

UNION SANITARY DISTRICT WASTEWATER RATE AND COST OF SERVICE STUDY

December 8, 2015



HF&H Consultants, LLC

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UNION SANITARY DISTRICT

5072 Benson Road
Union City, CA 94587

WASTEWATER RATE AND COST OF SERVICE STUDY

December 8, 2015

HF&H CONSULTANTS, LLC

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December 8, 2015

Mr. Paul Eldredge
General Manager
Union Sanitary District
5072 Benson Road
Union City, CA 94587-2508

Subject: Wastewater Rate and Cost of Service Study

Dear Mr. Eldredge:

HF&H Consultants, LLC, is pleased to submit this Wastewater Rate and Cost of Service Study. The report summarizes the projected cost of utility service and the related revenue requirements over the next five fiscal years, updates the cost of service allocation among the customer classes, and provides a detailed schedule of updates in utility service rates for the next five years. Our report summarizes the results for FYs 2016/17, through 2020/21; a copy of our model, which projects revenue, expenses and the necessary rate increases for the next ten fiscal years, can be found in the Appendix to this report.

This report is organized into six sections:

- **Executive Summary** - A summary of the Findings and Recommendations of the proposed wastewater rates and modifications based on the cost of service analysis.
- **Introduction** - A brief description of the study purpose and project background.
- **Revenue Requirement Projections** - The estimated costs that must be covered by rates.
- **Projected Rate Increases** - The annual rate increases needed to cover costs and maintain adequate reserves.
- **Cost of Service Analysis** - The allocation of the revenue requirement to the residential and non-residential customers.

Mr. Paul Eldredge
December 8, 2015
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- **Rate Design** - A description of the application of the cost of service adjustments and the required rate increases to the District's sewer service charges.

Because of the adjustments required to align the rates with the cost of service, each customer class experiences different percentage rate increase in the first year, followed by across-the-board, equal percentage increases in subsequent years.

We note that minor modifications were made on December 29, 2015 to correct Figures 4, 8, 9, and 19, which contained very minor rounding discrepancies; corresponding corrections were also made to Tables 1A, 3, 4, and 6 in the Appendix. These modifications have no effect on the cost of service analysis nor on the proposed rates in the Proposition 218 notice. We apologize for any confusion this may have created.

It has been a pleasure to assist the District with this rate update.

Very truly yours,

HF&H CONSULTANTS, LLC

John W. Farnkopf, P.E., Senior Vice President
Sima Mostafaei, C.M.A., Project Manager
Rick Simonson, C.M.C., Vice President

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ACRONYMS

COD	Chemical Oxygen Demand; a component of wastewater strength
CCF or HCF	Hundred cubic feet of metered water sold; 748 gallons; a cube of water 4.6 feet on edge
CIP	Capital Improvement Program
COSA	Cost of Service Analysis
FY	Fiscal Year
GPD	Gallons per Day
I&I	Inflow and Infiltration; stormwater runoff and shallow groundwater that enters collection systems through surface or subsurface connections, damaged pipes, open pipe joints, other openings
Kgal	Kilogallon; 1,000 gallons
Klb	Kilopound; 1,000 pounds
LU	Living Unit
MFR	Multi-family Residential or Multiple Family Residential
Mg/l	Milligrams per Liter
Mgd	Million gallons per day
O&M	Operations and Maintenance
PAYGo	Pay-As-You-Go, in reference to funding capital improvements from cash rather than from borrowed sources of revenue
SFR	Single Family Residential
SS or TSS	Suspended Solids or Total Suspended Solids; a component of wastewater strength

LIMITATIONS

This document was prepared solely for Union Sanitary District in accordance with the contract between the District and HF&H and is not intended for use by any other party for any other purpose.

In preparing this analysis, we relied on information and instructions from the District, which we consider to be accurate and reliable and did not independently verify.

Rounding differences caused by stored values in electronic format may exist.

This document addresses relevant laws, regulations, and court decisions but should not be relied upon as legal advice. Questions concerning the interpretation of legal authorities referenced in this document should be referred to a qualified attorney.

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SECTION 1: EXECUTIVE SUMMARY

Union Sanitary District (District) engaged HF&H Consultants, LLC (HF&H) to determine the cost of service and associated sewer service charges for FYs 2016/17 through 2020/21. The District intends to issue a notice of public hearing to rate payers in compliance with Proposition 218. The cost-of-service analysis will form the basis of the sewer service charges to be included in the notice and will serve as part of the administrative record, which is documented in this report.

Findings and Recommendations

Current Rates

Currently, single family residential customers are charged a flat rate of \$377 per living unit per year. Multifamily customers also pay a flat rate of \$326 per living unit per year. Non-residential customers pay the greater of either a minimum fixed charge of \$326 per year per account or a volumetric charge, which is the product of estimated wastewater flow times the charge per 1,000 gallons corresponding to the non-residential customer's class. The District's current rates for FY 2015/16 are shown in **Figure 1**, below.

Figure 1. Current Rates FY 2015/2016

Residential (\$/LU)	
Single Family Residences	\$377.00
Multiple Family Residences	\$326.00
Non Residential Minimum Charge	\$326.00
Commercial (\$/1,000 gals)	
Strong	\$7.90
Moderate	\$4.26
Weak	\$3.73
Fast-Food Restaurant	\$7.55
Full-Service Restaurant	\$9.65
Industrial	
Volume (\$/1,000 gals)	\$2.37
COD (\$/1,000 lbs)	\$240.51
Suspended Solids (\$/1,000 lbs)	\$440.95

Projected Revenue Increases

The District's rates for FYs 2016/17 through 2020/21 are based on the adopted FY 2015/16 operating budget, the five-year capital improvement program, and FY 2015/16 estimated actuals for revenue. Rates have been projected in this financial plan that are based on a number of assumptions and information that will need to be updated prior to adopting any future rate increases. Prior to adopting rate increases after 2020/2021, the District is advised to update the financial planning model in conjunction with an update to its capital improvement program and associated O&M.

The increases indicated in **Figure 2** below reflect assumptions and currently available information. Multi-year revenue requirement projections indicate the need to increase rate revenue as follows:

Figure 2. Projected Revenue Increases

2016/17	2.4%
2017/18	3.5%
2018/19	3.5%
2019/20	3.5%
2020/21	3.5%

Cost of Service Analysis

The need to increase revenues by 2.4% for FY 2016/17 shown in **Figure 2** applies differently to each of the District’s customer classes because of adjustments in the cost of service analysis. **Figure 3** summarizes the differences between the current rates for FY 2015/16 and the rates based on the cost of service analysis performed for this report, *before* the 2.4% revenue increase for FY 2016/17 is applied to the rates:

Figure 3. Results of FY2015/16 Cost of Service Analysis

	Current Charges	COSA Charges	Differences	
			\$\$	%
Residential (\$/Living Unit)				
Single Family Residences	\$ 377.00	\$ 371.32	(\$5.68)	-2%
Multiple Family Residences	\$ 326.00	\$ 321.93	(\$4.07)	-1%
Non Residential Minimum Charge	\$ 326.00	\$ 321.93	(\$4.07)	-1%
Commercial (\$/1,000 gals)				
Strong	\$ 7.90	\$ 9.37	\$1.47	19%
Moderate	\$ 4.26	\$ 4.63	\$0.37	9%
Weak	\$ 3.73	\$ 3.86	\$0.13	3%
Fast-Food Restaurant	\$ 7.55	\$ 8.77	\$1.22	16%
Full-Service Restaurant	\$ 9.65	\$ 11.61	\$1.96	20%
Industrial				
Volume (\$/1,000 gals)	\$ 2.37	\$ 2.18	(\$0.19)	-8%
COD (\$/1,000 lbs)	\$ 240.51	\$ 289.25	\$48.74	20%
Suspended Solids (\$/1,000 lbs)	\$ 440.95	\$ 672.80	\$231.85	53%

Rate Design

We prepared a five-year rate projection based on the FY 2015/16 COSA charges presented in **Figure 3** above. Those charges reflect the cost of service adjustments and 2.4% revenue increase in FY 2016/17 followed by across-the-board 3.5% revenue increases in subsequent years. The proposed rates are shown in **Figure 4**.

Figure 4. Proposed Rate Adjustments

	Adopted COS Rates		Proposed									
	2015-16	2015-16	2016/17		2017/18		2018/19		2019/20		2020/21	
Overall Revenue Increases				2.4%		3.5%		3.5%		3.5%		3.5%
Residential (\$/LU)												
Single Family Residences	\$ 377.00	\$ 371.32	\$ 380.05	0.8%	\$ 393.35	3.5%	\$ 407.12	3.5%	\$ 421.37	3.5%	\$ 436.12	3.5%
Multiple Family Residences	\$ 326.00	\$ 321.93	\$ 329.50	1.1%	\$ 341.03	3.5%	\$ 352.97	3.5%	\$ 365.32	3.5%	\$ 378.11	3.5%
Non Residential Minimum Charge	\$ 326.00	\$ 321.93	\$ 329.50	1.1%	\$ 341.03	3.5%	\$ 352.97	3.5%	\$ 365.32	3.5%	\$ 378.11	3.5%
Commercial (\$/1,000 gals)												
Strong	\$ 7.90	\$ 9.37	\$ 9.59	21.4%	\$ 9.93	3.5%	\$ 10.28	3.5%	\$ 10.64	3.5%	\$ 11.01	3.5%
Moderate	\$ 4.26	\$ 4.63	\$ 4.74	11.2%	\$ 4.90	3.5%	\$ 5.07	3.5%	\$ 5.25	3.5%	\$ 5.43	3.5%
Weak	\$ 3.73	\$ 3.86	\$ 3.95	5.8%	\$ 4.08	3.5%	\$ 4.23	3.5%	\$ 4.37	3.5%	\$ 4.53	3.5%
Fast-Food Restaurant	\$ 7.55	\$ 8.77	\$ 8.97	18.8%	\$ 9.29	3.5%	\$ 9.61	3.5%	\$ 9.95	3.5%	\$ 10.30	3.5%
Full-Service Restaurant	\$ 9.65	\$ 11.61	\$ 11.89	23.2%	\$ 12.30	3.5%	\$ 12.73	3.5%	\$ 13.18	3.5%	\$ 13.64	3.5%
Industrial												
Volume (\$/1,000 gals)	\$ 2.37	\$ 2.18	\$ 2.23	-5.8%	\$ 2.31	3.5%	\$ 2.39	3.5%	\$ 2.48	3.5%	\$ 2.56	3.5%
COD (\$/1,000 lbs)	\$ 240.51	\$ 289.25	\$ 296.05	23.1%	\$ 306.41	3.5%	\$ 317.14	3.5%	\$ 328.24	3.5%	\$ 339.72	3.5%
Suspended Solids (\$/1,000 lbs)	\$ 440.95	\$ 672.80	\$ 688.62	56.2%	\$ 712.72	3.5%	\$ 737.66	3.5%	\$ 763.48	3.5%	\$ 790.20	3.5%

Note: rounding differences caused by stored values in electronic format may exist.

SECTION 2. INTRODUCTION

Study Purpose

The purpose of this study is to update the District's rates to ensure that they generate sufficient revenue to recover the District's costs and that the rate structure reflects the District's current rate-making objectives. The District's rate-making objectives include the following:

- Rates must comply with Proposition 218 and applicable state codes.
- Provide revenue sufficiency and financial stability to fund the projected capital and O&M costs of the District.
- Reflects the costs of service.
- Meet the District's operations and capital funds reserve targets.
- Assess rates that reflect equity of costs in proportion to the level of service.
- Provide for efficient administration and execution of utility billing.
- Assess rates that are clear and understandable to the customers.

Background

Union Sanitary District (District) is an independent special district that provides collection, treatment and disposal services to the 111,200 properties. The District maintains a large number of facilities and equipment, including more than 811 miles of sewer lines, seven pump stations, the treatment plant, as well as other infrastructure. Since the mid-nineties, the primary focus of the District's Capital Improvement Program has been on rehabilitation, replacement and repair of its aging infrastructure, pump stations and treatment plant equipment.

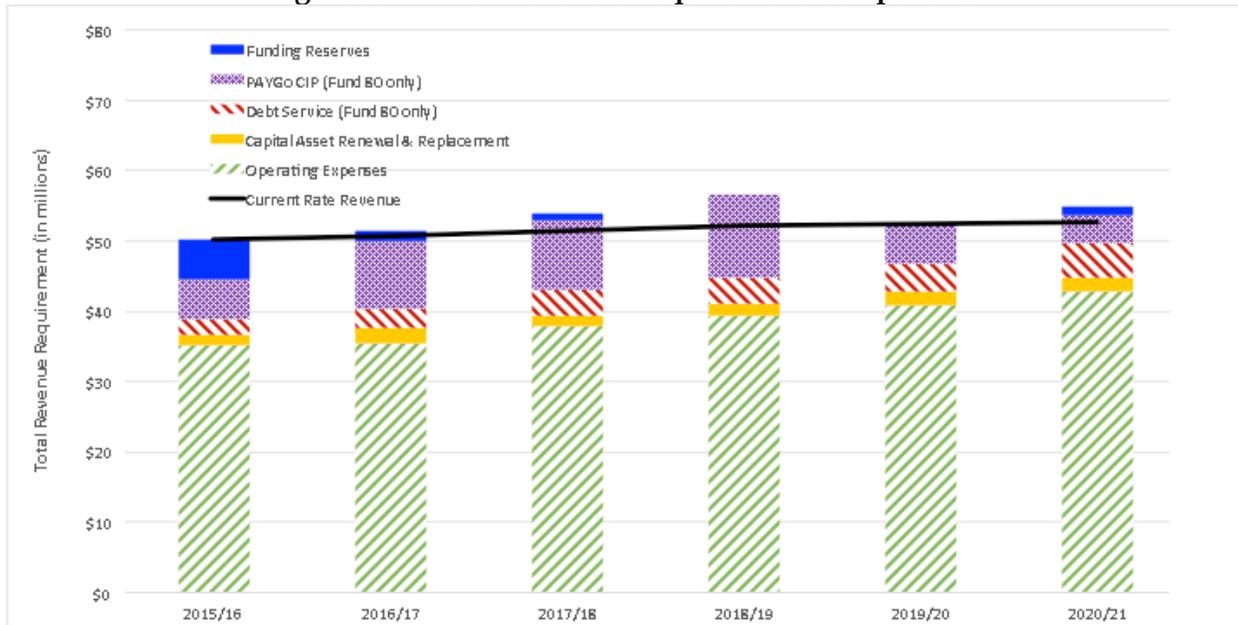
The District is responsible for charging its customers fair rates that cover its cost of service. In July 2015, the District engaged HF&H to determine the cost of service and associated sewer service charges for FYs 2016/17 through 2020/21. The results of the revenue requirement projections and the cost of service allocations among customer classes were presented to the Board of Directors on September 22, 2015.

SECTION 3: REVENUE REQUIREMENT PROJECTIONS

A ten-year spreadsheet model was developed to derive revenue requirements for FY 2015/16 through FY 2024/25. The revenue requirements represent the costs that must be recovered from rate revenues and other sources. The District’s O&M budget for FY 2015/16 served as the starting point for projecting the District’s expenses and revenues. Although revenue requirements have been projected out to FY 2024/25, the information presented in the report reflects the projections through FY 2020/21 for presentation purposes; please refer to the model in the appendix for the results of the ten-year projections.

Figure 5 summarizes the major categories comprising the revenue requirements, indicating the annual change.

Figure 5. Annual Revenue Requirement Components



Operating Expenses

The District’s O&M expenses are projected to increase, on average, by 4% per year from approximately \$35 million to \$43 million over the five-year planning period. Annual increases are generally no greater than the estimated rate of inflation or cost escalation for most recurring expenses. Please refer to the model in the Appendix for further detail on the expenses and the assumptions applied to each line-item expense.

Capital Asset Renewal & Replacement

The District’s capital asset renewal and replacement funds encompass the vehicle and equipment, plant and pump station, and information system assets of the District. Assets that are scheduled to be replaced due to age or obsolescence are purchased through this fund. The vehicle and equipment provision is based on a 5-year replacement schedule and expense

projection. The plant and pump station fund is for high cost equipment purchases. The information system fund replaces major information systems hardware and software.

Debt Service

The District currently has debt service obligations associated with different State Revolving Fund (SRF) loans, which are being used to make improvements to the District's wastewater treatment plant, collection system and pump stations. The District currently projects an additional ten new issuances during the five-year planning period. **Figure 6** summarizes the existing structural-related annual debt service payments and the annual increases in debt service, based on when the fiscal year payments are projected to commence. Note that the debt service incurred for capacity projects is excluded and only the portion of the debt service that is related to structural improvements that benefit existing users, (and paid for through revenue from sewer service charges) is shown below:

Figure 6. Annual Debt Service Expense

	Budgeted	Projected				
	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Existing Debt Service	\$ 2,204,389	\$ 2,204,389	\$ 2,830,282	\$ 3,640,470	\$ 3,640,470	\$ 3,834,983
Average Annual Debt Service						
Administrative Facilities		625,893	-	-	-	-
Collection System		-	246,994	-	-	-
Transport		-	-	-	-	-
Treatment		-	563,194	-	194,513	1,087,299
Subtotal	-	625,893	810,188	-	194,513	1,087,299
Total Annual Debt Service	\$ 2,204,389	\$ 2,830,282	\$ 3,640,470	\$ 3,640,470	\$ 3,834,983	\$ 4,922,282

Capital Expenses

The District's capital expenses are summarized by category in **Figure 7**. The District maintains two CIP scenarios for planning purposes: a baseline scenario which includes the full projected cost of all future improvements, and a 90% scenario that assumes some reduction in costs over the planning period due to savings, deferment or schedule slippage. Our model assumes the 90% scenario in all years for rate-setting purposes. Additionally, the projected costs summarized in **Figure 7** include a 3.5% annual inflation factor based on the estimated construction cost inflation. District staff confirmed this inflation factor, which ensures that model projections are consistent with budgeted values. Note that only the portion of the capital projects that are related to structural improvements that benefit existing users are paid for through revenue from sewer service charges. Capacity-related projects that serve new connections are funded through the capacity charges, a one-time fee paid at the time of connection to the system.

From year to year, the structural capital improvement costs vary significantly. Rates are not set to match this annual variation, which would result in rate instability. Instead, rates are based on multi-year averages as discussed below.

Figure 7. Capital Expenses

	Budgeted		Projected			
	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Total Planned CIP						
Administrative Facilities	\$ 300,000	\$ 5,550,000	\$ 6,500,000	\$ 300,000	\$ -	\$ 250,000
Collection System	4,250,000	6,800,000	750,000	1,000,000	3,050,000	3,300,000
Transport	2,700,000	2,250,000	5,100,000	7,600,000	1,000,000	3,800,000
Treatment	9,500,000	8,650,000	13,850,000	14,700,000	17,900,000	7,300,000
Total CIP	16,750,000	23,250,000	26,200,000	23,600,000	21,950,000	14,650,000
90% Total CIP	\$ 15,075,000	\$ 20,925,000	\$ 23,580,000	\$ 21,240,000	\$ 19,755,000	\$ 13,185,000
Portion of 90% related to Structural	\$ 10,552,500	\$ 16,560,000	\$ 18,798,750	\$ 15,963,750	\$ 16,470,000	\$ 9,135,000

Reserve Expenses

In addition to recovering annual expenses, sewer service charges need to generate revenue to maintain adequate operations and capital reserves. As part of financial plan recommendations, the District first adopted a reserve policy in 2006. To determine what constitutes adequate reserve amounts, we have subdivided the District's reserve policies for discussion purposes: Minimum and Target Reserve Balances.

Minimum Reserve Balances

The Operating Reserve provides working capital for monthly O&M expenses. Because of the nine-month lag between collection and transfer of sewer service charge payments from the County tax assessor to the District, the minimum Operations Reserve balance is set equal to 50% of O&M expenses to provide adequate cash flow. If this minimum balance is maintained, the District should be able to fund its monthly operations cash flow over this extended period without relying on the use of a short-term loan. Maintaining the minimum balance for the Operations Reserve is recommended as the highest priority for the District's reserves.

The Capital Reserves are similar in function to the Operating Reserve, but are used exclusively for capital expenses. The Capital Reserves provides liquidity to fund construction for projects that are funded on a PAYGo basis (as opposed to those that are funded with debt). With adequate capital reserves, the District is able to pay contractors without encroaching on the Operating Reserve or Emergency Reserve. Due to the duration of many CIP projects, the minimum Capital Reserve balances for Structural and Capacity reserves is set at the ten-year annual average CIP to cover unexpected increases in capital expenditures.

The Vehicle and Information System Renewal & Replacement Reserves cover the replacement of vehicles and hardware and software assets, respectively. The District relies on five-year vehicle and equipment replacement schedules developed by District staff to determine funding requirements. The District policy dictates that minimum funding of \$500,000 and \$250,000, respectively, would provide adequate funding to replace vehicles and equipment and information systems as their useful lives expire.

Target Reserve Balances

The target balance for the Capital Reserves depends on the level of construction. Based on District policy, a target balance equal to three times the average annual construction costs was

used for determining an appropriate and reasonable target balance. In effect, the target balance for the Capital Reserve improves the District's ability to fund larger capital projects on a PAYGo basis. Maintaining this additional increment of reserves for capital projects provides an upper range on what the District has determined is an adequate capital reserve; however, it is not essential that the District achieve or maintain this reserve. The District can also exceed the target balance from time to time, depending on the year-to-year fluctuation in capital expenses.

The Vehicle and Information System Renewal & Replacement Reserves covers the replacement of vehicles and hardware and software assets, respectively. The District relies on vehicle and equipment five-year replacement schedules developed by District staff to determine funding requirements. The District policy dictates the average annual renewal & replacement costs projected over the next five years for vehicles and hardware and software assets, respectively, is adequate for determining an appropriate and reasonable target balance.

Maintaining the Target Reserve Balances is recommended after achieving the Minimum Reserve Balance and the Emergency Reserve Balance.

Emergency Reserve Balance

The minimum and target balances for the Operations and Capital and Renewal & Replacement Reserves are sufficient to provide working capital on an ongoing basis, but do not provide for unforeseen contingencies such as emergencies. Should an emergency strike (e.g. earthquake), the District cannot suddenly raise rates to generate additional funds due to state law requirements for such rate increases (i.e., Proposition 218) as well as the fact that the District bills on the tax rolls, which can only be changed at annual intervals. Therefore, the District has set a target for the Emergency Reserve of \$5.0 million. With such a reserve, the District would have funds on hand to take immediate remedial steps without waiting to procure a loan or issue bonds.

