	210,000 GPD
Incremental Component in GPD	\$9.90/ GPD

Multiplying the incremental facilities impact fee component by the average SFR wastewater daily flow yields the SFR incremental facilities impact fee component. Note that the below calculation is the result of multiplying rounded numbers.

Table 5-6: SFR Incremental Component

Incremental Capacity Component	\$9.90
x Average Single Family Demand	161
SFR Incremental Facilities Impact Fee Component	\$1,594

5.3.5. HYBRID FACILITIES IMPACT FEE CALCULATION

The total facilities impact fee is calculated by adding the buy-in component to the incremental component. This is shown in Table 5-7.

Table 5-7: Hybrid SFR Facilities Impact Fee Calculation

Buy-In Facilities Impact Fee Component	\$2,608
Incremental Facilities Impact Fee Component	\$1,594
Total SFR Facilities Impact Fee	\$4,202

The SFR facilities impact fee applies to Single Family Residences with an EDU ratio of 1.00. To determine facilities impact fees for multi-family residences and mobile homes, the SFR facilities impact fee was multiplied by the ratios from Table 4-2. This process is shown in Table 5-8.

Table 5-8: Residential Facilities Impact Fee Calculation

Residence Type	EDU Ratio	Facilities impact fee
Single Family Residence	1.00	\$4,202
Multi-Family Residence	0.87	\$3,663
Mobile Home	0.61	\$2,570

5.3.6. NON-RESIDENTIAL IMPACT FEE CALCULATION

Non-Residential Impact Fees are to be calculated on an assumed GPD basis. The cost in \$/GPD is calculated by adding the Buy-In Capacity Component in \$/GPD to the Incremental Capacity Component in \$/GPD.

Table 5-9: Impact Fee Calculation in \$/GPD

Buy-In Capacity Component / GPD	\$16.20/GPD
Incremental Capacity Component / GPD	\$9.90/GPD
Total Cost in \$/GPD	\$26.10/GPD

Raftelis has shown impact fees for non-residential customer classes, found by multiplying cost in GPD from Table 5-9 by average usage characteristics retained from the previous Impact Fee study. Note that the total in Table 5-9 has been rounded to \$26.10 even. These impact fees are impact fees per Unit, which are customer class dependent. This process is shown in Table 5-10. School usage in gallons per student per day was calculated by multiplying 10 gallons per day by 180 days of school over 365 days per year.

City of Hollister
Wastewater Financial Plan Study Report

Table 5-10: Example Non-Residential Impact Fees

Non-Residential Customer Class	Unit	Flow (GPD)	Impact Fee per Unit
School	Student	4.93	\$128.71
Light Industrial	1000 sq ft	25	\$652.50
Warehouse	1000 sq ft	25	\$652.50
Market w/ Grinder	1000 sq ft	60	\$1,566.00
Church	1000 sq ft	60	\$1,566.00
Commercial/Office	1000 sq ft	60	\$1,566.00
Theaters	1000 sq ft	90	\$2,349.00
Markets w/o Grinder	1000 sq ft	60	\$1,566.00
Pharmacy	1000 sq ft	100	\$2,610.00
Bars	1000 sq ft	350	\$9,135.00
Auto Repair	1000 sq ft	100	\$2,610.00
Service Stations	1000 sq ft	100	\$2,610.00
Restaurants	1000 sq ft	150	\$3,915.00
Mortuaries	1000 sq ft	100	\$2,610.00
Hospitals	Bed	200	\$5,220.00
Barber/Beauty Shop	1000 sq ft	40	\$1,044.00
Car Wash - No Recycling	1000 sq ft	3,700	\$96,570.00
Motel	Sleeping Room	125	\$3,262.50
Laundromat	Machine	500	\$13,050.00
Fast Food	1000 sq ft	570	\$14,877.00
Retail Store	1000 sq ft	100	\$2,610.00