FINAL REPORT

REVENUE REQUIREMENTS AND COST OF SERVICE RATES

BLACK & VEATCH PROJECT NO. 191442

PREPARED FOR

City of St. Joseph, Missouri
Water Protection Division

JULY 2016

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1 Executive Summary

The wastewater utility, owned and operated by the City of St. Joseph, Missouri (Sewer Utility or Water Protection Division), conducts an annual review of its charges for sewer service (Rate Study). The Rate Study consists of three phases: Revenue and Revenue Requirements, Cost of Service, and Rate Design. The Revenue and Revenue Requirements phase (also referred to as the Financial Planning phase) determines the overall rate adjustment required based on cost data and capital project forecasts provided by the City. The Cost of Service phase determines how costs should be equitably recovered from each of the Sewer Utility's customer classes. The last phase, Rate Design, determines how services should be priced to reflect the cost of service and recover 100% of the revenue requirement.

1.1 REVENUES

The Sewer Utility is projected to experience no change in the number of customers for the study period fiscal year (FY) 2017 through FY 2021. Billable volume from current retail customers is projected to remain constant and increase slightly for wholesale customers (Tables 2 and 3).

The projection of billed revenues from sales increases from a base of $25,545,300 in FY 2016 to $26,349,200 in FY 2021 (Table 4). Miscellaneous operating revenues, which are primarily from penalties for late payment and tax credit revenue, are projected to be approximately $1,085,600 in FY 2016 and remain fairly steady through the study period, decreasing slightly to about $1,014,900 in FY 2021 (Table 5).

1.2 REVENUE REQUIREMENTS

Operating expenses, which include operation and maintenance expense, routine capital expense, and transfers to other City funds, are expected to be $14,922,500 in FY 2016 and are projected to increase to $16,230,800 in FY 2021 (Table 6).

In prior years, bad debt has been highlighted as a significant contributor to rate increases. In the past two years the City has made bad debt reduction a priority and this rate study is based on the assumption that bad debt will continue to be reduced year over year. This study assumes a decrease of $85,000 in FY 2018, from the FY 2017 budgeted amount of $1 million, and continues to decrease until it reaches $750,000 in FY 2020. The City has made substantial improvement in its bad debt as a percentage of rate revenue as a result of the City using the following steps to address bad debt from unpaid bills:

- Implementing an additional payment plan that allows income qualified customers to have a 12 month payment plan to bring their past due accounts current;
- Working with local Social Service Agencies to assist customers who are having difficulties making payments;
- Reducing the days for payment of an outstanding wastewater utility bill from 90 days to 60 days;
- Disconnecting water service for non-payment of wastewater utility bills;
- Continuing to educate customers on leaks and other household activities that could have the potential for higher payments;
- Encouraging customers to contact the City before their services have been disconnected;
- Upgrading software system to allow for more flexibility in the information that we share with our customers.

As shown in the table below, between FY 2014 and FY 2016, the City reduced its bad debt percentage from 8.8% of revenue to 4.3%. The reduction would have been greater if the bankruptcy of one of the City's industrial customers had not occurred. Bad debt is projected to be further reduced to 3.3% of revenue in FY 2017. The forecast shows this value reducing to around 2% by the end of the study period.

	FY 2014 ACTUAL	FY 2015 ACTUAL	FY 2016 PROJECTED	FY 2017 BUDGET
Bad Debt	$1,909,371	$1,447,995	$1,100,000	$1,000,000
Total Rate Revenue	$21,679,555	$23,782,387	$25,539,700	$29,921,100
Bad Debt %	8.8%	6.1%	4.3%	3.3%

During the completion of the Rate Study, there have been comments related to the concern of using the Payment in Lieu of Taxes (PILOT) as a method to offset supporting costs for services that the wastewater utility receives from general administration, including Finance and Law support, and not an indirect cost allocation. An additional review of this issue will be completed prior to next year's Rate Study.