Maintaining the Emergency Reserve is recommended as the second highest priority after meeting the minimum balance for the Operations Reserve. The Emergency Reserve can be used for funding capital projects at times when the Capital Reserves are not fully funded.

SECTION 4: PROJECTED RATE INCREASES

Revenue and Rate Increases

Current rates cannot support the projected revenue requirements shown above in **Figure 5**. This is because District expenses are projected to increase during the planning period. The revenue increases that are recommended are summarized in **Figure 8**. These increases will cover the District's rising costs. The revenue increase represents how much more revenue is needed compared to existing rates. Note the recommended rate increases are intended to keep fund balances at or above the minimum reserve policy, as shown on **Figure 9**.

Figure 8. Projected Increases in Required Revenues

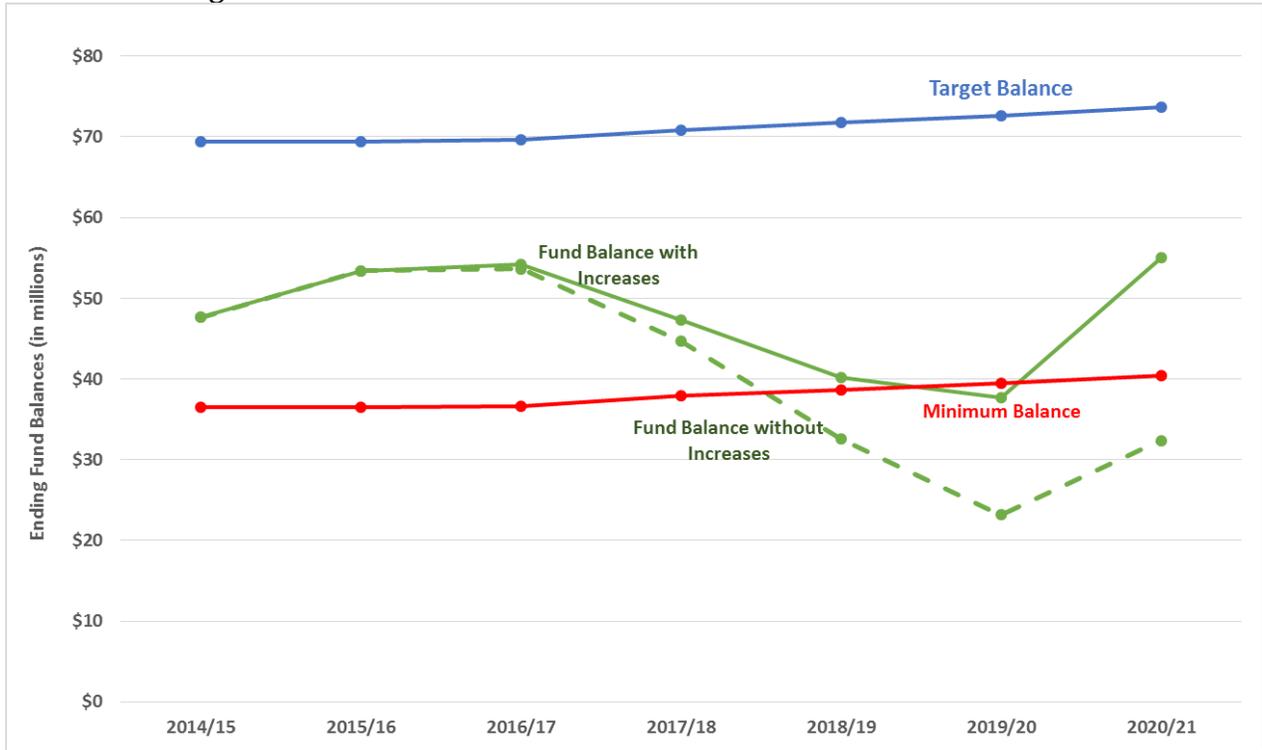
	Projected				
	2016/17	2017/18	2018/19	2019/20	2020/21
Current Revenue Sources					
Sewer Service Charges	\$ 51,179,690	\$ 51,434,053	\$ 51,689,688	\$ 51,946,601	\$ 52,204,798
Non Rate Revenues	907,300	907,300	907,300	907,300	907,300
Interest Income	323,296	303,631	261,756	233,010	277,273
Total Revenue	\$ 52,410,287	\$ 52,644,984	\$ 52,858,744	\$ 53,086,911	\$ 53,389,371
Total Revenue	\$ 52,410,287	\$ 52,644,984	\$ 52,858,744	\$ 53,086,911	\$ 53,389,371
Total Revenue Requirement	\$ 51,382,725	\$ 53,865,142	\$ 56,566,190	\$ 52,390,534	\$ 54,865,805
To/(From) Reserves	\$ 1,027,561	\$ (1,220,157)	\$ (3,707,446)	\$ 696,377	\$ (1,476,435)
Revenue Increase (%)	2.4%	3.5%	3.5%	3.5%	3.5%
Incr. Service Charge Revenue	\$ 1,202,994	\$ 3,051,479	\$ 4,983,117	\$ 7,001,292	\$ 9,109,522

Fund Balances

Figure 9 shows target balance (top solid blue line) and minimum balance (bottom solid red line) and the projected annual fund balances with the rate increases (solid green line) and without the rate increases (dashed green line), which fluctuate between the target and minimum balances. The annual rate increases maintain the fund balance above the minimum balance in most years. Although the projections for the fund balance show straight lines between years, the fund balance will fluctuate down substantially during each year. In other words, the reserves are actively drawn on at all times during the year but only periodically added to when revenue is received from the County. The reserves are not simply accumulated without being used.

The recommended sewer service charges are increased so that the resulting fund balance is maintained at or above the minimum balance (red line) over the planning period.

Figure 9. Fund Balance With and Without Increased Rate Revenue



SECTION 5: COST OF SERVICE ANALYSIS

A cost of service analysis (COSA) determines how much of the total revenue requirement should be paid by each customer class based on its respective share of flow and wastewater strength (i.e., chemical oxygen demand and total suspended solids, the standard measures of wastewater strength). Cost of service analyses should be conducted periodically to account for any material changes in the loadings from each class.

The cost of service analysis involves the following steps:

1. Determination of the total costs to be recovered from rates;
2. Determination of the loadings for each customer class to ensure costs are passed on to each class based on their strength characteristics;
3. Allocation of the total costs to be recovered from rates to the loading parameters: Customer, Flow, Chemical Oxygen Demand (COD) and Total Suspended Solids (TSS);
4. Determination of the rates for each customer class.

This section of the report discusses the allocation of operating and capital costs to the Customer, Flow, COD and TSS parameters, the determination of the unit costs, and the calculation of user rates by customer class based on their loading characteristics.

Total Costs Recovered from Rates

The FY2015/16 budget served as the basis for deriving the unit cost components. As part of the cost of service analysis, revenue from other sources except from wastewater rates and charges are deducted from the respective costs. Capital costs are not considered an ongoing annual expense because they are typically a one-time cost funded through specific reserves. Actual project expenditures may vary considerably between years, which can lead to inconsistent cost of service results. To mitigate this, the average five-year pay-as-you-go structural-related capital projects and average five-year structural-related debt service was determined and used to project capital costs. That is why the \$9,370,000 capital cost in **Figure 10** differs from the \$10,550,000 in **Figure 7** for FY 2015/16. The **Figure 7** value is for FY 2015/16 only, not a five-year average as in **Figure 10**, and the **Figure 7** value includes costs that are both debt and PAYGo funded, not just PAYGo funded as in **Figure 10**.

Figure 10 presents the total costs to be allocated among the customer classes:

Figure 10. FY 2015/16 Total Cost of Service to be Allocated

	Operating	Capital	Total
Operating Expenses	\$ 38,445,678	\$ -	\$ 38,445,678
Non Rate Revenue	(907,300)	0	(907,300)
Debt Service		3,230,120	3,230,120
PAYGo CIP		9,370,000	9,370,000
Total Costs to be Allocated	\$ 37,538,378	\$ 12,600,120	\$ 50,138,498

Allocation of Costs to Functions

The cost of service analysis is a process by which the total costs, which are shown in **Figure 10**, are allocated to the four functions that represent the services the District provides to customers. Three of the functions are related to the “loading” on the collection system and treatment plant produced by the volume of flow and the strength of wastewater; the fourth function is related to customer accounts. The allocations are commensurate with the function provided to each class. For example, much of the District’s operations and administration of its sewage collection system is allocated to flow, while the District’s treatment cost is allocated between flow, COD, and TSS based on the estimated design functions of the facilities at the treatment plant.

Figure 11A presents the allocation of operating expenses to the functional cost categories. Once the \$38.4 million shown on **Figure 10** is allocated the Customer Accounts, Flow, COD and TSS categories, their respective proportions of the total operating expenses are then used to determine the O&M Composite Allocation factors. The O&M Composite Allocation factors are then used to allocate the Non-Rate Revenue shown on **Figure 11B**. Subsequently, the Capital Composite allocation factors shown on **Figure 11A** are used to allocate the Debt Service and PAYGo Capital Projects shown on **Figure 11B**. The \$10,552,500 capital expense for FY 2015/16 in **Figure 7** is used for developing the Capital Composite allocation factors in **Figure 11A** because it is itemized in four functional categories that correspond to allocation factors. **Figure 11B** then applies the resulting Capital Composite allocation factors to the \$12,600,120 capital expense amount from **Figure 10** to calculate the cost of service. The Capital Composite allocation factors have to be developed before they can be applied to the \$12,600,120 debt and PAYGo costs because the \$12,600,120 is not itemized into functional categories by the District to which allocation factors can be applied.

Note, total costs allocated on **Figure 11B** agree to the total costs to be allocated as presented on **Figure 10** (\$38.4 million). Each of these functionalized costs is divided by the associated units of service, as shown in **Figure 12**, to determine the unit cost of service shown on **Figure 13**. For example, the unit cost to service accounts is \$12.12 per year; the unit cost per thousand gallons of flow is \$2.24. The unit costs are independent of customer class. In other words, the unit cost to treat flow is the same regardless of customer class because it represents the average for all customers.

The unit costs are not rates. However, unit costs are used to determine each class’ rates by determining their share of the costs to be recovered based on the class’ required services. The rate design determines how the costs are paid by each customer depending on which class of service it belongs to and the associated rate design for that class.

Figure 11A. FY 2015/16 Allocation of Costs to Functions

ALLOCATION FACTORS							
Allocation Factors							
	Accounts	Flow	COD	TSS	Total		
1 Treatment Plant O&M - Direct attribution (Flow, COD, TSS)	0.00%	23.00%	41.00%	36.00%	100.00%		
2 Collection System O&M - Direct attribution	0.00%	100.00%	0.00%	0.00%	100.00%		
3 Composite of Total O&M Expenses (ECB)	2.70%	43.45%	28.42%	25.43%	100.00%		
4 Composite for Special Projects	23.37%	48.09%	14.67%	13.87%	100.00%		
5 Composite for Vehicle & Equipment R&R	0.00%	83.00%	8.00%	9.00%	100.00%		
6 Composite for Technical Services	14.58%	42.72%	21.35%	21.35%	100.00%		

REVENUE REQUIREMENT ALLOCATION							
	Rev. Req't 2015/16	Allocation Type	Cost Allocation				
			Accounts	Flow	COD	TSS	Total
OPERATING COSTS							
FUND 10: Main							
8910 County Commission Expense	\$ 106,000	3	\$ 2,862	\$ 46,057	\$ 30,125	\$ 26,956	\$ 106,000
FUND 20: Operating							
Treatment & Disposal	\$ 10,227,304	1	\$ -	\$ 2,352,280	\$ 4,193,195	\$ 3,681,829	\$ 10,227,304
Fabrication, Maintenance and Co	\$ 5,881,242	1	\$ -	\$ 1,352,686	\$ 2,411,309	\$ 2,117,247	\$ 5,881,242
Collection Services	\$ 6,066,202	2	\$ -	\$ 6,066,202	\$ -	\$ -	\$ 6,066,202
Business Services	\$ 5,199,612	3	\$ 140,390	\$ 2,259,231	\$ 1,477,730	\$ 1,322,261	\$ 5,199,612
General Manager	\$ 953,139	3	\$ 25,735	\$ 414,139	\$ 270,882	\$ 242,383	\$ 953,139
Board of Directors	\$ 176,481	3	\$ 4,765	\$ 76,681	\$ 50,156	\$ 44,879	\$ 176,481
Technical Services	\$ 5,323,323	6	\$ 776,140	\$ 2,274,124	\$ 1,136,529	\$ 1,136,529	\$ 5,323,323
FUND 30: Special Projects							
9000 Special Projects	\$ 1,522,970	4	\$ 355,918	\$ 732,396	\$ 223,420	\$ 211,236	\$ 1,522,970
FUND 40: Retiree Medical							
5175 OPEB Expense	\$ 561,205	3	\$ 15,153	\$ 243,844	\$ 159,494	\$ 142,714	\$ 561,205
FUND 50: VEHICLE & EQUIPMENT R&R							
8980 New Assets	\$ 379,500	5	\$ -	\$ 314,985	\$ 30,360	\$ 34,155	\$ 379,500
FUND 60: INFORMATION SYSTEMS R&R							
Total Transfer from Fund 20	\$ 1,036,700	3	\$ 27,991	\$ 450,446	\$ 294,630	\$ 263,633	\$ 1,036,700
FUND 70: Plant & Pump Station R&R							
6100 Parts & Materials - Plant	\$ 250,000	3	\$ 6,750	\$ 108,625	\$ 71,050	\$ 63,575	\$ 250,000
FUND 75: Emergency Reserve Funding							
Total Transfer from Fund 20	\$ 750,000	3	\$ 20,250	\$ 325,875	\$ 213,150	\$ 190,725	\$ 750,000
FUND 85: PRETREATMENT							
Total Transfer from Fund 20	\$ 12,000	3	\$ 324	\$ 5,214	\$ 3,410	\$ 3,052	\$ 12,000
Total Operating Cost Allocation	\$ 38,445,678		\$ 1,376,277	\$ 17,022,784	\$ 10,565,441	\$ 9,481,175	\$ 38,445,678
O&M Composite Allocation Factors			3.58%	44.28%	27.48%	24.66%	100%
CAPITAL COSTS							
Admin Facilities	\$ 270,000	3	\$ 7,290	\$ 117,315	\$ 76,734	\$ 68,661	\$ 270,000
Collection System	\$ 2,610,000	2	\$ -	\$ 2,610,000	\$ -	\$ -	\$ 2,610,000
Transport	\$ 1,080,000	2	\$ -	\$ 1,080,000	\$ -	\$ -	\$ 1,080,000
Treatment	\$ 6,592,500	1	\$ -	\$ 1,516,275	\$ 2,702,925	\$ 2,373,300	\$ 6,592,500
Total Capital Cost Allocation	\$ 10,552,500		\$ 7,290	\$ 5,323,590	\$ 2,779,659	\$ 2,441,961	\$ 10,552,500
Capital Composite Allocation Factors			0.07%	50.45%	26.34%	23.14%	100%

Figure 11B. FY 2015/16 Allocation of Costs to Functions

	Allocation Factors					Cost Allocation				
	Accounts	Flow	COD	TSS	Total	Accounts	Flow	COD	TSS	Total
OPERATING COST ALLOCATION	Calculated on Table 11A									
O&M Allocation						\$ 1,376,277	\$ 17,022,784	\$ 10,565,441	\$ 9,481,175	\$ 38,445,678
Less: Non Rate Revenue	3.58%	44.28%	27.48%	24.66%	100.00%	(32,479)	(401,730)	(249,339)	(223,751)	(907,300)
Subtotal - Operating						\$ 1,343,798	\$ 16,621,055	\$ 10,316,101	\$ 9,257,424	\$ 37,538,378
CAPITAL COST ALLOCATION										
Debt Service	0.07%	50.45%	26.34%	23.14%	100.00%	2,231	1,629,551	850,853	747,484	3,230,120
PAYGo Capital Projects	0.07%	50.45%	26.34%	23.14%	100.00%	6,473	4,727,035	2,468,174	2,168,318	9,370,000
Subtotal - Capital						8,705	6,356,586	3,319,027	2,915,802	12,600,120
Total Cost Allocated						\$ 1,352,502	\$ 22,977,640	\$ 13,635,129	\$ 12,173,226	\$ 50,138,498

Customer Class Loadings

In order to allocate costs to different user classes, unit costs of service were developed as shown in **Figure 13** by dividing the total allocated costs shown in **Figure 11B** by the units derived on **Figure 12** for Flow, COD, TSS and Customer Accounts, respectively. To determine the flow and loadings of each customer class, we relied on the District's existing flow and strength estimates as presented in a predecessor model prepared for the District by Raftelis Financial Consulting. The District considers these values to be accurate and reliable. We also used the District's existing estimate for Inflow and Infiltration (I&I) flow rate of 5% of total plant influent to account for inflows of runoff that have entered the system through manholes and cracked pipelines. Based on the District's predecessor model, the strength for I&I was estimated to be 100 mg/L for both COD and Suspended Solids. The net plant loadings (total influent less I&I) provides a basis for determining the unit costs.

The I&I component must be allocated to customers in a way that reasonably reflects each customer's proportional contribution to the total system. I&I has two components: (1) inflow of surface runoff via drains, downspouts, and manhole covers and (2) infiltration of subsurface groundwater through cracks and joint separations in the mains. Inflow can be distinguished from infiltration because inflow is largely limited to wet weather conditions; infiltration is a steadier, continuous flow. I&I costs are presented on **Figure 14**; they are calculated as the I&I-related plant loadings, shown on **Figure 12**, multiplied by the unit costs derived on **Figure 13**. Subsequently, the I&I cost calculated on **Figure 14** are then reallocated to the customer accounts component and the adjusted total functional costs are shown on **Figure 15**. The I&I costs are reallocated to the customer accounts component because I&I occurs across the system as previously explained, and therefore, is shared equally by all customers.

The strength of the different types of commercial and industrial customers is based on the District's existing strength data. The flow of all non-residential customers is based on the prior year water usage obtained from Alameda County Water District, which is also used in preparing the non-residential sewer service charges billed on the tax roll for FY 2015/16. Lastly, we relied on the predecessor model for the calculated loadings for each residential unit. There are 108,272 residential units currently serviced by the District; the following are the residential loadings assumed in **Figure 12**:

- Flow (Single Family) - 210 gallons per day
- Flow (Multi Family) - 180 gallons per day
- COD - 500 mg/L
- Suspended Solids - 200 mg/L

Figure 12. FY 2015/16 Customer Class Loadings

	<u>Accounts</u>	<u>Discharge</u>		<u>COD</u>	<u>SS</u>	<u>COD</u>	<u>SS</u>
	LU	(kgal/year)	(mgd)	mg/l	mg/l	(klbs/year)	(klbs/year)
Residential							
Single Family Residences	67,520	5,175,408	14.18	500	200	21,581	8,633
Multiple Family Residence	40,752	2,677,406	7.34	500	200	11,165	4,466
Total Residential	108,272	7,852,814	21.51			32,746	13,098
Commercial							
Strong	119	293,212	0.80	1,839	489	4,497	1,196
Moderate	610	444,416	1.22	536	199	1,987	738
Weak	667	257,511	0.71	331	144	711	309
Unassigned	11	91,534	0.25	322	209	246	160
Fast-Food Restaurant	77	36,949	0.10	1,730	420	533	129
Full-Service Restaurant	63	48,791	0.13	2,500	600	1,017	244
Total Commercial	1,547	1,172,412	3.21			8,991	2,776
Industrial							
Strong	35	25,157	0.07	1,839	489	386	103
Moderate	1,242	550,948	1.51	536	199	2,463	914
Weak	211	18,521	0.05	331	144	51	22
Unassigned	11	-	-	322	209	-	-
Volume	79	407,740	1.12	613	224	2,085	762
Total Industrial	1,578	1,002,366	2.75			4,984	1,801
SUBTOTAL	111,397	10,027,593	27.47			46,721	17,675
Inflow and Infiltration	-	501,380	1.37	100	100	418	418
GRAND TOTAL	111,397	10,528,972	28.85			47,140	18,093

Figure 13. FY 2015/16 Unit Cost of Service Calculation

	Cost Allocation				
	Accounts	Flow	COD	TSS	Total
OPERATING COST ALLOCATION					
O&M Allocation	\$ 1,376,277	\$ 17,022,784	\$ 10,565,441	\$ 9,481,175	\$ 38,445,678
Less: Non Rate Revenue	\$ (32,479)	\$ (401,730)	\$ (249,339)	\$ (223,751)	\$ (907,300)
	\$ 1,343,798	\$ 16,621,055	\$ 10,316,101	\$ 9,257,424	\$ 37,538,378
CAPITAL COST ALLOCATION					
Debt Service (Fund 80 only)	\$ 2,231	\$ 1,629,551	\$ 850,853	\$ 747,484	\$ 3,230,120
PAYGo Capital Projects (Fund 80)	\$ 6,473	\$ 4,727,035	\$ 2,468,174	\$ 2,168,318	\$ 9,370,000
	\$ 8,705	\$ 6,356,586	\$ 3,319,027	\$ 2,915,802	\$ 12,600,120
TOTAL REVENUE REQUIREMENT	\$ 1,352,502	\$ 22,977,640	\$ 13,635,129	\$ 12,173,226	\$ 50,138,498
TOTAL UNITS (Including I&I)	111,397	10,528,972	47,140	18,093	
Unit Cost	\$12.14	\$2.18	\$289.25	\$672.80	
	\$/Account	\$/1,000 gals	\$/1,000 lbs	\$/1,000 lbs	

Figure 14. FY 2015/16 Inflow and Infiltration Cost Reclassification

	\$/Account	\$/kgal	klbs/yr	klbs/yr	Total
I&I Cost Allocation					
Total Units (Including I&I)	111,397	10,528,972	47,140	18,093	
Unit Cost	\$12.14	\$2.18	\$289.25	\$672.80	
I&I Units	-	501,380	418	418	
I&I Costs to be Allocated	\$ -	\$ 1,094,173	\$ 120,950	\$ 281,332	\$ 1,496,456
Total Revenue Requirement	\$1,352,502	\$22,977,640	\$13,635,129	\$12,173,226	\$ 50,138,498
I&I Costs to be Allocated	\$ 1,496,456	\$ (1,094,173)	\$ (120,950)	\$ (281,332)	\$ -
Total Rev Req't (after I&I reclass)	\$ 2,848,958	\$ 21,883,467	\$ 13,514,179	\$ 11,891,894	\$ 50,138,498

Figure 15. FY 2015/16 Unit Cost of Service Calculation after I&I Reclassification

	\$/Account	\$/kgal	klbs/yr	klbs/yr	Total
Total Units, net I&I					
Total Units (Including I&I)	111,397	10,528,972	47,140	18,093	
Less: I&I Units	-	(501,380)	(418)	(418)	
Total Units, net I&I	111,397	10,027,593	46,721	17,675	
Unit Cost (after I&I reclass)					
Total Costs (after I&I reclass)	\$ 2,848,958	\$ 21,883,467	\$ 13,514,179	\$ 11,891,894	\$ 50,138,498
Total Units, net I&I	111,397	10,027,593	46,721	17,675	
Unit Cost (after I&I reclass)	\$25.57	\$2.18	\$289.25	\$672.80	

Revenue Requirement by Customer Class

In cost of service analysis, all customer classes are treated equally through the application of the same unit costs to all customers, which is the fundamental purpose of cost of service analysis. In this way, cost of service analysis proportionally distributes the revenue requirement to each customer class without discrimination, after which rates can be designed to generate the revenue required to provide the necessary level of service to each class. **Figure 16** shows the result of applying the unit costs from **Figure 15** to each customer class' units of service in **Figure 12** to distribute the respective shares of the revenue requirement.

Figure 16. FY 2015/16 Revenue Requirement Allocation

	<u>Accounts</u>	<u>Flow</u>	<u>COD</u>	<u>TSS</u>	<u>Total</u>
Residential	\$25.57/Account	\$2.18/kgal/Yr	\$289.25/klbs/yr	\$672.80/klbs/yr	
Single Family Residences	\$ 1,726,812	\$ 11,294,423	\$ 6,242,441	\$ 5,808,009	\$ 25,071,684
Multiple Family Residences	1,042,225	5,842,971	3,229,417	3,004,671	13,119,285
Total Residential	\$ 2,769,037	\$ 17,137,394	\$ 9,471,858	\$ 8,812,680	\$ 38,190,968
Commercial					
Strong	\$ 3,043	\$ 639,884	\$ 1,300,779	\$ 804,532	\$ 2,748,239
Moderate	15,601	969,859	574,637	496,244	2,056,341
Weak	17,058	561,972	205,619	208,070	992,720
Unassigned	281	199,757	71,101	107,345	378,484
Fast-Food Restaurant	1,969	80,634	154,200	87,076	323,880
Full-Service Restaurant	1,611	106,478	294,251	164,264	566,604
Total Commercial	\$ 39,564	\$ 2,558,584	\$ 2,600,588	\$ 1,867,532	\$ 7,066,268
Industrial					
Strong	\$ 895	\$ 54,901	\$ 111,605	\$ 69,028	\$ 236,429
Moderate	31,764	1,202,348	712,386	615,200	2,561,697
Weak	5,396	40,419	14,789	14,965	75,569
Unassigned	281	-	-	-	281
Volume	2,020	889,822	602,953	512,489	2,007,284
Total Industrial	\$ 40,357	\$ 2,187,489	\$ 1,441,733	\$ 1,211,681	\$ 4,881,261
SUBTOTAL	\$ 79,921	\$ 4,746,073	\$ 4,042,321	\$ 3,079,213	\$ 11,947,529
GRAND TOTAL	\$ 2,848,958	\$ 21,883,467	\$ 13,514,179	\$ 11,891,894	\$ 50,138,498

SECTION 6: RATE DESIGN

After each class' share of the revenue requirement was determined in the cost of service analysis, rates were designed to ensure that each class' rates generate its respective share of the cost of service. **Figure 17** presents the calculation of the sewer service charges based on the results of the cost of service analysis presented above.

Figure 17. FY 2015/16 Calculation of Cost of Service Sewer Service Charges

Residential - Charge per Account					
	<u>Account</u>	<u>Flow</u>	<u>COD</u>	<u>TSS</u>	<u>Total</u>
Single Family Residential					
Units	67,520 accounts	5,175,408 kgal	21,581 klbs	8,633 klbs	(per acct)
Accounts	67,520 accounts	67,520 accounts	67,520 accounts	67,520 accounts	
Units per account	1	76.65 kgal/accou	0.3196305 klbs/accoun	0.1278522 klbs/account	
Unit Costs (\$ per Unit)	\$25.57 per account	\$2.18 per kgal	\$289.25 per klbs	\$672.80 per klbs	
Total Single Family Residential	\$25.57 per account	\$167.28 per accoun	\$92.45 per account	\$86.02 per account	\$371.32
Multi Family Residential					
Units	40,752 accounts	2,677,406 kgal	11,165 klbs	4,466 klbs	
Accounts	40,752 accounts	40,752 accounts	40,752 accounts	40,752 accounts	
Units per account (loading ÷ a	1	65.70 kgal/accou	0.2739690 klbs/accoun	0.1095876 klbs/account	
Unit Costs (\$ per Unit)	\$25.57 per account	\$2.18 per kgal	\$289.25 per klbs	\$672.80 per klbs	
Total Multi Family Residential	\$25.57 per account	\$143.38 per accoun	\$79.25 per account	\$73.73 per account	\$321.93
Commercial - Charge per kgal					
	<u>Account</u>	<u>Flow</u>	<u>COD</u>	<u>TSS</u>	<u>Total</u>
Fast Food Restaurant					
Units	77 accounts	36,949 kgal	533 klbs	129 klbs	(per kgal)
Kgal	36,949 kgal	36,949 kgal	36,949 kgal	36,949 kgal	
Units/Kgal	0.0020840 accounts/kgal	1	0.0144282 klbs/kgal	0.0035028 klbs/kgal	
Unit Costs (\$ per Unit)	\$25.57 per account	\$2.18 per kgal	\$289.25 per klbs	\$672.80 per klbs	
Total Fast Food Restaurant	\$0.05 per kgal	\$2.18 per kgal	\$4.17 per kgal	\$2.36 per kgal	\$8.77
Full Service Restaurant					
Units	63 accounts	48,791 kgal	1,017 klbs	244 klbs	
Kgal	48,791 kgal	48,791 kgal	48,791 kgal	48,791 kgal	
Units/Kgal	0.0012912 accounts/kgal	1	0.0208500 klbs/kgal	0.0050040 klbs/kgal	
Unit Costs (\$ per Unit)	\$25.57 per account	\$2.18 per kgal	\$289.25 per klbs	\$672.80 per klbs	
Total Full Service Restaurant	\$0.03 per kgal	\$2.18 per kgal	\$6.03 per kgal	\$3.37 per kgal	\$11.61
Strong					
Units	119 accounts	293,212 kgal	4,497 klbs	1,196 klbs	
Kgal	293,212 kgal	293,212 kgal	293,212 kgal	293,212 kgal	
Units/Kgal	0.0004058 accounts/kgal	1	0.0153373 klbs/kgal	0.0040783 klbs/kgal	
Unit Costs (\$ per Unit)	\$25.57 per account	\$2.18 per kgal	\$289.25 per klbs	\$672.80 per klbs	
Total Strong	\$0.01 per kgal	\$2.18 per kgal	\$4.44 per kgal	\$2.74 per kgal	\$9.37
Moderate					
Units	610 accounts	444,416 kgal	1,987 klbs	738 klbs	
Kgal	444,416 kgal	444,416 kgal	444,416 kgal	444,416 kgal	
Units/Kgal	0.0013726 accounts/kgal	1	0.0044702 klbs/kgal	0.0016597 klbs/kgal	
Unit Costs (\$ per Unit)	\$25.57 per account	\$2.18 per kgal	\$289.25 per klbs	\$672.80 per klbs	
Total Moderate	\$0.04 per kgal	\$2.18 per kgal	\$1.29 per kgal	\$1.12 per kgal	\$4.63
Weak					
Units	667 accounts	257,511 kgal	711 klbs	309 klbs	
Kgal	257,511 kgal	257,511 kgal	257,511 kgal	257,511 kgal	
Units/Kgal	0.0025902 accounts/kgal	1	0.0027605 klbs/kgal	0.0012010 klbs/kgal	
Unit Costs (\$ per Unit)	\$25.57 per account	\$2.18 per kgal	\$289.25 per klbs	\$672.80 per klbs	
Total Weak	\$0.07 per kgal	\$2.18 per kgal	\$0.80 per kgal	\$0.81 per kgal	\$3.86

Figure 17 shows the rates for residential customers, which are billed a fixed annual charge per living unit. Commercial customers are billed based per 1,000 gallons based on estimated wastewater discharge using metered potable water use as a proxy; commercial wastewater discharge is not metered and their flows are not sampled for COD and TSS concentrations. Industrial customers are not shown in **Figure 17** because their bills are based on sampling data for each customer. With this data it is possible to bill each industrial using the costs of service for flow, COD and TSS from **Figure 15**, instead of developing aggregate rates per 1,000 gallons as was done for the commercial customers in **Figure 17**.

The overall revenue increase of 2.4% shown in **Figure 2** for FY 2016/17 applies differently to the District’s residential and non-residential customers because of adjustments in the cost of service analysis. The cost of service analysis indicates that current revenue received from residential customers is slightly greater than their share of the cost of service and that current revenue received from non-residential customers is generally less than their share of the cost of service (with the exception of the industrial volume charge). **Figure 18** summarizes the differences between the currently adopted rates for FY2015/16 and the rates based on the cost of service analysis, before the 2.4% revenue increase for FY 2016/17 is applied to the rates:

Figure 18. Results of FY 2015/16 Cost of Service Analysis

	Current Charges	COSA Charges	Differences	
			\$\$	%
Residential (\$/Living Unit)				
Single Family Residences	\$ 377.00	\$ 371.32	(\$5.68)	-2%
Multiple Family Residences	\$ 326.00	\$ 321.93	(\$4.07)	-1%
Non Residential Minimum Charge	\$ 326.00	\$ 321.93	(\$4.07)	-1%
Commercial (\$/1,000 gals)				
Strong	\$ 7.90	\$ 9.37	\$1.47	19%
Moderate	\$ 4.26	\$ 4.63	\$0.37	9%
Weak	\$ 3.73	\$ 3.86	\$0.13	3%
Fast-Food Restaurant	\$ 7.55	\$ 8.77	\$1.22	16%
Full-Service Restaurant	\$ 9.65	\$ 11.61	\$1.96	20%
Industrial				
Volume (\$/1,000 gals)	\$ 2.37	\$ 2.18	(\$0.19)	-8%
COD (\$/1,000 lbs)	\$ 240.51	\$ 289.25	\$48.74	20%
Suspended Solids (\$/1,000 lbs)	\$ 440.95	\$ 672.80	\$231.85	53%

A five-year rate projection was prepared based on the FY 2015/16 cost of service charges presented in **Figure 18**, above. Those charges reflect the cost of service analysis, which establishes the allocation of the revenue requirement among the user classes based on their relative proportionate share of cost components in FY 2015/16. In setting rates for FY 2016/17, the cost of service rates in **Figure 18** were increased 2.4% to generate the necessary revenue. As a result of the cost of service adjustments, rates for each class increase by different percentage amounts. For FY 2016-17 through FY 2020-21, rates are increased equally across-the-board. **Figure 19** summarizes the projected rates.

Figure 19. Five-Year Schedule of Rates

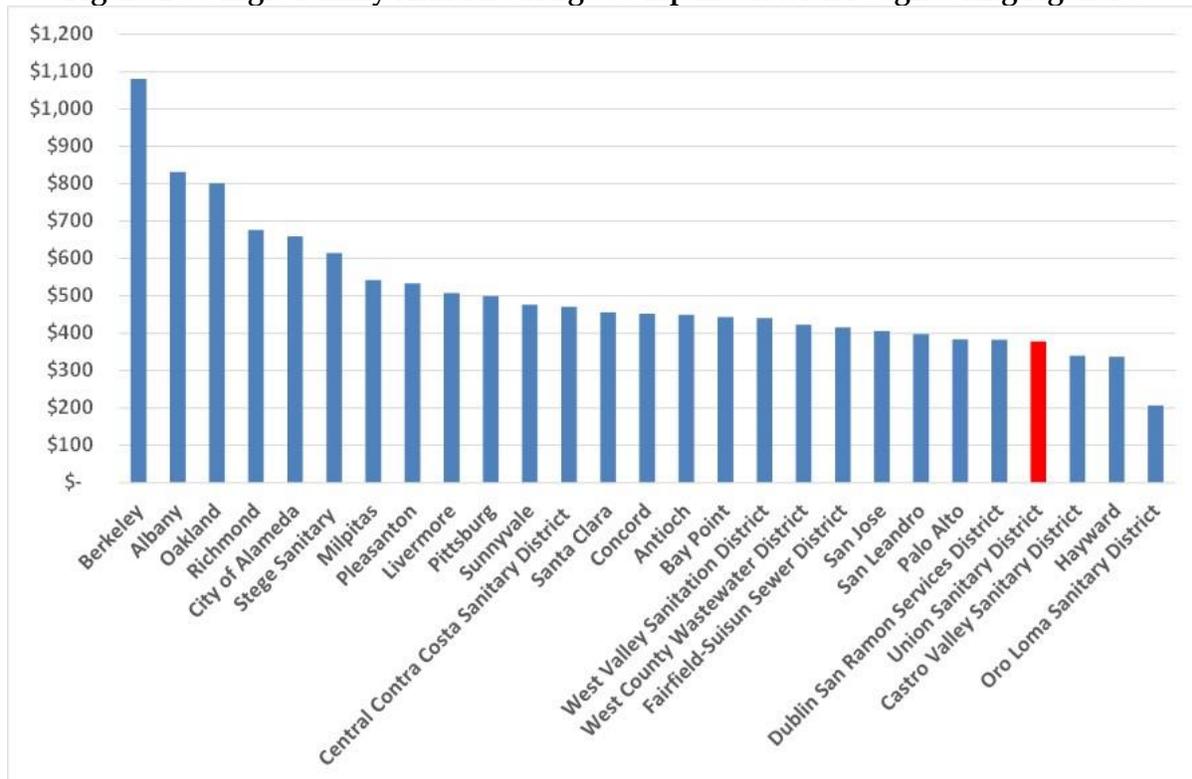
	Adopted COS Rates		Proposed									
	2015-16	2015-16	2016/17	2017/18	2018/19	2019/20	2020/21					
Overall Revenue Increases			2.4%	3.5%	3.5%	3.5%	3.5%					
Residential (\$/LU)												
Single Family Residences	\$ 377.00	\$ 371.32	\$ 380.05	0.8%	\$ 393.35	3.5%	\$ 407.12	3.5%	\$ 421.37	3.5%	\$ 436.12	3.5%
Multiple Family Residences	\$ 326.00	\$ 321.93	\$ 329.50	1.1%	\$ 341.03	3.5%	\$ 352.97	3.5%	\$ 365.32	3.5%	\$ 378.11	3.5%
Non Residential Minimum Charge	\$ 326.00	\$ 321.93	\$ 329.50	1.1%	\$ 341.03	3.5%	\$ 352.97	3.5%	\$ 365.32	3.5%	\$ 378.11	3.5%
Commercial (\$/1,000 gals)												
Strong	\$ 7.90	\$ 9.37	\$ 9.59	21.4%	\$ 9.93	3.5%	\$ 10.28	3.5%	\$ 10.64	3.5%	\$ 11.01	3.5%
Moderate	\$ 4.26	\$ 4.63	\$ 4.74	11.2%	\$ 4.90	3.5%	\$ 5.07	3.5%	\$ 5.25	3.5%	\$ 5.43	3.5%
Weak	\$ 3.73	\$ 3.86	\$ 3.95	5.8%	\$ 4.08	3.5%	\$ 4.23	3.5%	\$ 4.37	3.5%	\$ 4.53	3.5%
Fast-Food Restaurant	\$ 7.55	\$ 8.77	\$ 8.97	18.8%	\$ 9.29	3.5%	\$ 9.61	3.5%	\$ 9.95	3.5%	\$ 10.30	3.5%
Full-Service Restaurant	\$ 9.65	\$ 11.61	\$ 11.89	23.2%	\$ 12.30	3.5%	\$ 12.73	3.5%	\$ 13.18	3.5%	\$ 13.64	3.5%
Industrial												
Volume (\$/1,000 gals)	\$ 2.37	\$ 2.18	\$ 2.23	-5.8%	\$ 2.31	3.5%	\$ 2.39	3.5%	\$ 2.48	3.5%	\$ 2.56	3.5%
COD (\$/1,000lbs)	\$ 240.51	\$ 289.25	\$ 296.05	23.1%	\$ 306.41	3.5%	\$ 317.14	3.5%	\$ 328.24	3.5%	\$ 339.72	3.5%
Suspended Solids (\$/1,000 lbs)	\$ 440.95	\$ 672.80	\$ 688.62	56.2%	\$ 712.72	3.5%	\$ 737.66	3.5%	\$ 763.48	3.5%	\$ 790.20	3.5%

Note: rounding differences caused by stored values in electronic format may exist.

Customer Bill Impacts

Figure 20 compares the proposed FY 2016/17 single family residential annual rate of \$380.05 to 26 neighboring agencies as part of the District’s annual rate survey. The rates presented were the best available as of September 14, 2015, the date of the Board workshop when the survey was last updated. We note that only three agencies rank lower than the annual single family residential charge recommended for FY 2016/17.

Figure 20. Single Family Annual Charge Comparison with Neighboring Agencies



APPENDIX A: WASTEWATER RATE MODEL AND COST OF SERVICE ANALYSIS

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Union Sanitary District												
2	Sewer Rate Update & COS Analysis												
3	Table 1A. Summary												
4			<u>Adopted</u>	<u>Projected</u>									
5			2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	
6	Rate Increases		5.7%	2.4%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	
7	Debt Coverage Ratio		5.48	4.75	3.84	3.92	3.85	3.23	3.07	2.97	3.03	3.56	
8													
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Fiscal Year	Target Balance	Fund Balance with Increases	Minimum Balance	Fund Balance without Increases
2014/15	69	48	37	48
2015/16	69	54	37	54
2016/17	70	54	37	54
2017/18	71	48	38	45
2018/19	72	40	39	33
2019/20	73	38	40	24
2020/21	74	55	41	33
2021/22	75	49	42	15
2022/23	76	55	43	8
2023/24	77	54	44	-
2024/25	78	56	45	-

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Union Sanitary District													
2	Sewer Rate Update & COS Analysis													
3	Table 1b. Assumptions													
4	Source: USD Fund Balances 063015.xls													
5	Cost of Service Year (Table 9)													
6			1	2	3	4	5	6	7	8	9	10		
7			<u>Budgeted</u>					<u>Projected</u>						
8	<u>Index</u>	<u>Description</u>	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	Source	Notes
9	1	General Inflation	Per Budget	3%	3%	3%	3%	3%	3%	3%	3%	3%	Staff Estm.	To Table 2
10	2	Salary Increases	Per Budget	4%	4%	4%	4%	4%	4%	4%	4%	4%	Staff Estm.	To Table 2
11	3	Benefit Increases	Per Budget	8%	8%	8%	8%	8%	8%	8%	8%	8%	Staff Estm.	To Table 2
12	4	Chemicals	Per Budget	3%	3%	3%	3%	3%	3%	3%	3%	3%	Staff Estm.	
13	5	Utilities	Per Budget	4%	4%	4%	4%	4%	4%	4%	4%	4%	Staff Estm.	To Table 2
14	6	Interest on Earnings	0.60%	0.60%	0.60%	0.60%	0.60%	0.60%	0.60%	0.60%	0.60%	0.60%	Staff Estm.	To Table 4
15	7	Capital	Per Budget	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	Staff Estm.	To Table 5
16	8	% Change in Water Demand	Estm. Actual	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	Staff Estm.	To Table 8
17	9	Growth in Accounts	Estm. Actual	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	Staff Estm.	To Table 8
18	10	% of CIP Funding	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	Staff Estm.	To Table 5
19	11	Blank												
20	12	Blank												
21	13	Blank												
22														
23	<u>Conversions</u>													
24	1	gallon =	3.7854 liters											
25	1	mg/l =	8.34 lbs./million gallons											
26	1	liter =	0.2642 gallons											
27	1	ounce =	28.35 grams											
28	1	pound =	16 ounces											
29	1	pound =	453.6 grams											
30	1	mg/l =	0.00834 lbs./1,000 gallons											
31	1	SFR LU =	210	gpd										
32	1	MFR LU =	180	gpd										
33	1	Year =	365 days											
34	1	Kgal =	1,000 gallons											
35	1	MGD =	1,000,000 gallons											

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Union Sanitary District													
2	Sewer Rate Update & COS Analysis													
3	Table 1b. Assumptions													
36	Fund Balances													
37	Fund No.		10											
38	Name		Main											
39	Description		For Operating and Maintenance Expenses, particularly between semi-annual receipt of rate revenue											
40	Beginning Balance		\$ 16,329,604										To Table 4	
41	Minimum Balance		50% of annual budgeted operating expenditures										To Table 4	
42	Target Balance		same as minimum											
43														
44	Fund No.		20											
45	Name		Operating											
46	Description		Will combine with Fund 10 for rate setting purposes (petty cash/cash in bank)											
47	Beginning Balance		\$ 2,100,320										To Table 4	
48														
49	Fund No.		30											
50	Name		Special Projects											
51	Description		Will combine with Fund 10 for rate setting purposes											
52	Beginning Balance		\$ 446,299										To Table 4	
53														
54	Fund No.		40											
55	Name		Retiree Medical											
56	Description		Will combine with Fund 10 for rate setting purposes - zero-balance clearing account											
57	Beginning Balance		\$ 16,753										To Table 4	
58														
59	Fund No.		50											
60	Name		Vehicle & Equipment R&R											
61	Description		Replacement of District Fleet & Equipment											
62	Beginning Balance		\$ 804,057										To Table 4	
63	Minimum Balance		\$ 500,000										To Table 4	
64	Target Balance		Average of 5-year equipment renewal & replacement capital costs or \$500K, whichever is greater										To Table 4	
65														
66	Fund No.		60											
67	Name		Information Systems R&R											
68	Description		Replacement of computer hardware and software.											
69	Beginning Balance		\$ 1,477,779										To Table 4	
70	Minimum Balance		\$ 250,000										To Table 4	
71	Target Balance		Average of 5-year information system renewal & replacement capital costs or \$250K, whichever is greater										To Table 4	
72														
73	Fund No.		70											
74	Name		Plant & Pump Station R&R											
75	Description		Will be combined with Fund 80 for rate-setting purposes (limited term fund)											
76	Beginning Balance		\$ 127,263										To Table 4	
77														