The City's current Capital Improvement Program (CIP) for FY 2016 through FY 2021 totals $125.4 million (Table 7). The City's anticipated capital requirements are driven by regulatory needs or capital replacement expenses required to maintain current operations. As a result, the individual flexibility of projects is limited and, in general, the delaying of projects has the largest impact on rates. Once projects are scheduled, the City's procurement process aims to provide the necessary supplies, equipment, and services at the lowest possible cost that is consistent with the quality needed to meet the requirements of the wastewater utility so that the ratepayers receive the maximum value for each dollar expended. Future CIP projects are conservative estimates that City staff are generally able to report success in keeping projects at or below the originally estimated cost. For that reason, future rate increases could be lower than the current forecast as lower project costs related to being under budget or receiving lower bond rates are possible. An example of lower bond rates is shown with the SRF funding strategy used for the Blacksnake project.

About three percent of the CIP is for environmental and regulatory projects mandated by the Missouri Department of Natural Resources (MDNR) for power upgrades of $1.5 million and final stages of the Ammonia project ($2 million). The current CIP includes a total of $77.2 million in CSO related projects, with the majority going towards the Blacksnake Creek Stormwater Separation project. The CIP is anticipated to be financed with annual operating revenues, $10 million and $80 million ($10 million to refund the SRF FY 2016 bond and $70 million for construction) State Revolving Fund (SRF) bond issues in FY 2016 and FY 2017, a $12 million conventional bond issue in FY 2017, and a $1.7 million conventional bond issue in FY 2019. Annual debt service on existing and proposed debt is projected to increase from approximately $6.6 million in FY 2016 to $16.9 million in FY 2021 (Table 9).

With increasing debt costs, it is important to analyze the amount of total capital dollars (debt service and cash financed capital) being spent compared to the total operating requirements of the Sewer Utility. The table below shows the comparison of the City to other utilities from a benchmark survey completed by National Association of Clean Water Agencies which consists of water and

wastewater utilities. As shown on Lines 10 and Line 17, the City's percent of total capital dollars in FY 2017 is below the results from the survey. The estimates for FY 2018 through FY 2020 are higher than the benchmark as a result of spending operating funds in the near term to keep debt service down and once funds get closer to 120 days in FY2021 the City is comparable to the survey results. It is important to note that capital costs are comprised of debt and cash and the ratio of these two components can vary among utilities depending the mix of debt and pay-as-you-go funds they use.

Line No.	Description	Estimated 2016	Projected 2017	2018	2019	2020	2021
	St. Joseph						
1	Total Operating Requirements	24,301,800	34,063,000	32,888,100	40,193,100	35,583,300	35,999,000
2	Operating and Maintenance	11,510,300	11,623,200	11,942,100	12,293,000	12,663,300	13,134,700
3	Capital Improvements	4,273,900	7,993,000	5,556,700	10,148,500	3,831,500	3,738,200
4	Debt Service	6,611,100	12,565,200	13,363,700	15,627,000	16,920,200	16,913,200
5	Other	1,906,500	1,881,600	2,025,600	2,124,600	2,168,300	2,212,900
6	% Operation and Maintenance	47.4%	34.1%	36.3%	30.6%	35.6%	36.5%
7	% Capital Improvements	17.6%	23.5%	16.9%	25.2%	10.8%	10.4%
8	% Debt Service	27.2%	36.9%	40.6%	38.9%	47.6%	47.0%
9	% Other	7.8%	5.5%	6.2%	5.3%	6.1%	6.1%
10	Total Capital (Line 7 + Line 8)	44.8%	60.4%	57.5%	64.1%	58.3%	57.4%
11	**NACWA Financial Survey 2015 (a)**						
12	**Breakdown of Clean Water Agency Expenditures**						
13	% Operation and Maintenance	41.0%					
14	% Capital Improvements	27.0%					
15	% Debt Service	27.0%					
16	% Other	5.0%					
17	Total Capital (Line 14 + Line 15)	54.0%					

(a) Water and Wastewater Utilities

The following revenue increases are projected to be required to meet the Sewer Utility's revenue requirements through the fiscal year ending June 30, 2021. Revenue requirements include both the cash obligations and the debt service coverage obligations of the Sewer Utility.

EFFECTIVE DATE	PERCENTAGE OVERALL INCREASE IN REVENUES	RESIDENTIAL INDICATOR[1]
August 1, 2016	11.0%	1.4%
August 1, 2017	11.0%	1.5%
August 1, 2018	5.0%	1.6%
August 1, 2019	2.0%	1.6%
August 1, 2020	2.0%	1.6%

[1] Residential Indicator is calculated as the average cost per residential household of wastewater charges as a percentage of the median household income (MHI) of St. Joseph. It is a measure of affordability used in evaluating a reasonable schedule of the CSO LTCP.