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Union Sanitary District													
2	Sewer Rate Update & COS Analysis													
3	Table 1b. Assumptions													
78	Fund No.		75											
79	Name		Emergency											
80	Description		To help mitigate financial impacts of a catastrophic event											
81	Beginning Balance		\$ 3,500,000										To Table 4	
82	Target Balance		Accrue and maintain \$5M by FY2017-18										To Table 4	
83														
84	Fund No.		80											
85	Name		Structural Renewal & Replacement											
86	Description		Activities related to collection and treatment system capacity increases.											
87	Beginning Balance		\$ 6,392,404 (includes future projects reserves)										To Table 4	
88	Minimum Balance		Average of 10-year renewal & replacement capital costs or \$5M, whichever is greater										To Table 4	
89	Target Balance		Three times annual CIP expenditures										To Table 4	
90														
91	Fund No.		85											
92	Name		Pretreatment											
93	Description		Will combine with Fund 80 for ratemaking purposes; Enforcement of revenue and expenses under Ordinance 36											
94	Beginning Balance		\$ 83,301										To Table 4	
95														
96	Fund No.		90											
97	Name		Capacity											
98	Description		Activities related to collection and treatment system capacity increases.											
99	Beginning Balance		\$ 16,351,121										To Table 4	
100	Minimum Balance		\$ 3,000,000										To Table 4	
101	Target Balance		Average of 10-year capacity-related capital costs or \$3M, whichever is greater										To Table 4	
102														
103														
104	Total Beginning Fund Balance		\$ 47,628,901										Total from above	
105	Total Beginning Fund Balance		52,086,282										Total per system	
106	Less: Liability Insurance		(1,000,000)										Total per system	
107	Less: Contingency Loan		(3,457,381)										Total per system	
108	Total fund balance per system		\$ 47,628,901											
109			TRUE										Completeness Check	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Union Sanitary District													
2	Sewer Rate Update & COS Analysis													
3	Table 2. Revenue Requirements													
4	Source: USD FY16 Total Budget by Object, USD FY16 Total Budget Detail by Object (for interfund transfers)													
5														
6	Cost of Service Year (Table 9)													
7			1	2	3	4	5	6	7	8	9	10		
8		Index	Budgeted					Projected						
9		(1b)	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	Notes	
9	OPERATING EXPENSES													
10	5000 PERSONNEL EXPENSE													
11	5010	Fees, Board of Directors	1	\$ 79,615	82,003	84,464	86,997	89,607	92,296	95,064	97,916	100,854	103,880	
12	5020	Salaries, Reg	2	15,288,985	15,900,544	16,536,566	17,198,029	17,885,950	18,601,388	19,345,443	20,119,261	20,924,032	21,760,993	
13	5040	Buyback - Vacation & MAL	3	187,725	202,743	218,962	236,479	255,398	275,830	297,896	321,728	347,466	375,263	
14	5060	Overtime	2	567,309	590,001	613,601	638,145	663,671	690,218	717,827	746,540	776,402	807,458	
15	5080	Other Compensation	3	200,804	216,868	234,218	252,955	273,192	295,047	318,651	344,143	371,674	401,408	
16	5099	Vacancy Factor (Budget Only)	2	(444,327)	(462,100)	(480,584)	(499,807)	(519,800)	(540,592)	(562,215)	(584,704)	(608,092)	(632,416)	
17	5105	PERS Retirement	3	3,085,078	3,331,884	3,598,435	3,886,310	4,197,215	4,532,992	4,895,631	5,287,282	5,710,264	6,167,085	
18	5120	Health & Welfare	3	3,099,141	3,347,072	3,614,838	3,904,025	4,216,347	4,553,655	4,917,947	5,311,383	5,736,294	6,195,197	
19	5140	Worker's Compensation	3	435,040	469,843	507,431	548,025	591,867	639,216	690,354	745,582	805,229	869,647	
20	5160	Social Security & Medicare	3	230,741	249,200	269,136	290,667	313,921	339,034	366,157	395,450	427,085	461,252	
21	5175	OPEB Expense (Fund 40)	2	561,205	583,653	606,999	631,279	656,530	682,792	710,103	738,507	768,048	798,770	Combined on Table 4 with Fund 10
22	5205	Pre-Employment Expenses	1	10,000	10,300	10,609	10,927	11,255	11,593	11,941	12,299	12,668	13,048	
23	5210	Annual Physicals	1	6,500	6,695	6,896	7,103	7,316	7,535	7,761	7,994	8,234	8,481	
24	5220	Development & Education - Board Member	1	25,000	25,750	26,523	27,318	28,138	28,982	29,851	30,747	31,669	32,619	
25	5270	Development & Education - District Council	1	15,000	15,450	15,914	16,391	16,883	17,389	17,911	18,448	19,002	19,572	
26	5280	Development & Education	1	243,235	250,532	258,048	265,789	273,763	281,976	290,435	299,148	308,123	317,367	
27	5290	Internal Trainers	1	1,750	1,803	1,857	1,912	1,970	2,029	2,090	2,152	2,217	2,283	
28	5300	External Trainers - Districtwide	1	12,000	12,360	12,731	13,113	13,506	13,911	14,329	14,758	15,201	15,657	
29	5310	Resource Library - Districtwide	1	1,250	1,288	1,326	1,366	1,407	1,449	1,493	1,537	1,583	1,631	
30	5320	Membership Fees	1	120,445	124,058	127,780	131,614	135,562	139,629	143,818	148,132	152,576	157,153	
31	5330	Employee Relations	1	17,600	18,128	18,672	19,232	19,809	20,403	21,015	21,646	22,295	22,964	
32	5340	Group Recognition	1	14,300	14,729	15,171	15,626	16,095	16,578	17,075	17,587	18,115	18,658	
33	5350	ERC BBQ & Setp	1	5,000	5,150	5,305	5,464	5,628	5,796	5,970	6,149	6,334	6,524	
34	5380	Social Committee	1	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610	
35	5390	Employee Assistance Program	1	7,500	7,725	7,957	8,195	8,441	8,695	8,955	9,224	9,501	9,786	
36	5420	Travel - Mileage/Parking	1	2,850	2,936	3,024	3,114	3,208	3,304	3,403	3,505	3,610	3,719	
37	5430	Commercial Drivers Program	1	3,600	3,708	3,819	3,934	4,052	4,173	4,299	4,428	4,560	4,697	
38	5505	Safety Internal Training	1	300	309	318	328	338	348	358	369	380	391	
39	5510	Safety External Training	1	9,000	9,270	9,548	9,835	10,130	10,433	10,746	11,069	11,401	11,743	
40	5520	Safety Resource Library	1	600	618	637	656	675	696	716	738	760	783	
41	5530	Safety Development & Training	1	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610	
42	5540	Safety Employee Relations	1	1,000	1,030	1,061	1,093	1,126	1,159	1,194	1,230	1,267	1,305	
43	5541	Safety Incentive Program	1	15,000	15,450	15,914	16,391	16,883	17,389	17,911	18,448	19,002	19,572	
44	5542	Team Safety Incentive Program	1	11,685	12,036	12,397	12,769	13,152	13,546	13,953	14,371	14,802	15,246	
45	5545	Safety Wellness Program	1	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610	
46	5550	Safety Membership Fees	1	400	412	424	437	450	464	478	492	507	522	
47	5560	Safety Equipment Maintenance	1	2,500	2,575	2,652	2,732	2,814	2,898	2,985	3,075	3,167	3,262	
48	5580	Safety Supplies	1	5,000	5,150	5,305	5,464	5,628	5,796	5,970	6,149	6,334	6,524	
49	5590	Safety Professional Services	1	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610	
50	5600	Temp Help	1	46,750	48,153	49,597	51,085	52,618	54,196	55,822	57,497	59,222	60,998	
51	SUBTOTAL - 5000 PERSONNEL EXPENSE			\$ 23,877,581	\$ 25,115,567	\$ 26,426,035	\$ 27,813,733	\$ 29,283,745	\$ 30,841,517	\$ 32,492,890	\$ 34,244,120	\$ 36,101,918	\$ 38,073,480	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1		Union Sanitary District												
2		Sewer Rate Update & COS Analysis												
3		Table 2. Revenue Requirements												
4		Source: USD FY16 Total Budget by Object, USD FY16 Total Budget Detail by Object (for interfund transfers)												
5														
6		Cost of Service Year (Table 9)												
7														
8			Index	Budgeted						Projected				
9			(1b)	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	Notes
52		6000 REPAIR & MAINTENANCE												
53		6100 Parts & Materials	1	\$ 1,470,850	1,514,976	1,560,425	1,607,238	1,655,455	1,705,118	1,756,272	1,808,960	1,863,229	1,919,126	
54		6200 Contractors	1	712,184	733,550	755,556	778,223	801,569	825,616	850,385	875,896	902,173	929,239	
55		6255 SCADA Maintenance	1	5,000	5,150	5,305	5,464	5,628	5,796	5,970	6,149	6,334	6,524	
56		6300 Repairs & Maintenance	1	3,000	3,090	3,183	3,278	3,377	3,478	3,582	3,690	3,800	3,914	
57		6350 Coatings	1	12,750	13,133	13,526	13,932	14,350	14,781	15,224	15,681	16,151	16,636	
58		6410 Equipment - Contractors	1	8,350	8,601	8,859	9,124	9,398	9,680	9,970	10,269	10,578	10,895	
59		6420 Equipment Maint. & Agreements	1	6,250	6,438	6,631	6,830	7,034	7,245	7,463	7,687	7,917	8,155	
60		6430 Equipment Parts & Materials	1	4,500	4,635	4,774	4,917	5,065	5,217	5,373	5,534	5,700	5,871	
61		6610 Radio Repair & Maintenance	1	15,200	15,656	16,126	16,609	17,108	17,621	18,150	18,694	19,255	19,833	
62		6620 Telephone Repair & Maintenance	1	20,100	20,703	21,324	21,964	22,623	23,301	24,000	24,720	25,462	26,226	
63		SUBTOTAL - 6000 REPAIR & MAINTENANCE		\$ 2,258,184	\$ 2,325,930	\$ 2,395,707	\$ 2,467,579	\$ 2,541,606	\$ 2,617,854	\$ 2,696,390	\$ 2,777,281	\$ 2,860,600	\$ 2,946,418	
64		7000 SUPPLIES & MATERIALS												
65		7010 Hypochlorite	4	\$ 395,000	406,850	419,056	431,627	444,576	457,913	471,651	485,800	500,374	515,385	
66		7030 Ferrous Chloride	4	408,000	420,240	432,847	445,833	459,208	472,984	487,173	501,789	516,842	532,347	
67		7040 Polymers	4	497,000	511,910	527,267	543,085	559,378	576,159	593,444	611,247	629,585	648,472	
68		7050 Gas Conditioning	4	135,000	139,050	143,222	147,518	151,944	156,502	161,197	166,033	171,014	176,144	
69		7070 Misc. Chemicals	4	148,200	152,646	157,225	161,942	166,800	171,804	176,959	182,267	187,735	193,367	
70		7080 Hydrogen Peroxide	4	336,000	346,080	356,462	367,156	378,171	389,516	401,202	413,238	425,635	438,404	
71		7110 Gasoline	4	68,000	70,040	72,141	74,305	76,535	78,831	81,196	83,631	86,140	88,725	
72		7120 Diesel	4	78,000	80,340	82,750	85,233	87,790	90,423	93,136	95,930	98,808	101,772	
73		7130 Lubricants	4	54,650	56,290	57,978	59,718	61,509	63,354	65,255	67,213	69,229	71,306	
74		7150 Misc. Petroleum Products	4	10,000	10,300	10,609	10,927	11,255	11,593	11,941	12,299	12,668	13,048	
75		7210 Office Supplies	1	53,850	55,466	57,129	58,843	60,609	62,427	64,300	66,229	68,216	70,262	
76		7215 Computer Supplies	1	19,900	20,497	21,112	21,745	22,398	23,070	23,762	24,474	25,209	25,965	
77		7220 Emergency Preparedness Supplies	1	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610	
78		7225 Postage	1	14,000	14,420	14,853	15,298	15,757	16,230	16,717	17,218	17,735	18,267	
79		7230 Printing	1	12,550	12,927	13,314	13,714	14,125	14,549	14,985	15,435	15,898	16,375	
80		7235 Graphic Supplies and Materials	1	750	773	796	820	844	869	896	922	950	979	
81		7240 Records Mgmt Storage and Supplies	1	14,000	14,420	14,853	15,298	15,757	16,230	16,717	17,218	17,735	18,267	
82		7260 Courier	1	8,300	8,549	8,805	9,070	9,342	9,622	9,911	10,208	10,514	10,830	
83		7265 Books & Subscriptions	1	18,175	18,720	19,282	19,860	20,456	21,070	21,702	22,353	23,024	23,714	
84		7270 Assessor's Maps	1	750	773	796	820	844	869	896	922	950	979	
85		7275 Misc. Office Expense	1	14,235	14,662	15,102	15,555	16,022	16,502	16,997	17,507	18,032	18,573	
86		7310 Team Safety - Equipment	1	28,100	28,943	29,811	30,706	31,627	32,576	33,553	34,559	35,596	36,664	
87		7320 Team Safety - Clothing	1	73,200	75,396	77,658	79,988	82,387	84,859	87,405	90,027	92,728	95,509	
88		7330 Team Safety - Supplies	1	15,850	16,326	16,815	17,320	17,839	18,374	18,926	19,494	20,078	20,681	
89		7430 Small Tools	1	63,900	65,817	67,792	69,825	71,920	74,078	76,300	78,589	80,947	83,375	
90		7435 Hardware (chains, fittings, ladders)	1	12,000	12,360	12,731	13,113	13,506	13,911	14,329	14,758	15,201	15,657	
91		7440 Small Equipment	1	319,700	329,291	339,170	349,345	359,825	370,620	381,739	393,191	404,986	417,136	
92		7450 Sampling Equipment	1	2,500	2,575	2,652	2,732	2,814	2,898	2,985	3,075	3,167	3,262	
93		7460 Janitorial	1	30,400	31,312	32,251	33,219	34,215	35,242	36,299	37,388	38,510	39,665	
94		7470 Misc. Supplies	1	16,850	17,356	17,876	18,412	18,965	19,534	20,120	20,723	21,345	21,985	
95		7510 P2 Program Education Supplies	1	7,000	7,210	7,426	7,649	7,879	8,115	8,358	8,609	8,867	9,133	
96		7515 P2 Program Supplies	1	21,000	21,630	22,279	22,947	23,636	24,345	25,075	25,827	26,602	27,400	
97		7520 P2 Misc. Supplies	1	5,500	5,665	5,835	6,010	6,190	6,376	6,567	6,764	6,967	7,176	
98		7530 Industrial Advisory Council Supplies	1	1,000	1,030	1,061	1,093	1,126	1,159	1,194	1,230	1,267	1,305	
99		SUBTOTAL - 7000 SUPPLIES & MATERIALS		\$ 2,885,360	\$ 2,971,921	\$ 3,061,078	\$ 3,152,911	\$ 3,247,498	\$ 3,344,923	\$ 3,445,271	\$ 3,548,629	\$ 3,655,088	\$ 3,764,740	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Union Sanitary District													
2	Sewer Rate Update & COS Analysis													
3	Table 2. Revenue Requirements													
4	Source: USD FY16 Total Budget by Object, USD FY16 Total Budget Detail by Object (for interfund transfers)													
5														
6	Cost of Service Year (Table 9)													
7			1	2	3	4	5	6	7	8	9	10		
8		Index	Budgeted					Projected						
9		(1b)	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	Notes	
100	8000 OUTSIDE SERVICES													
101	8010	Insurance - Property & Contents	1 \$ 80,000	82,400	84,872	87,418	90,041	92,742	95,524	98,390	101,342	104,382		
102	8020	Insurance - Fleet, Moving Vehicles	1 20,000	20,600	21,218	21,855	22,510	23,185	23,881	24,597	25,335	26,095		
103	8030	Insurance - General Liability	1 152,000	156,560	161,257	166,095	171,077	176,210	181,496	186,941	192,549	198,326		
104	8040	Insurance - Bonding	1 2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610		
105	8050	Insurance - Deductibles	1 24,000	24,720	25,462	26,225	27,012	27,823	28,657	29,517	30,402	31,315		
106	8060	Insurance - Retro Premiums	1 (20,000)	(20,600)	(21,218)	(21,855)	(22,510)	(23,185)	(23,881)	(24,597)	(25,335)	(26,095)		
107	8110	Biosolids Disposal	1 757,000	779,710	803,101	827,194	852,010	877,570	903,898	931,015	958,945	987,713		
108	8120	SSC Data Processing	1 12,600	12,978	13,367	13,768	14,181	14,607	15,045	15,496	15,961	16,440		
109	8130	Underground Service Alert	1 3,750	3,863	3,978	4,098	4,221	4,347	4,478	4,612	4,750	4,893		
110	8135	Smart Cover Monitoring Fees	1 22,300	22,969	23,658	24,368	25,099	25,852	26,627	27,426	28,249	29,096		
111	8150	Grit & Screening Disposal	1 50,000	51,500	53,045	54,636	56,275	57,964	59,703	61,494	63,339	65,239		
112	8160	Hazardous Materials Disposal	4 13,000	13,390	13,792	14,205	14,632	15,071	15,523	15,988	16,468	16,962		
113	8170	Misc. Contractual Services	2 94,000	97,760	101,670	105,737	109,967	114,365	118,940	123,698	128,645	133,791		
114	8210	Audit & Accounting	1 30,000	30,900	31,827	32,782	33,765	34,778	35,822	36,896	38,003	39,143		
115	8215	Legal	1 234,329	241,359	248,600	256,058	263,739	271,652	279,801	288,195	296,841	305,746		
116	8220	Legal Advertisements	1 500	515	530	546	563	580	597	615	633	652		
117	8225	Consulting Services	1 166,250	171,238	176,375	181,666	187,116	192,729	198,511	204,467	210,601	216,919		
118	8235	Consulting Services - Computer	1 50,500	52,015	53,575	55,183	56,838	58,543	60,300	62,109	63,972	65,891		
119	8236	Software Maintenance Agreement	1 266,000	273,980	282,199	290,665	299,385	308,367	317,618	327,146	336,961	347,070		
120	8238	Hardware Maintenance Agreement	1 63,000	64,890	66,837	68,842	70,907	73,034	75,225	77,482	79,807	82,201		
121	8240	Banking Services	1 33,000	33,990	35,010	36,060	37,142	38,256	39,404	40,586	41,803	43,058		
122	8245	Bank Service - Merchant Card Fees	1 10,500	10,815	11,139	11,474	11,818	12,172	12,538	12,914	13,301	13,700		
123	8247	Debt Administration Fees	100,814	-	-	-	-	-	-	-	-	-	Shown on Table 7 (interest), removed below	
124	8248	SRF Grant Charge	371,763	-	-	-	-	-	-	-	-	-	Shown on Table 7 (interest), removed below	
125	8255	Permit Fees	1 93,000	95,790	98,664	101,624	104,672	107,812	111,047	114,378	117,810	121,344		
126	8260	Professional Services - Lab Analysis	1 96,000	98,880	101,846	104,902	108,049	111,290	114,629	118,068	121,610	125,258		
127	8265	Professional Services - Other	1 42,700	43,981	45,300	46,659	48,059	49,501	50,986	52,516	54,091	55,714		
128	8310	Water	5 98,570	102,513	106,613	110,878	115,313	119,925	124,722	129,711	134,900	140,296		
129	8395	Processed Water	5 13,000	13,520	14,061	14,623	15,208	15,816	16,449	17,107	17,791	18,503		
130	8410	Electricity	5 1,457,435	1,515,732	1,576,362	1,639,416	1,704,993	1,773,193	1,844,120	1,917,885	1,994,600	2,074,384		
131	8510	Natural Gas	5 219,886	228,681	237,829	247,342	257,236	267,525	278,226	289,355	300,929	312,966		
132	8610	Refuse	5 27,000	28,080	29,203	30,371	31,586	32,850	34,164	35,530	36,951	38,429		
133	8620	Telephones, Lease Lines	5 113,100	117,624	122,329	127,222	132,311	137,603	143,108	148,832	154,785	160,977		
134	8710	O&M Fixed - EBDA Fund 12	1 354,650	365,290	376,248	387,536	399,162	411,137	423,471	436,175	449,260	462,738		
135	8720	R&R - EBDA Fund 31	7 113,850	113,850	113,850	113,850	113,850	113,850	113,850	113,850	113,850	113,850		
136	8730	Special Project & Planning - EBDA	7 347,628	347,628	347,628	347,628	347,628	347,628	347,628	347,628	347,628	347,628		
137	8740	O&M Variable - EBDA Fund 12	1 487,713	502,344	517,415	532,937	548,925	565,393	582,355	599,825	617,820	636,355		
138	8810	Rents/Leases - Equipment	1 42,822	44,107	45,430	46,793	48,197	49,642	51,132	52,666	54,246	55,873		
139	8920	Interest Expense - SRF Loan	478,375	-	-	-	-	-	-	-	-	-	Shown on Table 7 (interest), removed below	
140	8910	County Commission Expense (Fund 10)	flat 106,000	106,000	106,000	106,000	106,000	106,000	106,000	106,000	106,000	106,000		
141	8980	New Assets	1 906,500	933,695	961,706	990,557	1,020,274	1,050,882	1,082,408	1,114,881	1,148,327	1,182,777		
142	8995	Project Expense	7 567,500	567,500	567,500	567,500	567,500	567,500	567,500	567,500	567,500	567,500		
143	8995	Project Expense (Fund 80)	10,552,500	16,560,000	18,798,750	15,963,750	16,470,000	9,135,000	16,065,000	8,730,000	11,970,000	12,735,000	From Table 5	
144	8995	Project Expense (Fund 90)	4,522,500	4,365,000	4,781,250	5,276,250	3,285,000	4,050,000	3,600,000	4,770,000	2,700,000	675,000	From Table 5	
145	SUBTOTAL - 8000 OUTSIDE SERVICES		\$ 23,178,034	\$ 28,277,826	\$ 31,140,401	\$ 29,015,044	\$ 27,752,002	\$ 21,411,529	\$ 28,128,888	\$ 22,209,353	\$ 23,633,205	\$ 22,635,738		
146	9000 - SPECIAL PROJECTS													
147	9000	Special Projects (Fund 30)	flat 1,522,970	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	Combined on Table 4 with Fund 10; manual inp	
148	SUBTOTAL - 9000 - SPECIAL PROJECTS		\$ 1,522,970	\$ 800,000	\$ 800,000	\$ 800,000	\$ 800,000	\$ 800,000	\$ 800,000	\$ 800,000	\$ 800,000	\$ 800,000		
149	Total Operating Expenses		\$ 53,722,130	\$ 59,491,243	\$ 63,823,222	\$ 63,249,266	\$ 63,624,851	\$ 59,015,823	\$ 67,563,438	\$ 63,579,383	\$ 67,050,810	\$ 68,220,376		
150	Total Operating Expenses from Report		53,722,130											
151	TRUE													
	Completeness Check													

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Union Sanitary District													
2	Sewer Rate Update & COS Analysis													
3	Table 2. Revenue Requirements													
4	Source: USD FY16 Total Budget by Object, USD FY16 Total Budget Detail by Object (for interfund transfers)													
5														
6	Cost of Service Year (Table 9)													
7														
8		Index	<u>Budgeted</u>						<u>Projected</u>					
		(1b)	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	Notes	
152	INTERNAL FUND OPERATING EXPENSE TRANSFERS													
153	50	1	(379,500)	(1,253,000)	(378,000)	(630,000)	(960,000)	(988,800)	(1,018,464)	(1,049,018)	(1,080,488)	(1,112,903)	To Table 4	
154	60	1	(1,036,700)	(811,921)	(765,421)	(835,321)	(814,021)	(838,442)	(863,595)	(889,503)	(916,188)	(943,673)	To Table 4	
155	70	flat	(250,000)	(250,000)	(250,000)	(250,000)	(250,000)	(250,000)	(250,000)	(250,000)	(250,000)	(250,000)	To Table 4; Combined with Fund 80	
156	80	flat	(658,921)	-	-	-	-	-	-	-	-	-	To Table 4	
157	80		(10,552,500)	(16,560,000)	(18,798,750)	(15,963,750)	(16,470,000)	(9,135,000)	(16,065,000)	(8,730,000)	(11,970,000)	(12,735,000)	To Table 4	
158	85	flat	(12,000)	(12,000)	(12,000)	(12,000)	(12,000)	(12,000)	(12,000)	(12,000)	(12,000)	(12,000)	To Table 4; Combined with Fund 80	
159	90	flat	(292,030)	-	-	-	-	-	-	-	-	-	To Table 4	
160	90		(4,522,500)	(4,365,000)	(4,781,250)	(5,276,250)	(3,285,000)	(4,050,000)	(3,600,000)	(4,770,000)	(2,700,000)	(675,000)		
161	Total Internal fund Expense Transfers		(17,704,151)	(23,251,921)	(24,985,421)	(22,967,321)	(21,791,021)	(15,274,242)	(21,809,059)	(15,700,521)	(16,928,676)	(15,728,577)		
162														
163	GRAND TOTAL - OPERATING RESERVE		\$ 36,017,979	\$ 36,239,322	\$ 38,837,801	\$ 40,281,945	\$ 41,833,830	\$ 43,741,582	\$ 45,754,379	\$ 47,878,862	\$ 50,122,134	\$ 52,491,799	To Table 3	

	A	B	C	D	E	F	G	H	I	J	K	L
1	Union Sanitary District											
2	Sewer Rate Update & COS Analysis											
3	Table 3. Rate Revenue Increases											
4	Source: Please refer to 'notes' column for source of information											
5		<u>Est. Actual</u>					<u>Projected</u>					
6		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	Notes
7	Current Revenue											
8	Residential	\$ 38,740,192	\$ 38,381,923	\$ 38,573,833	\$ 38,766,702	\$ 38,960,536	\$ 39,155,338	\$ 39,351,115	\$ 39,547,871	\$ 39,745,610	\$ 39,944,338	From Table 6
9	Minimum Charge	311,004	307,121	307,121	307,121	307,121	307,121	307,121	307,121	307,121	307,121	From Table 6
10	Commercial	8,663,305	9,729,958	9,778,608	9,827,501	9,876,639	9,926,022	9,975,652	10,025,530	10,075,658	10,126,036	From Table 6
11	Industrial	2,452,984	2,760,687	2,774,491	2,788,363	2,802,305	2,816,317	2,830,398	2,844,550	2,858,773	2,873,067	From Table 6
12	Subtotal Revenue	\$ 50,167,485	\$ 51,179,690	\$ 51,434,053	\$ 51,689,688	\$ 51,946,601	\$ 52,204,798	\$ 52,464,286	\$ 52,725,072	\$ 52,987,162	\$ 53,250,562	
13	Expenses											
14	Operating	\$ 36,017,979	\$ 36,239,322	\$ 38,837,801	\$ 40,281,945	\$ 41,833,830	\$ 43,741,582	\$ 45,754,379	\$ 47,878,862	\$ 50,122,134	\$ 52,491,799	From Table 2
15	Surplus/(Deficit)	\$ 14,149,506	\$ 14,940,368	\$ 12,596,253	\$ 11,407,742	\$ 10,112,771	\$ 8,463,216	\$ 6,709,907	\$ 4,846,210	\$ 2,865,028	\$ 758,763	
16												
17	Increase in Revenue from rates		2.4%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	From Table 1a
18												
19	Revenue from Current Rates	\$ 50,167,485	\$ 51,179,690	\$ 51,434,053	\$ 51,689,688	\$ 51,946,601	\$ 52,204,798	\$ 52,464,286	\$ 52,725,072	\$ 52,987,162	\$ 53,250,562	From Above
20												
21	Revenue from Rate Increases											
22	2016/17		\$ 1,202,994	\$ 1,208,973	\$ 1,214,982	\$ 1,221,021	\$ 1,227,090	\$ 1,233,189	\$ 1,239,319	\$ 1,245,479	\$ 1,251,671	
23	2017/18			\$ 1,842,506	\$ 1,851,663	\$ 1,860,867	\$ 1,870,116	\$ 1,879,412	\$ 1,888,754	\$ 1,898,142	\$ 1,907,578	
24	2018/19				\$ 1,916,472	\$ 1,925,997	\$ 1,935,570	\$ 1,945,191	\$ 1,954,860	\$ 1,964,577	\$ 1,974,343	
25	2019/20					\$ 1,993,407	\$ 2,003,315	\$ 2,013,273	\$ 2,023,280	\$ 2,033,338	\$ 2,043,445	
26	2020/21						\$ 2,073,431	\$ 2,083,737	\$ 2,094,095	\$ 2,104,504	\$ 2,114,966	
27	2021/22							\$ 2,156,668	\$ 2,167,388	\$ 2,178,162	\$ 2,188,990	
28	2022/23								\$ 2,243,247	\$ 2,254,398	\$ 2,265,604	
29	2023/24									\$ 2,333,302	\$ 2,344,901	
30	2024/25										\$ 2,426,972	
31	Total Revenue from Increases	\$ -	\$ 1,202,994	\$ 3,051,479	\$ 4,983,117	\$ 7,001,292	\$ 9,109,522	\$ 11,311,470	\$ 13,610,943	\$ 16,011,903	\$ 18,518,471	
32	Total Rate Revenue	\$ 50,167,485	\$ 52,382,685	\$ 54,485,532	\$ 56,672,805	\$ 58,947,892	\$ 61,314,320	\$ 63,775,756	\$ 66,336,015	\$ 68,999,065	\$ 71,769,033	
33	Total Expenses (from above)	\$ 36,017,979	\$ 36,239,322	\$ 38,837,801	\$ 40,281,945	\$ 41,833,830	\$ 43,741,582	\$ 45,754,379	\$ 47,878,862	\$ 50,122,134	\$ 52,491,799	
34	Surplus/(Deficit)	\$ 14,149,506	\$ 16,143,363	\$ 15,647,732	\$ 16,390,859	\$ 17,114,063	\$ 17,572,739	\$ 18,021,377	\$ 18,457,153	\$ 18,876,931	\$ 19,277,234	To Table 4
35												

	A	C	D	E	F	G	H	I	J	K	L	M	N
1	Union Sanitary District												
2	Sewer Rate Update & COS Analysis												
3	Table 4. Reserves												
4	Source: USD Reserves Policy, USD Fund Balance as of 5312015.xls, Prelim. Operating and Capital Budgets dated June 1, 2015												
5													
6	Cost of Service Year		1	2	3	4	5	6	7	8	9	10	
7		Index	Est. Actual					Projected					
8		(1b)	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	Notes
9	MAIN OPERATING FUND (with rate increases)												
10	Beginning Balance (includes funds 10, 20, 30 and 40)		\$ 18,892,976	16,182,046	14,252,740	12,166,793	11,796,628	12,035,272	11,831,698	13,185,201	14,642,889	16,871,380	Starting From Table 1b
11	Surplus/(deficit)		\$ 14,149,506	\$ 16,143,363	\$ 15,647,732	\$ 16,390,859	\$ 17,114,063	\$ 17,572,739	\$ 18,021,377	\$ 18,457,153	\$ 18,876,931	\$ 19,277,234	From Table 3
12	Non Rate Revenues												
13	Income - External Work Orders	flat	230,000	230,000	230,000	230,000	230,000	230,000	230,000	230,000	230,000	230,000	
14	Field Inspection Fees	flat	148,000	148,000	148,000	148,000	148,000	148,000	148,000	148,000	148,000	148,000	
15	Plan Check Fees	flat	65,000	65,000	65,000	65,000	65,000	65,000	65,000	65,000	65,000	65,000	
16	Permits	flat	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	
17	Overtime Billed	flat	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	
18	Miscellaneous Revenue (10 & 20 ONLY)	flat	101,300	101,300	101,300	101,300	101,300	101,300	101,300	101,300	101,300	101,300	
19	Urban Runoff Services	flat	260,000	260,000	260,000	260,000	260,000	260,000	260,000	260,000	260,000	260,000	
20	Total Non Rate Revenues		907,300	907,300	907,300	907,300	907,300	907,300	907,300	907,300	907,300	907,300	
21	Transfers (to)/from Funds:												
22	SRF Reserve Fund		0	(626,000)	(1,000,000)	0	(193,000)	(1,105,000)	0	(340,000)	0	0	To Below; Based on Table 7
23	Fund 50: Vehicles		(620,000)	(645,000)	(670,000)	(690,000)	(711,000)	(700,000)	(700,000)	(700,000)	(700,000)	(700,000)	From Budget; To Below
24	Fund 60: Information Systems		(800,000)	(800,000)	(800,000)	(800,000)	(700,000)	(700,000)	(700,000)	(700,000)	(700,000)	(700,000)	To Below
25	Fund 70: Plant & Pump R&R		(202,647)	(250,000)	(250,000)	(250,000)	(250,000)	(250,000)	(250,000)	(250,000)	(250,000)	(250,000)	From Budget; To Below
26	Fund 75: Emergency Reserve		(750,000)	(750,000)	0	0	0	0	0	0	0	0	From Budget; To Below
27	Fund 80: Structural		(15,500,000)	(16,000,000)	(16,000,000)	(16,000,000)	(16,000,000)	(16,000,000)	(16,000,000)	(16,000,000)	(16,000,000)	(16,000,000)	From Budget; To Below
28	Total Transfers		(17,872,647)	(19,071,000)	(18,720,000)	(17,740,000)	(17,854,000)	(18,755,000)	(17,650,000)	(17,990,000)	(17,650,000)	(17,650,000)	
29	SUBTOTAL - OPERATING		16,077,135	14,161,708	12,087,771	11,724,952	11,963,990	11,760,311	13,110,375	14,559,654	16,777,120	19,405,914	
30	Estimated Interest Earnings	6	104,910	91,031	79,022	71,675	71,282	71,387	74,826	83,235	94,260	108,832	
31	Ending Balance		16,182,046	14,252,740	12,166,793	11,796,628	12,035,272	11,831,698	13,185,201	14,642,889	16,871,380	19,514,746	
32	Minimum/Target Balance		18,008,990	18,119,661	19,418,900	20,140,973	20,916,915	21,870,791	22,877,190	23,939,431	25,061,067	26,245,900	50% of Annual O&M
33													
34	MAIN CAPITAL FUND												
35	Beginning Balance (includes funds 70, 80 and 85)		\$ 6,602,968	13,775,329	18,435,820	16,188,161	12,758,517	11,764,884	31,825,984	27,084,905	34,848,244	33,891,943	Starting From Table 1b
36	Revenues												
37	Fund 10: SSC Revenue		15,500,000	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000	From Above
38	Fund 70: Plant & Pump R&R		202,647	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	From Above
39	Fund 80: SRF Proceeds		4,125,000	7,800,000	4,000,000	0	3,150,000	17,900,000	0	5,500,000	0	0	From Budget
40	Fund 80: SGIP Proceeds	flat	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	From Budget
41	Fund 80: Solar Rebates		174,000	65,000									From Budget
42	Total Revenues		20,101,647	24,215,000	20,350,000	16,350,000	19,500,000	34,250,000	16,350,000	21,850,000	16,350,000	16,350,000	
43	Expenses												
44	Fund 70: Plant & Pump R&R		(250,000)	(250,000)	(250,000)	(250,000)	(250,000)	(250,000)	(250,000)	(250,000)	(250,000)	(250,000)	From Table 2
45	Fund 80: CIP - Structural		(10,552,500)	(16,560,000)	(18,798,750)	(15,963,750)	(16,470,000)	(9,135,000)	(16,065,000)	(8,730,000)	(11,970,000)	(12,735,000)	From Table 5
46	Fund 80: Debt Service - Structural		(2,204,389)	(2,830,282)	(3,640,470)	(3,640,474)	(3,834,983)	(4,922,282)	(4,940,283)	(5,279,905)	(5,279,906)	(4,598,781)	From Table 7
47	Fund 85: Pretreatment		(12,000)	(12,000)	(12,000)	(12,000)	(12,000)	(12,000)	(12,000)	(12,000)	(12,000)	(12,000)	From Table 2
48	Total Expenses		(13,018,889)	(19,652,282)	(22,701,220)	(19,866,224)	(20,566,983)	(14,319,282)	(21,267,283)	(14,271,905)	(17,511,906)	(17,595,781)	
49	SUBTOTAL - CAPITAL		13,685,726	18,338,047	16,084,600	12,671,937	11,691,534	31,695,602	26,908,701	34,663,001	33,686,339	32,646,161	
50	Estimated Interest Earnings	6	89,603	97,772	103,561	86,580	73,350	130,381	176,204	185,244	205,604	199,614	
51	Ending Balance		13,775,329	18,435,820	16,188,161	12,758,517	11,764,884	31,825,984	27,084,905	34,848,244	33,891,943	32,845,776	
52	Minimum Balance		14,047,500	14,047,500	14,047,500	14,047,500	14,047,500	14,047,500	14,047,500	14,047,500	14,047,500	14,047,500	10-YR CIP Avg or \$5M
53	Target Balance		41,094,000	41,094,000	41,094,000	41,094,000	41,094,000	41,094,000	41,094,000	41,094,000	41,094,000	41,094,000	3x10-YR CIP Avg

Table 4. Reserves
USD Model 29Dec2015

	A	C	D	E	F	G	H	I	J	K	L	M	N
1	Union Sanitary District												
2	Sewer Rate Update & COS Analysis												
3	Table 4. Reserves												
4	Source: USD Reserves Policy, USD Fund Balance as of 5312015.xls, Prelim. Operating and Capital Budgets dated June 1, 2015												
5													
6	Cost of Service Year		1	2	3	4	5	6	7	8	9	10	
7		Index	Est. Actual					Projected					
8		(1b)	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	Notes
54	FUND 50: RENEWAL & REPLACEMENT - VEHICLES AND EQUIPMENT												
55	Beginning Balance		\$ 804,057	\$ 1,087,557	\$ 518,557	\$ 828,557	\$ 914,557	\$ 722,557	\$ 464,757	\$ 246,293	\$ (65,725)	\$ (271,213)	Starting From Table 1b
57	Revenues												
58	Fund 10: SSC Revenue		620,000	645,000	670,000	690,000	711,000	700,000	700,000	700,000	700,000	700,000	From Above
59	Fund 50: Sale of Surplus		43,000	39,000	18,000	26,000	57,000	31,000	100,000	37,000	175,000	70,000	From Budget
60	Total Revenues		663,000	684,000	688,000	716,000	768,000	731,000	800,000	737,000	875,000	770,000	
61	Expenses												
62	Fund 50: Vehicles & Equipment		(379,500)	(1,253,000)	(378,000)	(630,000)	(960,000)	(988,800)	(1,018,464)	(1,049,018)	(1,080,488)	(1,112,903)	From Table 2
63	Total Expenses		(379,500)	(1,253,000)	(378,000)	(630,000)	(960,000)	(988,800)	(1,018,464)	(1,049,018)	(1,080,488)	(1,112,903)	
64	SUBTOTAL - FUND 50		\$ 1,087,557	\$ 518,557	\$ 828,557	\$ 914,557	\$ 722,557	\$ 464,757	\$ 246,293	\$ (65,725)	\$ (271,213)	\$ (614,116)	
65	Estimated Interest Earnings	6	5,675	4,818	4,041	5,229	4,911	3,562	2,133	542	-	-	
66	Ending Balance		1,093,232	523,375	832,598	919,786	727,468	468,319	248,426	(65,183)	(271,213)	(614,116)	
67	Minimum Balance		500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	From Table 1b
68	Target Balance		720,100	841,960	795,053	929,256	1,019,354	1,049,935	1,065,218	1,065,218	1,065,218	1,065,218	5-YR EXP Avg or \$500K
69													
70	FUND 60: RENEWAL & REPLACEMENT - INFORMATION SYSTEMS												
71	Beginning Balance		\$ 1,477,779	\$ 1,249,236	\$ 1,244,774	\$ 1,286,926	\$ 1,259,220	\$ 1,152,412	\$ 1,020,470	\$ 862,507	\$ 677,611	\$ 464,840	Starting From Table 1b
72	Revenues												
73	Fund 10: SSC Revenue		800,000	800,000	800,000	800,000	700,000	700,000	700,000	700,000	700,000	700,000	From Above
74	Total Revenues		800,000	800,000	800,000	800,000	700,000	700,000	700,000	700,000	700,000	700,000	
75	Expenses												
76	Fund 60: IT Master Plan		(1,036,700)	(811,921)	(765,421)	(835,321)	(814,021)	(838,442)	(863,595)	(889,503)	(916,188)	(943,673)	From Table 2
77	Total Expenses		(1,036,700)	(811,921)	(765,421)	(835,321)	(814,021)	(838,442)	(863,595)	(889,503)	(916,188)	(943,673)	
78	SUBTOTAL - FUND 60		\$ 1,241,079	\$ 1,237,315	\$ 1,279,353	\$ 1,251,605	\$ 1,145,199	\$ 1,013,971	\$ 856,875	\$ 673,004	\$ 461,423	\$ 221,167	
79	Estimated Interest Earnings	6	8,157	7,460	7,572	7,616	7,213	6,499	5,632	4,607	3,417	2,058	
80	Ending Balance		1,249,236	1,244,774	1,286,926	1,259,220	1,152,412	1,020,470	862,507	677,611	464,840	223,225	
81	Minimum Balance		250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	
82	Target Balance		852,677	813,025	823,360	848,176	864,350	890,280	903,240	903,240	903,240	903,240	5-YR EXP Avg or \$250K
83													
84	FUND 75: EMERGENCY												
85	Beginning Balance		\$ 3,500,000	\$ 4,273,250	\$ 5,051,140	\$ 5,081,446	\$ 5,111,935	\$ 5,142,607	\$ 5,173,462	\$ 5,204,503	\$ 5,235,730	\$ 5,267,144	Starting From Table 1b
86	Revenues												
87	Fund 10: SSC Revenue		750,000	750,000	0	0	0	0	0	0	0	0	From Above
88	Total Revenues		750,000	750,000	0	0	0	0	0	0	0	0	
89	Expenses												
90	Fund 75: Supplies/Equipment		0	0	0	0	0	0	0	0	0	0	From Staff
91	Total Expenses		0	0	0	0	0	0	0	0	0	0	
92	SUBTOTAL - FUND 75		\$ 4,250,000	\$ 5,023,250	\$ 5,051,140	\$ 5,081,446	\$ 5,111,935	\$ 5,142,607	\$ 5,173,462	\$ 5,204,503	\$ 5,235,730	\$ 5,267,144	
93	Estimated Interest Earnings	6	23,250	27,890	30,307	30,489	30,672	30,856	31,041	31,227	31,414	31,603	
94	Ending Balance		4,273,250	5,051,140	5,081,446	5,111,935	5,142,607	5,173,462	5,204,503	5,235,730	5,267,144	5,298,747	
95	Target Balance		\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$5M by FY2017-18