1.3 COST OF SERVICE ANALYSIS

Total cost of service for FY 2017 to be met from wastewater service charges is $29,238,500 (Table 12). Rates proposed in this report are designed to recover cost of service from each customer class based on the service requirements of the customer class while recognizing contractual provisions for wholesale service.

The cost allocation process was last updated in FY 2015 and will be the basis for cost allocation for the next three years with the exception of certain allocations that will be updated annually. The cost allocations follow standard wastewater utility cost allocation procedures[2] that are shown in Tables 13 through 20.

1.4 WASTEWATER RATE ADJUSTMENTS

The proposed cost of service based rates scheduled to become effective August 1, 2016 are shown in Tables 22 and ES-1. The projected recovery by customer class of the allocated cost of service is shown in Tables 24 and ES-2. The projected recovery of allocated cost of service under the proposed rates is 100.0 percent for the retail class and 100.0 percent for the wholesale customer class.

The impact on a residential customer using 6 hundred cubic feet (Ccf), approximately 4,500 gallons, per month will be an increase of $6.57 per month, from $56.71 to $63.28, which is an 11.6% increase.

[2] Water Environment Federation (WEF), Financing and Charges for Wastewater Systems, Manual of Practice No. 27

Table ES-1 Schedule of Proposed Rates for Fiscal Year Ending June 30, 2017

RETAIL

	Monthly Charge $				
Service Charge					
Inside City	33.40				
Outside City	78.38				
				Limit Fees	
Volume Charge	Monthly $/Ccf				
Inside City	4.98			2.02	$/Ccf
Outside City	11.38			4.62	$/Ccf
		Inside City	Outside City		
Extra Strength Surcharge					
BOD in excess of 300 mg/l		0.254	0.378	$/lb 0.381	$/lb.
Suspended solids in excess of 350 mg/l		0.196	0.465	$/lb 0.294	$/lb.
Fats, Oils, & Grease in Excess of 100 mg/l		0.274	0.629	$/lb	
Septage		70.00	70.00	$/Kgal	

WHOLESALE (a)

Ammonia Project Fixed Charge				
South St. Joseph Industrial Sewer District	30,610	$/Month		
National Beef Leathers	10,140	$/Month		
Triumph Foods	20,180	$/Month		
Flow charge				
South St. Joseph Industrial Sewer District	0.316	$/Ccf	0.474	$/Ccf
National Beef Leathers	0.234	$/Ccf	0.351	$/Ccf
Triumph Foods	0.235	$/Ccf	0.352	$/Ccf
Pump Station (b)	0.358	$/Ccf		
BOD	0.281	$/lb.	0.422	$/lb.
Suspended Solids	0.152	$/lb.	0.228	$/lb.
Fats, Oils, & Grease	0.274	$/lb.		

(a) Applicable to the South St. Joseph Industrial Sewer District (SSJISD), National Beef Leathers, and Triumph for secondary treatment service.

(b) Applicable to SSJISD only.

Table ES-2 Comparison of Cost of Service with Revenue under Proposed Rates

Fiscal Year Ending June 30, 2017

Line No.	Customer Class	[A] Allocated Cost of Service	[B] Revenue Under Estimated Rates	[C] Revenue as Percent of Adjusted Cost of Service	[D] Revenue Inc/(Dec) Compared to Existing Rates
		$	$	%	%
	Retail				
1	Residential	17,134,370	16,706,300	97.5	11.5
2	Commercial/Industrial	8,423,640	8,859,700	105.2	12.5
3	Surcharge	403,938	403,300	99.8	(2.4)
4	Septage	163,425	158,300	96.9	16.7
5	Total Retail	26,125,373	26,127,600	100.0	11.6
	Secondary Wholesale Treatment				
6	South St. Joseph Industrial Sewer District	1,778,552	1,778,600	100.0	5.6
7	National Beef Leathers	279,917	279,900	100.0	12.0
8	Triumph Foods	1,054,659	1,055,200	100.1	5.3
9	Total Secondary Wholesale Treatment	3,113,128	3,113,700	100.0	6.0
10	Total	29,238,501	29,241,300	100.0	11.0

2 Introduction

2.1 PURPOSE

The purpose of this report is to present the findings of our study of the financing needs and rate requirements of the Sewer Utility owned and operated by the City of St. Joseph, Missouri (City). The study addresses three objectives: (1) projection of operating and capital financing costs of the Sewer Utility for a five-year planning period ending June 30, 2021; (2) projection of revenue adjustments through fiscal year (FY) 2021; and (3) development of cost of service based rates for retail and wholesale customers for FY 2017. Unless otherwise noted, references in this report to a specific year are for the City's fiscal year ended June 30.