	A	C	D	E	F	G	H	I	J	K	L	M	N
1	Union Sanitary District												
2	Sewer Rate Update & COS Analysis												
3	Table 4. Reserves												
4	Source: USD Reserves Policy, USD Fund Balance as of 5312015.xls, Prelim. Operating and Capital Budgets dated June 1, 2015												
5													
6	Cost of Service Year												
7		Index	1	2	3	4	5	6	7	8	9	10	
8		(1b)	Est. Actual					Projected					Notes
96													
97	FUND 90: CAPACITY												
98	Beginning Balance		\$ 16,351,121	\$ 16,852,212	\$ 14,683,816	\$ 11,771,240	\$ 8,344,703	\$ 6,894,829	\$ 4,668,961	\$ 2,454,937	\$ (945,883)	\$ (2,281,217)	
99	Revenues												
100	Fund 90: Capacity Fees		4,372,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	From Budget, USD Staff Estm
101	Fund 90: SRF Proceeds		1,375,000	125,000	0	0	0	0	0	0	0	0	From Budget
102	Fund 90: SGIP Proceeds	flat	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	From Budget
103	Total Revenues		5,847,000	3,025,000	2,900,000	2,900,000	2,900,000	2,900,000	2,900,000	2,900,000	2,900,000	2,900,000	
104	Expenses												
105	Fund 90: CIP - Structural		(4,522,500)	(4,365,000)	(4,781,250)	(5,276,250)	(3,285,000)	(4,050,000)	(3,600,000)	(4,770,000)	(2,700,000)	(675,000)	From Table 5
106	Fund 90: Debt Service - Capacity		(922,721)	(922,722)	(1,110,453)	(1,110,454)	(1,110,455)	(1,110,456)	(1,535,332)	(1,535,333)	(1,535,334)	(1,308,292)	From Table 7
107	Total Expenses		(5,445,221)	(5,287,722)	(5,891,703)	(6,386,704)	(4,395,455)	(5,160,456)	(5,135,332)	(6,305,333)	(4,235,334)	(1,983,292)	
108	SUBTOTAL - CAPACITY		\$ 16,752,900	\$ 14,589,491	\$ 11,692,112	\$ 8,284,536	\$ 6,849,248	\$ 4,634,373	\$ 2,433,629	\$ (950,396)	\$ (2,281,217)	\$ (1,364,509)	
109	Estimated Interest Earnings	6	99,312	94,325	79,128	60,167	45,582	34,588	21,308	4,514	-	-	
110	Ending Balance		16,852,212	14,683,816	11,771,240	8,344,703	6,894,829	4,668,961	2,454,937	(945,883)	(2,281,217)	(1,364,509)	
111	Minimum/Target Balance		3,722,500	3,722,500	3,722,500	3,722,500	3,722,500	3,722,500	3,722,500	3,722,500	3,722,500	3,722,500	10-YR CIP Avg or \$3M
112	Target Balance												
113													
114			2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
115	Fund Balance without Increases	47,628,901	53,425,305	53,612,939	44,687,333	32,537,053	23,189,098	32,384,609	15,049,898	7,048,650	(9,508,045)	(26,174,356)	
116	Fund Balance with Increases	47,628,901	53,425,305	54,191,664	47,327,164	40,190,789	37,717,473	54,988,893	49,040,479	54,393,408	53,942,877	55,903,868	
117	Minimum Balance	36,528,990	36,528,990	36,639,661	37,938,900	38,660,973	39,436,915	40,390,791	41,397,190	42,459,431	43,581,067	44,765,900	
118	Target Balance	69,398,266	69,398,266	69,591,146	70,853,813	71,734,905	72,617,118	73,627,506	74,662,148	75,724,389	76,846,025	78,030,858	
119													
120	Interest Income		330,907	323,296	303,631	261,756	233,010	277,273	311,144	309,367	334,695	342,107	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Sewer Rate Update & COS Analysis																
2	Table 5. CIP																
3	Source: Prelim. Operating and Capital Budgets dated June 1, 2015 presented to Board of Directors																
4																	
5	Cost of Service Year (Table 9)																
6							1	2	3	4	5	6	7	8	9	10	
7																	
8																	
9	SUMMARY OF CAPITAL PROJECTS (Structural and Capacity)																
10	TOTAL CIP																
11	Fund 80: Structural						152,200,000	11,725,000	18,400,000	20,887,500	17,737,500	18,300,000	10,150,000	17,850,000	9,700,000	13,300,000	14,150,000
12	Fund 90: Capacity						42,250,000	5,025,000	4,850,000	5,312,500	5,862,500	3,650,000	4,500,000	4,000,000	5,300,000	3,000,000	750,000
13	GRAND TOTAL - CIP						194,450,000	16,750,000	23,250,000	26,200,000	23,600,000	21,950,000	14,650,000	21,850,000	15,000,000	16,300,000	14,900,000
14	GRAND TOTAL - CIP (from Report)						194,450,000	16,750,000	23,250,000	26,200,000	23,600,000	21,950,000	14,650,000	21,850,000	15,000,000	16,300,000	14,900,000
15							TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
16	CIP Funding based on Percentage																
17	Percentage of CIP to be Funded	10						90%	90%	90%	90%	90%	90%	90%	90%	90%	90%
18	Fund 80: Structural						136,980,000	10,552,500	16,560,000	18,798,750	15,963,750	16,470,000	9,135,000	16,065,000	8,730,000	11,970,000	12,735,000
19	Fund 90: Capacity						38,025,000	4,522,500	4,365,000	4,781,250	5,276,250	3,285,000	4,050,000	3,600,000	4,770,000	2,700,000	675,000
20	Total CIP						175,005,000	15,075,000	20,925,000	23,580,000	21,240,000	19,755,000	13,185,000	19,665,000	13,500,000	14,670,000	13,410,000
21																	
22	CIP Funding based on Percentage (with inflation included)																
23	Percentage of CIP to be Funded (with inflation)																
24	Inflation Index	7						Per Budget	0%	0%	0%	0%	0%	0%	0%	0%	0%
25	Fund 80: Structural						10,552,500	16,560,000	18,798,750	15,963,750	16,470,000	9,135,000	16,065,000	8,730,000	11,970,000	12,735,000	To Table 4
26	Fund 90: Capacity						4,522,500	4,365,000	4,781,250	5,276,250	3,285,000	4,050,000	3,600,000	4,770,000	2,700,000	675,000	To Table 4
27	Total CIP						15,075,000	20,925,000	23,580,000	21,240,000	19,755,000	13,185,000	19,665,000	13,500,000	14,670,000	13,410,000	
28																	
29	CAPITAL PROJECTS DETAIL (By Funding Sources)																
30	ADMINISTRATIVE FACILITIES																
31	Admin/Field Ops Bldg Seismic Upgrade and Leak Repairs	100%	0%	PAYGo	\$	2,100,000	\$ 100,000	\$ 1,000,000	\$ 1,000,000	-	-	-	-	-	-	-	-
32	Additional CS (Vehicle) Storage	100%	0%	PAYGo		250,000	-	250,000	-	-	-	-	-	-	-	-	-
33	FMC Building - New	100%	0%	DEBT		7,800,000	200,000	3,700,000	3,900,000	-	-	-	-	-	-	-	-
34	FMC Building - Renovation	100%	0%	PAYGo		400,000	-	-	100,000	300,000	-	-	-	-	-	-	-
35	FMC Storage	100%	0%	PAYGo		250,000	-	250,000	-	-	-	-	-	-	-	-	-
36	Plant Paving	100%	0%	PAYGo		450,000	-	200,000	-	-	-	250,000	-	-	-	-	-
37	Solar Panels at Alvarado - Phase II	0%	100%	PAYGo		1,650,000	-	150,000	1,500,000	-	-	-	-	-	-	-	-
38	Blank					-											
39	Blank					-											
40	Blank					-											
41	Blank					-											
42	TOTAL - ADMINISTRATIVE FACILITIES				\$	12,900,000	\$ 300,000	\$ 5,550,000	\$ 6,500,000	\$ 300,000	\$ -	\$ 250,000	\$ -	\$ -	\$ -	\$ -	\$ -
43	Total for Administrative (from report)					12,900,000	300,000	5,550,000	6,500,000	300,000	-	250,000	-	-	-	-	-
44	Completeness Check					TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
45																	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Sewer Rate Update & COS Analysis																
2	Table 5. CIP																
3	Source: Prelim. Operating and Capital Budgets dated June 1, 2015 presented to Board of Directors																
4																	
5	Cost of Service Year (Table 9)																
6							1	2	3	4	5	6	7	8	9	10	
7																	
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1	Sewer Rate Update & COS Analysis																
2	Table 5. CIP																
3	Source: Prelim. Operating and Capital Budgets dated June 1, 2015 presented to Board of Directors																
4																	
5	Cost of Service Year (Table 9)																
6							1	2	3	4	5	6	7	8	9	10	
7																	
8																	
84	CAPITAL PROJECTS DETAIL (By Funding Sources)																
85	TREATMENT																
86	3rd Degritter System	0%	100%	PAYGo	\$	600,000	\$ 100,000	\$ 500,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
87	30" ML Pipe Lining	100%	0%	PAYGo		600,000	-	-	-	100,000	500,000	-	-	-	-	-	-
88	Aeration Internal Lift Pumps	50%	50%	PAYGo		1,000,000	-	-	-	-	1,000,000	-	-	-	-	-	-
89	Aeration System Rehab	50%	50%	PAYGo		5,400,000	1,000,000	-	400,000	2,000,000	2,000,000	-	-	-	-	-	-
90	Aeration Tank (east) Baffling	0%	100%	PAYGo		600,000	50,000	550,000	-	-	-	-	-	-	-	-	-
91	Aeration Tank (east) Roof	100%	0%	PAYGo		2,750,000	50,000	1,200,000	1,500,000	-	-	-	-	-	-	-	-
92	Blower Building & Channel Air Demo & Replacement	100%	0%	PAYGo		600,000	-	-	100,000	500,000	-	-	-	-	-	-	-
93	Cogen Project	50%	50%	GRANT		500,000	300,000	200,000	-	-	-	-	-	-	-	-	-
94	Contact Tank Valve Replacement	100%	0%	PAYGo		1,000,000	-	-	1,000,000	-	-	-	-	-	-	-	-
95	Control Box No. 1 Improvements	100%	0%	SRF		3,150,000	-	150,000	1,500,000	1,500,000	-	-	-	-	-	-	-
96	Diffuser Replacement	100%	0%	PAYGo		350,000	100,000	100,000	150,000	-	-	-	-	-	-	-	-
97	Digester No. 7	0%	100%	PAYGo		100,000	-	-	-	-	-	-	-	-	-	-	100,000
98	Emergency Outfall Outlet Improvements	100%	0%	PAYGo		300,000	-	300,000	-	-	-	-	-	-	-	-	-
99	Gravity Belt Thickener	100%	0%	SRF		6,000,000	-	-	-	-	500,000	5,500,000	-	-	-	-	-
100	Generator Controls Upgrade	100%	0%	PAYGo		1,300,000	300,000	1,000,000	-	-	-	-	-	-	-	-	-
101	Headworks Gates, actuators, and Screens	100%	0%	PAYGo		1,600,000	-	100,000	1,500,000	-	-	-	-	-	-	-	-
102	Hypo Tank and PVC Pipe replacement	100%	0%	PAYGo		1,500,000	500,000	1,000,000	-	-	-	-	-	-	-	-	-
103	MCC Replacement	100%	0%	PAYGo		1,300,000	600,000	-	-	100,000	600,000	-	-	-	-	-	-
104	Miscellaneous Electrical Equipment Upgrade	100%	0%	PAYGo		3,000,000	-	500,000	-	500,000	-	500,000	-	500,000	-	-	1,000,000
105	Miscellaneous Projects	100%	0%	PAYGo		2,550,000	-	250,000	250,000	250,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000
106	Odor Scrubber System Improvements	100%	0%	PAYGo		12,650,000	-	-	-	-	-	550,000	5,500,000	600,000	6,000,000	-	-
107	Plant Facilities Improvements	100%	0%	PAYGo		1,100,000	500,000	600,000	-	-	-	-	-	-	-	-	-
108	Plant Master Plan Equipment Replacement	100%	0%	PAYGo		18,900,000	-	-	650,000	650,000	-	-	5,000,000	2,000,000	7,300,000	3,300,000	-
109	PLC Replacement	100%	0%	PAYGo		650,000	100,000	200,000	350,000	-	-	-	-	-	-	-	-
110	Primary Clarifier Rehab (5-6)	75%	25%	PAYGo		5,000,000	-	500,000	2,250,000	2,250,000	-	-	-	-	-	-	-
111	Primary Effluent (60") Pipeline Rehab	100%	0%	PAYGo		100,000	100,000	-	-	-	-	-	-	-	-	-	-
112	RAS PS Pumps, Valve and Pipe Replacement	100%	0%	PAYGo		1,300,000	-	100,000	600,000	600,000	-	-	-	-	-	-	-
113	Repairs to Concrete Tanks	100%	0%	PAYGo		1,800,000	-	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
114	Sec. Clarifiers No. 5 and 6 Rehab	75%	25%	PAYGo		4,200,000	-	200,000	2,000,000	2,000,000	-	-	-	-	-	-	-
115	Sec. Clarifiers No. 7 and 8	0%	100%	PAYGo		400,000	-	-	-	-	-	-	-	-	-	-	400,000
116	Seismic Retrofit of Conc. Structures	100%	0%	PAYGo		5,800,000	-	-	-	-	-	200,000	2,000,000	300,000	3,000,000	300,000	-
117	Sludge Drying (BACWA)	100%	0%	PAYGo		300,000	100,000	100,000	100,000	-	-	-	-	-	-	-	-
118	Sludge Recirculation Pump Replacement	100%	0%	PAYGo		400,000	-	-	200,000	200,000	-	-	-	-	-	-	-
119	Standby Generators 5 and 6	100%	0%	PAYGo		2,650,000	-	-	-	150,000	2,500,000	-	-	-	-	-	-
120	Standby Generators 7 and 8	100%	0%	SRF		4,200,000	-	-	-	200,000	4,000,000	-	-	-	-	-	-
121	Storm Water Diversion PS	0%	100%	PAYGo		1,700,000	-	-	-	200,000	1,500,000	-	-	-	-	-	-
122	Thickener Control Bldg. Improvements	75%	25%	SRF		6,000,000	5,500,000	500,000	-	-	-	-	-	-	-	-	-
123	Thickener Mechanisms 1-2	100%	0%	PAYGo		2,300,000	-	-	100,000	2,200,000	-	-	-	-	-	-	-
124	Truck Scales Improvements	100%	0%	PAYGo		100,000	-	100,000	-	-	-	-	-	-	-	-	-
125	Water Storage Tank & Well	100%	0%	PAYGo		300,000	200,000	100,000	-	-	-	-	-	-	-	-	-
126	Waste Recycling and Alternative Energy	0%	100%	PAYGo		5,500,000	-	-	-	-	-	500,000	5,000,000	-	-	-	-
127	Plant Master Plan Equipment Replacement	100%	0%	SRF		3,300,000	-	-	-	3,300,000	-	-	-	-	-	-	-
128	Seismic Retrofit of Conc. Structures	100%	0%	SRF		4,400,000	-	200,000	2,000,000	200,000	2,000,000	-	-	-	-	-	-
129	Blank					-	-	-	-	-	-	-	-	-	-	-	-
130	Blank					-	-	-	-	-	-	-	-	-	-	-	-
131	TOTAL - TREATMENT				\$	117,250,000	\$ 9,500,000	\$ 8,650,000	\$ 13,850,000	\$ 14,700,000	\$ 17,900,000	\$ 7,300,000	\$ 8,550,000	\$ 13,800,000	\$ 11,400,000	\$ 11,600,000	
132	Total for Treatment (from report)					117,250,000	9,500,000	8,650,000	13,850,000	14,700,000	17,900,000	7,300,000	8,550,000	13,800,000	11,400,000	11,600,000	
133						TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	Completeness Check
134																	

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Union Sanitary District												
2	Sewer Rate Update & COS Analysis												
3	Table 6. Current Rate Revenue												
4	Source: Rcortes1_report.xls,												
5		Index	Estm Actual	Projected									
6		(1b)	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	Notes
7													
8	SUMMARY - REVENUE FROM CURRENT RATES												
9	Residential												
10	Single Family Residences		\$ 25,455,040	\$ 25,197,042	\$ 25,323,028	\$ 25,449,643	\$ 25,576,891	\$ 25,704,775	\$ 25,833,299	\$ 25,962,466	\$ 26,092,278	\$ 26,222,740	
11	Multiple Family Residences		13,285,152	13,184,881	13,250,805	13,317,059	13,383,645	13,450,563	13,517,816	13,585,405	13,653,332	13,721,598	
12	Total Residential		\$ 38,740,192	\$ 38,381,923	\$ 38,573,833	\$ 38,766,702	\$ 38,960,536	\$ 39,155,338	\$ 39,351,115	\$ 39,547,871	\$ 39,745,610	\$ 39,944,338	
13													
14	Minimum Charge												
15	Strong	\$	978	\$ 966	\$ 966	\$ 966	\$ 966	\$ 966	\$ 966	\$ 966	\$ 966	\$ 966	
16	Moderate		178,322	176,096	176,096	176,096	176,096	176,096	176,096	176,096	176,096	176,096	
17	Weak		124,206	122,655	122,655	122,655	122,655	122,655	122,655	122,655	122,655	122,655	
18	U		2,282	2,254	2,254	2,254	2,254	2,254	2,254	2,254	2,254	2,254	
19	Fast-Food Restaurant		3,260	3,219	3,219	3,219	3,219	3,219	3,219	3,219	3,219	3,219	
20	Full-Service Restaurant		1,956	1,932	1,932	1,932	1,932	1,932	1,932	1,932	1,932	1,932	
21	Total Minimum Charge	\$	311,004	\$ 307,121									
22													
23	Commercial												
24	Strong	\$	2,515,868	\$ 2,999,849	\$ 3,014,848	\$ 3,029,923	\$ 3,045,072	\$ 3,060,298	\$ 3,075,599	\$ 3,090,977	\$ 3,106,432	\$ 3,121,964	
25	Moderate		4,317,481	4,712,949	4,736,514	4,760,196	4,783,997	4,807,917	4,831,957	4,856,117	4,880,397	4,904,799	
26	Weak		1,078,226	1,119,949	1,125,549	1,131,177	1,136,832	1,142,517	1,148,229	1,153,970	1,159,740	1,165,539	
27	Fast-Food Restaurant		280,522	327,319	328,956	330,600	332,253	333,915	335,584	337,262	338,948	340,643	
28	Full-Service Restaurant		471,208	569,892	572,742	575,605	578,483	581,376	584,283	587,204	590,140	593,091	
29	Total Commercial	\$	8,663,305	\$ 9,729,958	\$ 9,778,608	\$ 9,827,501	\$ 9,876,639	\$ 9,926,022	\$ 9,975,652	\$ 10,025,530	\$ 10,075,658	\$ 10,126,036	
30													
31	Industrial												
32	Volume	\$	1,309,963	\$ 1,212,261	\$ 1,218,322	\$ 1,224,414	\$ 1,230,536	\$ 1,236,689	\$ 1,242,872	\$ 1,249,087	\$ 1,255,332	\$ 1,261,609	
33	COD		629,124	760,401	764,203	768,024	771,864	775,723	779,602	783,500	787,417	791,355	
34	Suspended Solids		513,898	788,025	791,966	795,925	799,905	803,905	807,924	811,964	816,023	820,104	
35	Total Industrial	\$	2,452,984	\$ 2,760,687	\$ 2,774,491	\$ 2,788,363	\$ 2,802,305	\$ 2,816,317	\$ 2,830,398	\$ 2,844,550	\$ 2,858,773	\$ 2,873,067	
36													
37	GRAND TOTAL		\$ 50,167,485	\$ 51,179,690	\$ 51,434,053	\$ 51,689,688	\$ 51,946,601	\$ 52,204,798	\$ 52,464,286	\$ 52,725,072	\$ 52,987,162	\$ 53,250,562	To Table 3
38													

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Union Sanitary District												
2	Sewer Rate Update & COS Analysis												
3	Table 6. Current Rate Revenue												
4	Source: Rcortes1_report.xls,												
5		Index	<u>Estm Actual</u>	<u>Projected</u>									
6		(1b)	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	Notes
7													
39	ACCOUNT DATA												
40	Residential												
41	Single Family Residences		67,520	67,858	68,197	68,538	68,881	69,225	69,571	69,919	70,269	70,620	
42	Multiple Family Residences		40,752	40,956	41,161	41,366	41,573	41,781	41,990	42,200	42,411	42,623	
43	Total Residential		108,272	108,813	109,357	109,904	110,454	111,006	111,561	112,119	112,679	113,243	From Table 8
44													
45	Minimum Charge (per account)												
46	Strong		3	3	3	3	3	3	3	3	3	3	
47	Moderate		547	547	547	547	547	547	547	547	547	547	
48	Weak		381	381	381	381	381	381	381	381	381	381	
49	U		7	7	7	7	7	7	7	7	7	7	
50	Fast-Food Restaurant		10	10	10	10	10	10	10	10	10	10	
51	Full-Service Restaurant		6	6	6	6	6	6	6	6	6	6	
52	Total Minimum Charge (per account)		954	954	954	954	954	954	954	954	954	954	From Table 8
53													
54	Commercial (per 1,000 gals)												
55	Strong		318,464	320,057	321,657	323,265	324,882	326,506	328,139	329,779	331,428	333,085	
56	Moderate		1,013,493	1,018,561	1,023,653	1,028,772	1,033,916	1,039,085	1,044,281	1,049,502	1,054,749	1,060,023	
57	Weak		289,069	290,514	291,966	293,426	294,893	296,368	297,850	299,339	300,836	302,340	
58	Fast-Food Restaurant		37,155	37,341	37,528	37,715	37,904	38,093	38,284	38,475	38,668	38,861	
59	Full-Service Restaurant		48,830	49,074	49,319	49,566	49,814	50,063	50,313	50,565	50,818	51,072	
60	Total Commercial (per 1,000 gals)		1,707,011	1,715,546	1,724,124	1,732,745	1,741,408	1,750,115	1,758,866	1,767,660	1,776,498	1,785,381	From Table 8
61	Industrial												
62	Volume	8	552,727	555,491	558,268	561,059	563,865	566,684	569,517	572,365	575,227	578,103	
63	COD	8	2,616	2,629	2,642	2,655	2,668	2,682	2,695	2,709	2,722	2,736	
64	Suspended Solids	8	1,165	1,171	1,177	1,183	1,189	1,195	1,201	1,207	1,213	1,219	
65	Total Industrial		556,508	559,291	562,087	564,898	567,722	570,561	573,414	576,281	579,162	582,058	
66													
67	CURRENT RATES												
68	Residential												
69	Single Family Residences		\$377.00	\$371.32	\$371.32	\$371.32	\$371.32	\$371.32	\$371.32	\$371.32	\$371.32	\$371.32	\$371.32
70	Multiple Family Residences		\$326.00	\$321.93	\$321.93	\$321.93	\$321.93	\$321.93	\$321.93	\$321.93	\$321.93	\$321.93	\$321.93
71	Minimum Charge		\$326.00	\$321.93	\$321.93	\$321.93	\$321.93	\$321.93	\$321.93	\$321.93	\$321.93	\$321.93	\$321.93
72	Commercial												
73	Strong		\$7.90	\$9.37	\$9.37	\$9.37	\$9.37	\$9.37	\$9.37	\$9.37	\$9.37	\$9.37	\$9.37
74	Moderate		\$4.26	\$4.63	\$4.63	\$4.63	\$4.63	\$4.63	\$4.63	\$4.63	\$4.63	\$4.63	\$4.63
75	Weak		\$3.73	\$3.86	\$3.86	\$3.86	\$3.86	\$3.86	\$3.86	\$3.86	\$3.86	\$3.86	\$3.86
76	Fast-Food Restaurant		\$7.55	\$8.77	\$8.77	\$8.77	\$8.77	\$8.77	\$8.77	\$8.77	\$8.77	\$8.77	\$8.77
77	Full-Service Restaurant		\$9.65	\$11.61	\$11.61	\$11.61	\$11.61	\$11.61	\$11.61	\$11.61	\$11.61	\$11.61	\$11.61
78	Industrial												
79	Volume		\$2.37	\$2.18	\$2.18	\$2.18	\$2.18	\$2.18	\$2.18	\$2.18	\$2.18	\$2.18	\$2.18
80	COD		\$240.51	\$289.25	\$289.25	\$289.25	\$289.25	\$289.25	\$289.25	\$289.25	\$289.25	\$289.25	\$289.25
81	Suspended Solids		\$440.95	\$672.80	\$672.80	\$672.80	\$672.80	\$672.80	\$672.80	\$672.80	\$672.80	\$672.80	\$672.80

Table 6. Current Rate Revenue
USD Model 29Dec2015

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Union Sanitary District														
2	Sewer Rate Update & COS Analysis														
3	Table 7. Debt														
4	Source: SRF Payments by Fund.xls														
5															
6	Cost of Service Year				1	2	3	4	5	6	7	8	9	10	
7															
8															
9	SRF Loan #1														
10	Irvington(#117)	Principal			\$ 716,415	\$ 733,609	\$ 751,216	\$ 769,245	\$ 787,707	\$ 806,612	\$ 825,970	\$ 845,794	\$ 845,794		
11	Matures 2023; Reserve = 5% of Principal.	Interest			191,749	174,556	156,950	138,922	120,461	101,557	82,200	62,377	62,377		
12		Subtotal	75%	25%	\$ 908,164	\$ 908,165	\$ 908,166	\$ 908,167	\$ 908,168	\$ 908,169	\$ 908,170	\$ 908,171	\$ 908,171	\$ -	
13	SRF Loan #2														
14	Willow/Central(#233)	Principal			\$ 77,762	\$ 79,629	\$ 81,540	\$ 83,497	\$ 85,500	\$ 87,552	\$ 89,654	\$ 91,805	\$ 94,009	\$ 96,265	
15	Matures FY2028; Reserves = 5% of Principal	Interest			30,623	28,756	26,845	24,888	22,884	20,832	18,731	16,579	14,376	12,120	
16		Subtotal	100%	0%	\$ 108,385	\$ 108,385	\$ 108,385	\$ 108,385	\$ 108,385	\$ 108,385	\$ 108,385	\$ 108,385	\$ 108,385	\$ 108,385	
17	SRF Loan #3														
18	Newark PS(#225)	Principal			\$ 447,528	\$ 459,611	\$ 472,020	\$ 484,765	\$ 497,854	\$ 511,296	\$ 525,101	\$ 539,278	\$ 553,839	\$ 568,793	
19	Matures FY2030; Reserves = 5% of Principal	Interest			237,877	225,795	213,386	200,643	187,555	174,114	160,310	146,133	131,574	116,621	
20		Subtotal	50%	50%	\$ 685,405	\$ 685,406	\$ 685,407	\$ 685,408	\$ 685,409	\$ 685,410	\$ 685,411	\$ 685,412	\$ 685,413	\$ 685,414	
21	SRF Loan #4														
22	Lwr Hetch Hetchy(#229)	Principal			\$ 91,172	\$ 93,634	\$ 96,162	\$ 98,759	\$ 101,425	\$ 104,163	\$ 106,976	\$ 109,864	\$ 112,831	\$ 115,877	
23	Matures FY2029; Reserves = 5% of Principal	Interest			48,461	46,000	43,473	40,877	38,212	35,474	32,663	29,775	26,810	23,765	
24		Subtotal	100%	0%	\$ 139,634	\$ 139,634	\$ 139,635	\$ 139,636	\$ 139,637	\$ 139,638	\$ 139,639	\$ 139,640	\$ 139,641	\$ 139,642	
25	SRF Loan #5														
26	Cedar Blvd(#291)	Principal			\$ 85,786	\$ 87,930	\$ 90,128	\$ 92,382	\$ 94,691	\$ 97,058	\$ 99,485	\$ 101,972	\$ 104,521	\$ 107,134	
27	Matures FY2030; Reserves = Annual Repayment	Interest			41,564	39,419	37,221	34,967	32,658	30,291	27,864	25,377	22,828	20,215	
28		Subtotal	100%	0%	\$ 127,349	\$ 127,349	\$ 127,349	\$ 127,349	\$ 127,349	\$ 127,349	\$ 127,349	\$ 127,349	\$ 127,349	\$ 127,349	
29	SRF Loan #6														
30	Prim. Clarif.(#273)	Principal			\$ 355,511	\$ 365,110	\$ 374,968	\$ 385,092	\$ 395,490	\$ 406,168	\$ 417,135	\$ 428,397	\$ 439,964	\$ 451,843	
31	Reserves = Annual Repayment	Interest			234,271	224,672	214,815	204,692	194,296	183,619	172,653	161,391	149,826	137,948	
32		Subtotal	75%	25%	\$ 589,783	\$ 589,783	\$ 589,784	\$ 589,785	\$ 589,786	\$ 589,787	\$ 589,788	\$ 589,789	\$ 589,790	\$ 589,791	
33	SRF Loan #7														
34	Sub-Station 1(#278)	Principal			\$ 101,695	\$ 104,339	\$ 107,052	\$ 109,835	\$ 112,691	\$ 115,621	\$ 118,627	\$ 121,711	\$ 124,876	\$ 128,122	
35	Matures FY2031; Reserves = Annual Repayment	Interest			55,632	52,988	50,276	47,492	44,636	41,707	38,700	35,616	32,452	29,205	
36		Subtotal	100%	0%	\$ 157,327	\$ 157,327	\$ 157,327	\$ 157,327	\$ 157,327	\$ 157,327	\$ 157,327	\$ 157,327	\$ 157,327	\$ 157,327	
37	SRF Loan #8														
38	Boyce Rd.(#311)	Principal			\$ 250,881	\$ 257,404	\$ 264,097	\$ 270,963	\$ 278,008	\$ 285,237	\$ 292,653	\$ 300,262	\$ 308,069	\$ 316,078	
39	Reserves = Annual Repayment	Interest			160,182	153,659	146,967	140,100	133,055	125,827	118,411	110,802	102,995	94,985	
40		Subtotal	50%	50%	\$ 411,064	\$ 411,064	\$ 411,064	\$ 411,064	\$ 411,064	\$ 411,064	\$ 411,064	\$ 411,064	\$ 411,064	\$ 411,064	
41	SRF Loan #9														
42	Thickener (#394) (TMT)	Principal					\$ 495,543	\$ 495,543	\$ 505,949	\$ 516,574	\$ 527,423	\$ 538,500	\$ 549,809	\$ 561,356	
43	Add to FY 2018; Reserves = Annual Repayment	Interest					255,381	255,381	244,975	234,350	223,502	212,426	201,117	189,571	
44		Subtotal	75%	25%	\$ -	\$ -	\$ 750,924	\$ 750,924	\$ 750,924	\$ 750,924	\$ 750,925	\$ 750,926	\$ 750,927	\$ 750,928	
45	SRF Loan #10														
46	Eq NPS (TRANSP0)	Principal									\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	
47		Interest									124,874	124,874	124,874	124,874	
48		Subtotal	0%	100%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 424,874	\$ 424,874	\$ 424,874	\$ 424,874	
49	SRF Loan #11														
50	Alvarado Niles (COLL)	Principal					\$ 162,993	\$ 166,416	\$ 169,911	\$ 173,479	\$ 177,122	\$ 180,842	\$ 184,640	\$ 188,517	
51		Interest					84,000	80,577	77,082	73,514	69,871	66,151	62,353	58,476	
52		Subtotal	100%	0%	\$ -	\$ -	\$ 246,993	\$ 246,993	\$ 246,993	\$ 246,993	\$ 246,993	\$ 246,993	\$ 246,993	\$ 246,993	

Table 7. Debt
USD Model 29Dec2015

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Union Sanitary District														
2	Sewer Rate Update & COS Analysis														
3	Table 7. Debt														
4	Source: SRF Payments by Fund.xls														
5															
6	Cost of Service Year				1	2	3	4	5	6	7	8	9	10	
7															
8															
9	SRF Loan #1														
53	SRF Loan #12														
54	Control Box Improvements (TMT)	Principal							\$ 128,357	\$ 131,053	\$ 133,805	\$ 136,615	\$ 139,484	\$ 142,413	
55		Interest							66,150	63,454	60,702	57,892	55,023	52,094	
56		Subtotal	100%	0%	\$ -	\$ -	\$ -	\$ -	\$ 194,507	\$ 194,507	\$ 194,507	\$ 194,507	\$ 194,507	\$ 194,507	
57	SRF Loan #13														
58	Gravity Belt Thickener (TMT)	Principal							\$ 244,490	\$ 249,625	\$ 254,867	\$ 260,219	\$ 265,684		
59		Interest							126,000	120,865	115,623	110,271	104,806		
60		Subtotal	100%	0%	\$ -	\$ -	\$ -	\$ -	\$ 370,490	\$ 370,490	\$ 370,490	\$ 370,490	\$ 370,490	\$ 370,490	
61	SRF Loan #14														
62	Plant Master Plan Equipment Replacement (TMT)	Principal							\$ 134,470	\$ 137,293	\$ 140,177	\$ 143,120	\$ 146,126		
63		Interest							69,300	66,476	63,592	60,649	57,643		
64		Subtotal	100%	0%	\$ -	\$ -	\$ -	\$ -	\$ 203,770	\$ 203,769	\$ 203,769	\$ 203,769	\$ 203,769	\$ 203,769	
65	SRF Loan #15														
66	Seismic Retrofit (TMT)	Principal							\$ 179,293	\$ 183,058	\$ 186,902	\$ 190,827	\$ 194,835		
67		Interest							92,400	88,634	84,790	80,865	76,858		
68		Subtotal	100%	0%	\$ -	\$ -	\$ -	\$ -	\$ 271,693	\$ 271,692	\$ 271,692	\$ 271,692	\$ 271,692	\$ 271,693	
69	SRF Loan #16														
70	Standby Generators 7&8 (TMT)	Principal							\$ 171,143	\$ 174,737	\$ 178,407	\$ 182,153	\$ 185,978		
71		Interest							88,200	84,605	80,936	77,189	73,364		
72		Subtotal	100%	0%	\$ -	\$ -	\$ -	\$ -	\$ 259,343	\$ 259,342	\$ 259,343	\$ 259,342	\$ 259,342	\$ 259,342	
73	SRF Loan #17														
74	RCP Sewer Rehab (COLL)	Principal									\$ 224,116	\$ 228,823	\$ 233,628		
75		Interest									115,500	110,793	105,988		
76		Subtotal	100%	0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 339,616	\$ 339,616	\$ 339,616	\$ 339,616	
77	SRF Loan #18														
78	FMC Building (ADMIN)	Principal			\$ 235,892	\$ 247,686	\$ 260,071	\$ 273,074	\$ 268,728	\$ 301,064	\$ 316,118	\$ 331,923	\$ 348,520		
79		Interest			390,000	378,205	365,821	352,817	339,163	324,827	309,774	293,968	277,371		
80		Subtotal	100%	0%	\$ -	\$ 625,892	\$ 625,891	\$ 625,892	\$ 625,891	\$ 607,891	\$ 625,891	\$ 625,892	\$ 625,891	\$ 625,891	
81															
82	Grand total - Debt Service				\$ 3,127,110	\$ 3,753,004	\$ 4,750,924	\$ 4,750,929	\$ 4,945,439	\$ 6,032,739	\$ 6,475,614	\$ 6,815,237	\$ 6,815,239	\$ 5,907,073	
83															
84	Total Structural (Fund 80)				\$ 2,204,389	\$ 2,830,282	\$ 3,640,470	\$ 3,640,474	\$ 3,834,983	\$ 4,922,282	\$ 4,940,283	\$ 5,279,905	\$ 5,279,906	\$ 4,598,781	
85	Total Capacity (Fund 90)				\$ 922,721	\$ 922,722	\$ 1,110,453	\$ 1,110,454	\$ 1,110,455	\$ 1,110,456	\$ 1,535,332	\$ 1,535,333	\$ 1,535,334	\$ 1,308,292	
86	Total Annual Debt Service				\$ 3,127,110	\$ 3,753,004	\$ 4,750,924	\$ 4,750,929	\$ 4,945,439	\$ 6,032,739	\$ 6,475,614	\$ 6,815,237	\$ 6,815,239	\$ 5,907,073	
87					TRUE	Completeness Check									

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Union Sanitary District														
2	Sewer Rate Update & COS Analysis														
3	Table 7. Debt														
4	Source: SRF Payments by Fund.xls														
5															
6	Cost of Service Year				1	2	3	4	5	6	7	8	9	10	
7			Allocation %						Projected						
8		Structural	Capacity		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	Notes
9	SRF Loan #1	Fund 80	Fund 90												
88															
89	DEBT COVERAGE CALCULATION														
90					Projected										
91					2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	
92	Revenue														
93	Revenue From Current Rates				\$ 50,167,485	\$ 51,179,690	\$ 51,434,053	\$ 51,689,688	\$ 51,946,601	\$ 52,204,798	\$ 52,464,286	\$ 52,725,072	\$ 52,987,162	\$ 53,250,562	From Table 6
94	Revenue From Rate Increases				-	1,202,994	3,051,479	4,983,117	7,001,292	9,109,522	11,311,470	13,610,943	16,011,903	18,518,471	From Table 3
95	Permits				100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	From Table 4
96	Capacity Fees				4,372,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	From Table 4
97	Interest Income				330,907	323,296	303,631	261,756	233,010	277,273	311,144	309,367	334,695	342,107	From Table 4
98	Other Revenue														From Table 4
99	Income - External Work Orders				230,000	230,000	230,000	230,000	230,000	230,000	230,000	230,000	230,000	230,000	From Table 4
100	Field Inspection Fees				148,000	148,000	148,000	148,000	148,000	148,000	148,000	148,000	148,000	148,000	From Table 4
101	Plan Check Fees				65,000	65,000	65,000	65,000	65,000	65,000	65,000	65,000	65,000	65,000	From Table 4
102	Miscellaneous Revenue (10 & 20 ONLY)				101,300	101,300	101,300	101,300	101,300	101,300	101,300	101,300	101,300	101,300	From Table 4
103	Urban Runoff Services				260,000	260,000	260,000	260,000	260,000	260,000	260,000	260,000	260,000	260,000	From Table 4
104	Total Revenue				\$ 55,774,692	\$ 56,410,281	\$ 58,493,463	\$ 60,638,861	\$ 62,885,202	\$ 65,295,893	\$ 67,791,200	\$ 70,349,683	\$ 73,038,060	\$ 75,815,440	
105	Expenses														
106	Operating				38,647,130	38,566,243	40,243,222	42,009,266	43,869,851	45,830,823	47,898,438	50,079,383	52,380,810	54,810,376	From Table 2
107	Net Available Revenues				\$ 17,127,562	\$ 17,844,038	\$ 18,250,242	\$ 18,629,595	\$ 19,015,352	\$ 19,465,070	\$ 19,892,762	\$ 20,270,300	\$ 20,657,250	\$ 21,005,064	
108	Debt Service				\$ 3,127,110	\$ 3,753,004	\$ 4,750,924	\$ 4,750,929	\$ 4,945,439	\$ 6,032,739	\$ 6,475,614	\$ 6,815,237	\$ 6,815,239	\$ 5,907,073	From Above
109	Coverage				548%	475%	384%	392%	385%	323%	307%	297%	303%	356%	

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Union Sanitary District												
2	Sewer Rate Update & COS Analysis												
3	Table 8. Customer Billing Data												
4	Source: DR1d - Copy of Union San COS -Finalv8.xls (RFC model), NBS Recaps after Submittal, Talley Sheet (Resi Accounts) and Rcorates1_report (commercial flow)												
5													
6	Cost of Service Year (Table 9)												
7		Index	1	2	3	4	5	6	7	8	9	10	
8		(1b)	Estm Actual	2016/17	2017/18	2018/19	2019/20	Projected	2021/22	2022/23	2023/24	2024/25	Notes
9	ACCOUNTS												
10	Residential												
11	Single Family Residences	9	67,520	67,858	68,197	68,538	68,881	69,225	69,571	69,919	70,269	70,620	
12	Apartments	9	19,696	19,794	19,893	19,993	20,093	20,193	20,294	20,396	20,498	20,600	
13	Multiple Family Residences	9	1,808	1,817	1,826	1,835	1,844	1,854	1,863	1,872	1,882	1,891	
14	Trailers/Mobile Homes	9	1,703	1,712	1,720	1,729	1,737	1,746	1,755	1,764	1,772	1,781	
15	Condominiums/Townhouses	9	17,545	17,633	17,721	17,809	17,899	17,988	18,078	18,168	18,259	18,351	
16	Total Residential		108,272	108,813	109,357	109,904	110,454	111,006	111,561	112,119	112,679	113,243	
17													
18	Commercial												
19	Strong	9	119	120	120	121	121	122	123	123	124	124	CIXCZ and CIXZZ
20	Moderate	9	610	613	616	619	622	625	629	632	635	638	
21	Weak	9	667	670	674	677	680	684	687	691	694	698	
22	U	9	11	11	11	11	11	11	11	11	11	12	
23	Fast-Food Restaurant	9	75	75	76	76	77	77	77	78	78	78	
24	Full-Service Restaurant	9	62	62	63	63	63	64	64	64	65	65	
25	Total Commercial		1,544	1,552	1,559	1,567	1,575	1,583	1,591	1,599	1,607	1,615	
26													
27	Minimum Charge												
28	Strong	flat	3	3	3	3	3	3	3	3	3	3	
29	Moderate	flat	547	547	547	547	547	547	547	547	547	547	
30	Weak	flat	381	381	381	381	381	381	381	381	381	381	
31	U	flat	7	7	7	7	7	7	7	7	7	7	
32	Fast-Food Restaurant	flat	10	10	10	10	10	10	10	10	10	10	
33	Full-Service Restaurant	flat	6	6	6	6	6	6	6	6	6	6	
34	Total Minimum Charge		954	954	954	954	954	954	954	954	954	954	
35													
36	Industrial												
37	Strong	9	35	35	35	36	36	36	36	36	36	37	CIXZX and CIXZI
38	Moderate	9	1,242	1,248	1,254	1,261	1,267	1,273	1,280	1,286	1,293	1,299	
39	Weak	9	211	212	213	214	215	216	217	218	220	221	
40	U	9	11	11	11	11	11	11	11	11	11	12	
41	Fast-Food Restaurant	9	2	2	2	2	2	2	2	2	2	2	
42	Full-Service Restaurant	9	1	1	1	1	1	1	1	1	1	1	
43	Volume	9	79	79	80	80	81	81	81	82	82	83	
44	Total Industrial		1,581	1,589	1,597	1,605	1,613	1,621	1,629	1,637	1,645	1,654	
45													
46	GRAND TOTAL		112,351	112,908	113,468	114,030	114,596	115,164	115,735	116,309	116,886	117,465	
47													