2.2 SCOPE

The report presents the study of revenue and revenue requirements, cost of service allocations, and proposed rate design for wastewater service. The revenue and revenue requirements study includes consideration of future revenues under existing rates, operation and maintenance expense, principal and interest expense on bonded debt, expenditures for capital improvements, and compliance with existing bond indentures. Annual projections of the number of customers, billed wastewater volumes, revenues, and expenditures are shown for FY 2017 through FY 2021.

Revenue requirements are developed on a cash basis and the allocation of costs to functional cost components follows the design basis of cost causative allocation methods. The analysis provides the basis for the design of schedules of charges for wastewater service that will recover the total cost of wastewater service for the fiscal year ended June 30, 2017.

This report also continues with the first phase in developing a rate for the Ammonia Removal Project, which consists of a fixed charge designed to recover the debt service associated with the project. The debt service is estimated each year until the project is complete. Actual FY2016 debt service payments were lower than projected; therefore, the fixed charge in FY 2017 will be discounted to adjust the charge for last year's differential. For FY 2017, the rate will recover principal, interest, and administrative fees for the loan. The second phase will be implemented once the project is complete and the assets are fully operational. At that time, there will be the fixed charge from phase one and a charge per pound of removal from customers' flows. In addition to adding an ammonia fixed charge, the continued phase out of the Secondary Service Minimum (SSM) was also performed in this study.

2.3 GENERAL BACKGROUND

The City operates and maintains the Sewer Utility as a self-supporting enterprise. The Sewer Utility provides services to approximately 25,200 customers including residential, commercial, and industrial accounts.

The utility's wastewater rates are developed to provide sufficient revenues to meet all operation and maintenance expenses of the system, debt service requirements, capital improvement expenditures to be funded from current revenues, and other specific bond ordinance and revenue requirements.

The Sewer Utility also provides secondary treatment service to South St. Joseph Industrial Sewer District (SSJISD), National Beef Leathers, and Triumph Foods (collectively, the "wholesale customers") on a contractual basis. In 1980, the City and SSJISD entered into an agreement whereby the City would provide secondary treatment for the wastewater discharged from SSJISD's primary treatment facilities. The agreement was revised in January 1996 to define the basis for charges for

the secondary treatment services and how the service charge to SSJISD would be developed and updated. The agreement provides that allocation factors used to develop the charges must be updated not less than every five years. The allocation factors were updated two years ago.

The City also has agreements with National Beef Leathers and Triumph Foods. Provisions of the agreement are similar to those of SSJISD, with the exception that National Beef Leathers and Triumph Foods do not pay any costs associated with the SSJISD Pump Station.

Each of the wholesale customers now has a fixed charge for the Ammonia Project related debt service. This charge is based on plant design and the units provided by each wholesale customer for their Significant Industrial Users (SIU) permit. With the addition of the capacity component to the cost of service allocations, each wholesale customer now has a different flow charge. A full description of the capacity component is found in the cost of service section later in this report. Otherwise, they are all subject to the same charge for treatment of BOD, Suspended Solids, and FOG.

2.4 DISCLAIMER

Subject to the limitations set forth herein, this report was prepared for the City of St. Joseph, Missouri ("City") by Black & Veatch Corporation ("B&V") and is based on information not within the control of B&V. B&V has not been requested to make an independent analysis, to verify the information provided, or to render an independent judgment of the validity of the information provided by others. As such, B&V cannot guarantee the accuracy thereof to the extent that such information, data, or opinions were based on information provided by others.