	A	B	C	D	E	F	G	H	I	J	K	L	M	
1	Union Sanitary District													
2	Sewer Rate Update & COS Analysis													
3	Table 8. Customer Billing Data													
4	Source: DR1d - Copy of Union San COS -Finalv8.xls (RFC model), NBS Recaps after Submittal, Talley Sheet (Resi Accounts) and Rcorates1_report (commercial flow)													
5														
6	Cost of Service Year (Table 9)													
7		Index	1	2	3	4	5	6	7	8	9	10		
8		(1b)	Estm Actual	2016/17	2017/18	2018/19	2019/20	Projected	2020/21	2021/22	2022/23	2023/24	2024/25	Notes
48	FLOW (GALLONS)													
49	Residential													
50	Single Family Residences	8	5,175,408,000	5,201,285,040	5,227,291,465	5,253,427,923	5,279,695,062	5,306,093,537	5,332,624,005	5,359,287,125	5,386,083,561	5,413,013,979	From Table 1b, Above	
51	Apartments	8	1,294,027,200	1,300,497,336	1,306,999,823	1,313,534,822	1,320,102,496	1,326,703,008	1,333,336,523	1,340,003,206	1,346,703,222	1,353,436,738	From Table 1b, Above	
52	Multiple Family Residences	8	118,785,600	119,379,528	119,976,426	120,576,308	121,179,189	121,785,085	122,394,011	123,005,981	123,621,011	124,239,116	From Table 1b, Above	
53	Trailers/Mobile Homes	8	111,887,100	112,446,536	113,008,768	113,573,812	114,141,681	114,712,389	115,285,951	115,862,381	116,441,693	117,023,902	From Table 1b, Above	
54	Condominiums/Townhouses	8	1,152,706,500	1,158,470,033	1,164,262,383	1,170,083,695	1,175,934,113	1,181,813,784	1,187,722,853	1,193,661,467	1,199,629,774	1,205,627,923	From Table 1b, Above	
55	Total Residential		7,852,814,400	7,892,078,472	7,931,538,864	7,971,196,559	8,011,052,541	8,051,107,804	8,091,363,343	8,131,820,160	8,172,479,261	8,213,341,657		
56														
57	Commercial													
58	Strong	8	293,307,197	294,773,733	296,247,602	297,728,840	299,217,484	300,713,571	302,217,139	303,728,225	305,246,866	306,773,100		
59	Moderate	8	462,545,199	464,857,925	467,182,215	469,518,126	471,865,716	474,225,045	476,596,170	478,979,151	481,374,047	483,780,917		
60	Weak	8	270,547,435	271,900,172	273,259,673	274,625,971	275,999,101	277,379,097	278,765,992	280,159,822	281,560,621	282,968,424		
61	U	8	91,533,947	91,991,617	92,451,575	92,913,833	93,378,402	93,845,294	94,314,520	94,786,093	95,260,023	95,736,324		
62	Fast-Food Restaurant	8	37,095,854	37,281,333	37,467,740	37,655,079	37,843,354	38,032,571	38,222,734	38,413,847	38,605,917	38,798,946		
63	Full-Service Restaurant	8	48,677,895	48,921,284	49,165,891	49,411,720	49,658,779	49,907,073	50,156,608	50,407,391	50,659,428	50,912,725		
64	Total Commercial		1,203,707,527	1,209,726,065	1,215,774,695	1,221,853,568	1,227,962,836	1,234,102,650	1,240,273,164	1,246,474,530	1,252,706,902	1,258,970,437		
65														
66	Minimum Charge													
67	Strong	8	(95,037)	(95,512)	(95,990)	(96,470)	(96,952)	(97,437)	(97,924)	(98,414)	(98,906)	(99,400)		
68	Moderate	8	(18,129,573)	(18,220,221)	(18,311,322)	(18,402,879)	(18,494,893)	(18,587,367)	(18,680,304)	(18,773,706)	(18,867,574)	(18,961,912)		
69	Weak	8	(13,036,720)	(13,101,904)	(13,167,413)	(13,233,250)	(13,299,416)	(13,365,914)	(13,432,743)	(13,499,907)	(13,567,406)	(13,635,243)		
70	U	8	0	0	0	0	0	0	0	0	0	0		
71	Fast-Food Restaurant	8	(206,582)	(207,615)	(208,653)	(209,696)	(210,745)	(211,798)	(212,857)	(213,922)	(214,991)	(216,066)		
72	Full-Service Restaurant	8	(38,985)	(39,180)	(39,376)	(39,573)	(39,771)	(39,969)	(40,169)	(40,370)	(40,572)	(40,775)		
73	Total Minimum Charge		(31,506,897)	(31,664,431)	(31,822,754)	(31,981,867)	(32,141,777)	(32,302,486)	(32,463,998)	(32,626,318)	(32,789,450)	(32,953,397)		
74														
75	Industrial													
76	Strong	8	25,157,158	25,282,944	25,409,359	25,536,405	25,664,087	25,792,408	25,921,370	26,050,977	26,181,232	26,312,138		
77	Moderate	8	550,947,939	553,702,679	556,471,192	559,253,548	562,049,816	564,860,065	567,684,365	570,522,787	573,375,401	576,242,278		
78	Weak	8	18,521,085	18,613,690	18,706,759	18,800,293	18,894,294	18,988,766	19,083,709	19,179,128	19,275,024	19,371,399		
79	U	8	-	-	-	-	-	-	-	-	-	-		
80	Fast-Food Restaurant	8	59,372	59,669	59,967	60,267	60,568	60,871	61,176	61,481	61,789	62,098		
81	Full-Service Restaurant	8	151,969	152,729	153,492	154,260	155,031	155,806	156,585	157,368	158,155	158,946		
82	Volume	8	407,740,192	409,778,893	411,827,787	413,886,926	415,956,361	418,036,143	420,126,324	422,226,955	424,338,090	426,459,780		
83	Total Industrial		1,002,577,715	1,007,590,604	1,012,628,557	1,017,691,699	1,022,780,158	1,027,894,059	1,033,033,529	1,038,198,697	1,043,389,690	1,048,606,639		
84														
85	GRAND TOTAL		10,027,592,745	10,077,730,709	10,128,119,362	10,178,759,959	10,229,653,759	10,280,802,028	10,332,206,038	10,383,867,068	10,435,786,403	10,487,965,335		

	A	B	C	D	E	F	G	H	I	J
1	Union Sanitary District									
2	Sewer Rate Update & COS Analysis									
3	Table 9. COS - Unit Cost Calculations									
4	Source: DR1d - Copy of Union San COS -Finalv8.xls (RFC model), FY16 Total Budget Detail By Object.xls									
5										
6	1	Cost of Service Year								
7	FIGURE 13									
8										
9	Cost Allocation									
10	OPERATING COST ALLOCATION				<u>Accounts</u>	<u>Flow</u>	<u>COD</u>	<u>TSS</u>	<u>Total</u>	
11	O&M Allocation				\$ 1,376,277	\$ 17,022,784	\$ 10,565,441	\$ 9,481,175	\$ 38,445,678	From Below
12	Less: Non Rate Revenue	\$ (907,300)			\$ (32,479)	\$ (401,730)	\$ (249,339)	\$ (223,751)	\$ (907,300)	From Table 4
13					\$ 1,343,798	\$ 16,621,055	\$ 10,316,101	\$ 9,257,424	\$ 37,538,378	
14	CAPITAL COST ALLOCATION									
15	Debt Service (Fund 80 only)	\$ 3,230,120			\$ 2,231	\$ 1,629,551	\$ 850,853	\$ 747,484	\$ 3,230,120	From Table 7; 5 YR AVG
16	PAYGo Capital Projects (Fund 80)	\$ 9,370,000			\$ 6,473	\$ 4,727,035	\$ 2,468,174	\$ 2,168,318	\$ 9,370,000	From Table 5; 5 YR AVG
17					\$ 8,705	\$ 6,356,586	\$ 3,319,027	\$ 2,915,802	\$ 12,600,120	
18										
19	TOTAL REVENUE REQUIREMENT				\$ 1,352,502	\$ 22,977,640	\$ 13,635,129	\$ 12,173,226	\$ 50,138,498	
20	TOTAL UNITS (Including I&I)				111,397	10,528,972	47,140	18,093		From Table 10
21	Unit Cost				\$12.14	\$2.18	\$289.25	\$672.80		To Table 10
22					\$/Account	\$/1,000 gals	\$/1,000 lbs	\$/1,000 lbs		
23										
24	FIGURE 11A									
25	ALLOCATION FACTORS									
26					Allocation Factors					
27					<u>Accounts</u>	<u>Flow</u>	<u>COD</u>	<u>TSS</u>	<u>Total</u>	
28	1 Treatment Plant O&M - Direct attribution (Flow, COD, TSS)				0.00%	23.00%	41.00%	36.00%	100.00%	
29	2 Collection System O&M - Direct attribution				0.00%	100.00%	0.00%	0.00%	100.00%	
30	3 Composite of Total O&M Expenses (ECB)				2.70%	43.45%	28.42%	25.43%	100.00%	
31	4 Composite for Special Projects				23.37%	48.09%	14.67%	13.87%	100.00%	
32	5 Composite for Vehicle & Equipment R&R				0.00%	83.00%	8.00%	9.00%	100.00%	
33	6 Composite for Technical Services				14.58%	42.72%	21.35%	21.35%	100.00%	
34										

	A	B	C	D	E	F	G	H	I	J
35	REVENUE REQUIREMENT ALLOCATION									
36			Rev. Req't	Allocation	Cost Allocation					
37			2015/16	Type	Accounts	Flow	COD	TSS	Total	
38	OPERATING COSTS									
39	FUND 10: Main									
40	8910	County Commission Expense	\$ 106,000	3	\$ 2,862	\$ 46,057	\$ 30,125	\$ 26,956	\$ 106,000	
41	FUND 20: Operating									
42		Treatment & Disposal	\$ 10,227,304	1	\$ -	\$ 2,352,280	\$ 4,193,195	\$ 3,681,829	\$ 10,227,304	T&D, R&S, TPO
43		Fabrication, Maintenance and Const	\$ 5,881,242	1	\$ -	\$ 1,352,686	\$ 2,411,309	\$ 2,117,247	\$ 5,881,242	FMC,MECH,ES
44		Collection Services	\$ 6,066,202	2	\$ -	\$ 6,066,202	\$ -	\$ -	\$ 6,066,202	CS, MTV,SUP,CON
45		Business Services	\$ 5,199,612	3	\$ 140,390	\$ 2,259,231	\$ 1,477,730	\$ 1,322,261	\$ 5,199,612	BS,IT,OST,FIST,MMT
46		General Manager	\$ 953,139	3	\$ 25,735	\$ 414,139	\$ 270,882	\$ 242,383	\$ 953,139	GM
47		Board of Directors	\$ 176,481	3	\$ 4,765	\$ 76,681	\$ 50,156	\$ 44,879	\$ 176,481	BD
48		Technical Services	\$ 5,323,323	6	\$ 776,140	\$ 2,274,124	\$ 1,136,529	\$ 1,136,529	\$ 5,323,323	TS,CU,CIP,EC(IND)
49	FUND 30: Special Projects									
50	9000	Special Projects	\$ 1,522,970	4	\$ 355,918	\$ 732,396	\$ 223,420	\$ 211,236	\$ 1,522,970	
51	FUND 40: Retiree Medical									
52	5175	OPEB Expense	\$ 561,205	3	\$ 15,153	\$ 243,844	\$ 159,494	\$ 142,714	\$ 561,205	
53	FUND 50: VEHICLE & EQUIPMENT R&R									
54	8980	New Assets	\$ 379,500	5	\$ -	\$ 314,985	\$ 30,360	\$ 34,155	\$ 379,500	
55	FUND 60: INFORMATION SYSTEMS R&R									
56		Total Transfer from Fund 20	\$ 1,036,700	3	\$ 27,991	\$ 450,446	\$ 294,630	\$ 263,633	\$ 1,036,700	
57	FUND 70: Plant & Pump Station R&R									
58	6100	Parts & Materials - Plant	\$ 250,000	3	\$ 6,750	\$ 108,625	\$ 71,050	\$ 63,575	\$ 250,000	
59	FUND 75: Emergency Reserve Funding									
60		Total Transfer from Fund 20	\$ 750,000	3	\$ 20,250	\$ 325,875	\$ 213,150	\$ 190,725	\$ 750,000	From Table 4
61	FUND 85: PRETREATMENT									
62		Total Transfer from Fund 20	\$ 12,000	3	\$ 324	\$ 5,214	\$ 3,410	\$ 3,052	\$ 12,000	
63	Total Operating Cost Allocation		\$ 38,445,678		\$ 1,376,277	\$ 17,022,784	\$ 10,565,441	\$ 9,481,175	\$ 38,445,678	To Summary (above)
64	O&M Composite Allocation Factors				3.58%	44.28%	27.48%	24.66%	100%	To Summary (above)
65	CAPITAL COSTS									
66	CAPITAL COSTS									
67		Admin Facilities	\$ 270,000	3	\$ 7,290	\$ 117,315	\$ 76,734	\$ 68,661	\$ 270,000	All Structural Related
68		Collection System	\$ 2,610,000	2	\$ -	\$ 2,610,000	\$ -	\$ -	\$ 2,610,000	
69		Transport	\$ 1,080,000	2	\$ -	\$ 1,080,000	\$ -	\$ -	\$ 1,080,000	
70		Treatment	\$ 6,592,500	1	\$ -	\$ 1,516,275	\$ 2,702,925	\$ 2,373,300	\$ 6,592,500	
71	Total Capital Cost Allocation		\$ 10,552,500		\$ 7,290	\$ 5,323,590	\$ 2,779,659	\$ 2,441,961	\$ 10,552,500	
72	Capital Composite Allocation Factors				0.07%	50.45%	26.34%	23.14%	100%	To Summary (above)

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Union Sanitary District												
2	Sewer Rate Update & COS Analysis												
3	Table 10. COS - Allocations by Class												
4	Source: DR1d - Copy of Union San COS -Finalv8.xls (RFC model), NBS Recaps after Submittal												
5													
6	Cost of Service Year												
7	Inflow and Infiltration												
8													
9	SUMMARY OF COST OF SERVICE ALLOCATION BY CLASS												
10													<u>Notes</u>
11		Current	COSA	Difference									
12		<u>Rates</u>	<u>Rates</u>	<u>\$</u>	<u>%</u>								
13	Residential (\$/LU)												
14	Single Family Residences	\$377.00	\$371.32	(5.68)	-2%								COSA - From Below
15	Multiple Family Residences	\$326.00	\$321.93	(4.07)	-1%								COSA - From Below
16	Minimum Charge	\$326.00	\$321.93	(4.07)	-1%								COSA - From Below
17	Commercial (\$/1,000 gals)												
18	Strong	\$7.90	\$9.37	1.47	19%								COSA - From Below
19	Moderate	\$4.26	\$4.63	0.37	9%								COSA - From Below
20	Weak	\$3.73	\$3.86	0.13	3%								COSA - From Below
21	Fast-Food Restaurant	\$7.55	\$8.77	1.22	16%								COSA - From Below
22	Full-Service Restaurant	\$9.65	\$11.61	1.96	20%								COSA - From Below
23	Industrial												
24	Volume (\$/1,000 gals)	\$2.37	\$2.18	(0.19)	-8%								COSA - From Table 9
25	COD (\$/1,000 lbs)	\$240.51	\$289.25	48.74	20%								COSA - From Table 9
26	Suspended Solids (\$/1,000 lt)	\$440.95	\$672.80	231.85	53%								COSA - From Table 9
27													

	A	B	C	D	E	F	G	H	I	J	K	L	M
28	FIGURE 12												
29													
30		<u>Accounts</u>	<u>Discharge</u>		<u>COD</u>	<u>SS</u>	<u>COD</u>	<u>SS</u>					
31		LU	(kgal/year)	(mgd)	mg/l	mg/l	(klbs/year)	(klbs/year)					
32	Residential												
33		Single Family Residences	67,520	5,175,408	14.18	500	200	21,581	8,633				
34		Multiple Family Residences	40,752	2,677,406	7.34	500	200	11,165	4,466				
35		Total Residential	108,272	7,852,814	21.51			32,746	13,098				
36													
37	Commercial												
38		Strong	119	293,212	0.80	1,839	489	4,497	1,196				
39		Moderate	610	444,416	1.22	536	199	1,987	738				
40		Weak	667	257,511	0.71	331	144	711	309				
41		Unassigned	11	91,534	0.25	322	209	246	160				
42		Fast-Food Restaurant	77	36,949	0.10	1,730	420	533	129				
43		Full-Service Restaurant	63	48,791	0.13	2,500	600	1,017	244				
44		Total Commercial	1,547	1,172,412	3.21			8,991	2,776				
45													
46	Industrial												
47		Strong	35	25,157	0.07	1,839	489	386	103				
48		Moderate	1,242	550,948	1.51	536	199	2,463	914				
49		Weak	211	18,521	0.05	331	144	51	22				
50		Unassigned	11	-	-	322	209	-	-				
51		Volume	79	407,740	1.12	613	224	2,085	762				
52		Total Industrial	1,578	1,002,366	2.75			4,984	1,801				
53													
54		SUBTOTAL	111,397	10,027,593	27.47			46,721	17,675				
55													
56		Inflow and Infiltration	-	501,380	1.37	100	100	418	418				
57													
58		GRAND TOTAL	111,397	10,528,972	28.85			47,140	18,093				
59													
60													

	A	B	C	D	E	F	G	H	I	J	K	L	M
61	FIGURE 14												
62													
63		<u>\$/Account</u>	<u>\$/kgal</u>	<u>klbs/yr</u>	<u>klbs/yr</u>	<u>Total</u>							<u>Notes</u>
64	I&I Cost Allocation												
65	Total Units (Including I&I)	111,397	10,528,972	47,140	18,093								From Above
66	Unit Cost	\$12.14	\$2.18	\$289.25	\$672.80								From Table 9
67	I&I Units	-	501,380	418	418								From Above
68	I&I Costs to be Allocated	\$ -	\$ 1,094,173	\$ 120,950	\$ 281,332	\$ 1,496,456							
69													
70	Total Revenue Requirement	\$1,352,502	\$22,977,640	\$13,635,129	\$12,173,226	\$ 50,138,498							From Table 9
71	I&I Costs to be Allocated	\$1,496,456	\$ (1,094,173)	\$ (120,950)	\$ (281,332)	\$ -							From Above
72	Total Rev Req't (after I&I reclass)	\$2,848,958	\$ 21,883,467	\$ 13,514,179	\$ 11,891,894	\$ 50,138,498							
73													
74	FIGURE 15												
75													
76		<u>\$/Account</u>	<u>\$/kgal</u>	<u>klbs/yr</u>	<u>klbs/yr</u>	<u>Total</u>							
77	Total Units, net I&I												
78	Total Units (Including I&I)	111,397	10,528,972	47,140	18,093								
79	Less: I&I Units	-	(501,380)	(418)	(418)								
80	Total Units, net I&I	111,397	10,027,593	46,721	17,675								To Below
81													
82	Unit Cost (after I&I reclass)												
83	Total Costs (after I&I reclass)	\$2,848,958	\$ 21,883,467	\$ 13,514,179	\$ 11,891,894	\$ 50,138,498							From 1- Above
84	Total Units, net I&I	111,397	10,027,593	46,721	17,675								From 2- Above
85	Unit Cost (after I&I reclass)	\$25.57	\$2.18	\$289.25	\$672.80								
86													

	A	B	C	D	E	F	G	H	I	J	K	L	M
87	FIGURE 17												
88	Residential - Charge per Account											Notes	
89	<u>Account</u>		<u>Flow</u>		<u>COD</u>		<u>TSS</u>		<u>Total</u>				
90	Single Family Residential											(per acct)	
91	Units	67,520	accounts	5,175,408	kgal	21,581	klbs	8,633	klbs	From Table 10, Figure 12 (above)			
92	Accounts	67,520	accounts	67,520	accounts	67,520	accounts	67,520	accounts	From Table 10, Figure 12 (above)			
93	Units per account	1		76.65	kgal/account	0.3196305	klbs/account	0.1278522	klbs/account				
94	Unit Costs (\$ per Unit)	\$25.57	per account	\$2.18	per kgal	\$289.25	per klbs	\$672.80	per klbs				
95	Total Single Family Residential	\$25.57	per account	\$167.28	per account	\$92.45	per account	\$86.02	per account	\$371.32	To Table 1A, Summary (above)		
96	Multi Family Residential												
97	Units	40,752	accounts	2,677,406	kgal	11,165	klbs	4,466	klbs	From Table 10, Figure 12 (above)			
98	Accounts	40,752	accounts	40,752	accounts	40,752	accounts	40,752	accounts	From Table 10, Figure 12 (above)			
99	Units per account (loading ÷ acc)	1		65.70	kgal/account	0.2739690	klbs/account	0.1095876	klbs/account				
100	Unit Costs (\$ per Unit)	\$25.57	per account	\$2.18	per kgal	\$289.25	per klbs	\$672.80	per klbs				
101	Total Multi Family Residential	\$25.57	per account	\$143.38	per account	\$79.25	per account	\$73.73	per account	\$321.93	To Table 1A, Summary (above)		
102													
103	Commercial - Charge per Kgal												
104	<u>Account</u>		<u>Flow</u>		<u>COD</u>		<u>TSS</u>		<u>Total</u>				
105	Fast Food Restaurant											(per kgal)	
106	Units	77	accounts	36,949	kgal	533	klbs	129	klbs	From Table 10, Figure 12 (above)			
107	Kgal	36,949	kgal	36,949	kgal	36,949	kgal	36,949	kgal	From Table 10, Figure 12 (above)			
108	Units/Kgal	0.0020840	accounts/kgal	1		0.0144282	klbs/kgal	0.0035028	klbs/kgal				
109	Unit Costs (\$ per Unit)	\$25.57	per account	\$2.18	per kgal	\$289.25	per klbs	\$672.80	per klbs				
110	Total Fast Food Restaurant	\$0.05	per kgal	\$2.18	per kgal	\$4.17	per kgal	\$2.36	per kgal	\$8.77	To Table 1A, Summary (above)		
111	Full Service Restaurant												
112	Units	63	accounts	48,791	kgal	1,017	klbs	244	klbs	From Table 10, Figure 12 (above)			
113	Kgal	48,791	kgal	48,791	kgal	48,791	kgal	48,791	kgal	From Table 10, Figure 12 (above)			
114	Units/Kgal	0.0012912	accounts/kgal	1		0.0208500	klbs/kgal	0.0050040	klbs/kgal				
115	Unit Costs (\$ per Unit)	\$25.57	per account	\$2.18	per kgal	\$289.25	per klbs	\$672.80	per klbs				
116	Total Full Service Restaurant	\$0.03	per kgal	\$2.18	per kgal	\$6.03	per kgal	\$3.37	per kgal	\$11.61	To Table 1A, Summary (above)		
117	Strong												
118	Units	119	accounts	293,212	kgal	4,497	klbs	1,196	klbs	From Table 10, Figure 12 (above)			
119	Kgal	293,212	kgal	293,212	kgal	293,212	kgal	293,212	kgal	From Table 10, Figure 12 (above)			
120	Units/Kgal	0.0004058	accounts/kgal	1		0.0153373	klbs/kgal	0.0040783	klbs/kgal				
121	Unit Costs (\$ per Unit)	\$25.57	per account	\$2.18	per kgal	\$289.25	per klbs	\$672.80	per klbs				
122	Total Strong	\$0.01	per kgal	\$2.18	per kgal	\$4.44	per kgal	\$2.74	per kgal	\$9.37	To Table 1A, Summary (above)		
123	Moderate												
124	Units	610	accounts	444,416	kgal	1,987	klbs	738	klbs	From Table 10, Figure 12 (above)			
125	Kgal	444,416	kgal	444,416	kgal	444,416	kgal	444,416	kgal	From Table 10, Figure 12 (above)			
126	Units/Kgal	0.0013726	accounts/kgal	1		0.0044702	klbs/kgal	0.0016597	klbs/kgal				
127	Unit Costs (\$ per Unit)	\$25.57	per account	\$2.18	per kgal	\$289.25	per klbs	\$672.80	per klbs				
128	Total Moderate	\$0.04	per kgal	\$2.18	per kgal	\$1.29	per kgal	\$1.12	per kgal	\$4.63	To Table 1A, Summary (above)		
129	Weak												
130	Units	667	accounts	257,511	kgal	711	klbs	309	klbs	From Table 10, Figure 12 (above)			
131	Kgal	257,511	kgal	257,511	kgal	257,511	kgal	257,511	kgal	From Table 10, Figure 12 (above)			
132	Units/Kgal	0.0025902	accounts/kgal	1		0.0027605	klbs/kgal	0.0012010	klbs/kgal				
133	Unit Costs (\$ per Unit)	\$25.57	per account	\$2.18	per kgal	\$289.25	per klbs	\$672.80	per klbs				
134	Total Weak	\$0.07	per kgal	\$2.18	per kgal	\$0.80	per kgal	\$0.81	per kgal	\$3.86	To Table 1A, Summary (above)		



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