In conducting the B&V analysis and in forming an opinion of the projection of future operations summarized in this report, B&V has made certain assumptions with respect to conditions, events, and circumstances that may occur in the future. The methodologies B&V utilizes in performing the analysis and making these projections follow generally accepted industry practices. While B&V believes that such assumptions and methodologies as summarized in this report are reasonable and appropriate for the purpose for which they are used; depending upon conditions, events, and circumstances that actually occur but are unknown at this time, actual results may materially differ from those projected. Such factors may include, but are not limited to, the ability to execute the capital improvement program on schedule and within budget, the regional and national economic climate, and growth in the service area.

Readers of this report are advised that any projected or forecasted financial, operating, growth, performance, or strategy merely reflects the reasonable judgment of B&V at the time of the preparation of such information and is based on a number of factors and circumstances beyond B&V control. Accordingly, B&V makes no assurances that the projections or forecasts will be consistent with actual results or performance. To better reflect more current trends and reduce to chance of projected error, B&V recommends that periodic updates of the projections contained in this report be conducted so more recent historical trends can be recognized and taken into account.

Any use of this report, and the information therein, constitutes agreement that: (i) B&V makes no warranty, express or implied, relating to this report, (ii) the user accepts the sole risk of any such use, and (iii) the user waives any claim for damages of any kind against B&V.

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special, incidental, indirect, or consequential damages in connection with such use. To the fullest extent permitted by law, such waiver, release, and indemnification shall apply notwithstanding the negligence, strict liability, fault, or breach of warranty or contract of B&V.

3 Revenues

The majority of the Sewer Utility's revenue is derived from rates and charges for sewer service. A summary of the City's existing rates is presented in Table 1. Projections of future revenue under existing rates are based on analyses of historical trends of customer growth and average volume per customer (Tables 2 - 4). Other income sources such as wastewater service penalties, tax credits, and other revenue are presented in Table 5. FY 2016 customer and volume estimates are based on projecting the average of the first eight months of the fiscal year (July 2015 through February 2016).

3.1 CUSTOMER GROWTH

Table 2 summarizes the historical average number of Sewer Utility customers by customer class during FY 2011 through FY 2015 and the projected number of customers for FY 2016 through 2021. Figures shown in Table 2 are annual averages based on the number of bills issued. Customer growth projections are based on an examination of recent trends in the number of customers added to the system. During the past five years the utility has experienced a decrease in the overall number of customers with an average annual decrease of approximately 1.3 percent. There was a significant drop in customer numbers from FY 2012 to FY 2013, which approximately coincides with a switch to a new billing system. There is no projected growth in the number of customers for FY 2017 through FY 2021 for the residential, commercial, and industrial customer classes. In recent years, retail commercial and industrial customers have shown a fluctuation in the number of customers over the years. A large part of this is related to customer changes in the occupants of multi-family dwellings (duplexes and fourplexes) and not actual businesses leaving the wastewater utility.

3.2 BILLED WASTEWATER VOLUME

Historical and projected billed wastewater volumes are shown in Table 3. Total billed wastewater volume (retail and wholesale) from FY 2011 through FY 2013 has decreased from 5,389,592 hundred cubic feet (Ccf) to 5,091,583 Ccf and increased to 5,499,435 Ccf in FY 2015.

The billed wastewater volume for retail customers has decreased approximately 339,000 Ccf, between FY 2011 and FY 2016. Going forward, residential and commercial/industrial volume is projected to increase slightly in FY 2017 (based on 3-year average use per customer) and then remain steady. Both residential and commercial volumes are in line with the customer growth forecast. Total billed wastewater volume (retail and wholesale) is estimated to increase from about 5,303,300 Ccf in FY 2016 to 5,530,800 Ccf in FY 2021, an increase of about 4.3 percent.

3.2.1 Wholesale Customer Growth

Contributed volume from the South St. Joseph Industrial Sewer District (SSJISD) had been gradually increasing from FY 2011 to FY 2015. SSJISD is expected to see moderate growth (3%) from the addition of Dailys Premium Meats starting in FY 2017.

National Beef Leathers (NBL) experienced an increase in volumes from 215,225 Ccf in FY 2011 to 439,217Ccf in FY 2015. Their flow is estimated to increase from FY 2015 to 2016 by about 11.7 percent to 490,800 Ccf. NBL's contributed volume is projected to be 490,800 Ccf from FY 2017 through FY 2021.

Triumph Foods' flows have decreased each year from FY 2011 to FY2015. They have decreased approximately 16.3 percent overall. They are estimated to increase slightly by 3 percent from FY 2015 to FY 2016 and then remain constant for the rest of the study period. The pounds of BOD in

Triumph's contributed wastewater increased in FY 2016 by 10 percent and contributed pounds of suspended solids increased by 35 percent. These loadings are projected to remain flat for the rest of the study period. Triumph Foods' contributed volume is projected to be 999,800 Ccf from FY 2017 through FY 2021.

Table 1 Schedule of Existing Rates (a)

RETAIL

Service Charge	Monthly Charge $
Inside City	30.19
Outside City	70.85

Volume Charge	Monthly $/Ccf	Limit Fees	
Inside City	4.42	1.96	$/Ccf
Outside City	10.10	4.48	$/Ccf

Extra Strength Surcharge	Inside City	Outside City		Limit Fees	
BOD in excess of 300 mg/l	0.260	0.386	$/lb	0.390	$/lb.
Suspended solids in excess of 350 mg/l	0.219	0.520	$/lb	0.329	$/lb.
Fats, Oils, & Grease in Excess of 100 mg/l	0.289	0.664	$/lb		
Septage	60.00	60.00	$/Kgal		

WHOLESALE (a)

Ammonia Project Fixed Charge				
South St. Joseph Industrial Sewer District	20,030	$/Month		
National Beef Leathers	6,630	$/Month		
Triumph Foods	13,200	$/Month		
Flow charge				
South St. Joseph Industrial Sewer District	0.343	$/Ccf	0.514	$/Ccf
National Beef Leathers	0.253	$/Ccf	0.379	$/Ccf
Triumph Foods	0.252	$/Ccf	0.378	$/Ccf
Pump Station (b)	0.345	$/Ccf		
BOD	0.284	$/lb.	0.426	$/lb.
Suspended Solids	0.167	$/lb.	0.251	$/lb.
Fats, Oils, & Grease	0.289	$/lb.		

(a) Rates were fully effective on July 1, 2016.
(b) Applicable to the South St. Joseph Industrial Sewer District (SSJISD), National Beef Leathers, and Triumph Foods for secondary treatment service.
(c) Applicable to SSJISD only.

Table 2 Historical and Projected Number of Customers

Fiscal Years Ending June 30

Customer Class	Historical					Estimated (a)	Projected				
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
RETAIL											
Inside City											
Residential	24,232	24,294	23,286	23,342	23,299	23,104	23,104	23,104	23,104	23,104	23,104
Commercial/Industrial	2,623	2,511	2,118	2,020	2,122	2,045	2,045	2,045	2,045	2,045	2,045
Surcharge			9	9	10	10	10	10	10	10	10
Outside City											
Residential			624	186	178	174	174	174	174	174	174
Commercial/Industrial			23	22	34	32	32	32	32	32	32
WHOLESALE											
SSJISD	1	1	1	1	1	1	1	1	1	1	1
National Beef Leathers	1	1	1	1	1	1	1	1	1	1	1
Triumph Foods	1	1	1	1	1	1	1	1	1	1	1
Total	26,858	26,808	25,407	25,365	25,424	25,152	25,152	25,152	25,152	25,152	25,152

(a) FY 2016 Number of customers is based on average of first eight months of fiscal year

Table 3 Historical and Projected Contributed Volume

Fiscal Years Ending June 30

Customer Class	Historical					Estimated (a)	Projected				
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
	Ccf	Ccf	Ccf	Ccf	Ccf	Ccf	Ccf	Ccf	Ccf	Ccf	Ccf
RETAIL											
Inside City											
Residential	1,620,694	1,581,966	1,528,749	1,580,272	1,459,517	1,302,900	1,438,600	1,438,600	1,438,600	1,438,600	1,438,600
Commercial/Industrial	1,569,708	1,560,489	972,068	1,110,592	1,323,167	1,154,700	1,216,000	1,216,000	1,216,000	1,216,000	1,216,000
Surcharge			339,970	315,831	345,638	377,900	377,900	377,900	377,900	377,900	377,900
Outside City											
Residential			38,532	11,698	11,202	9,400	10,400	10,400	10,400	10,400	10,400
Commercial/Industrial			5,205	4,913	4,936	6,600	6,000	6,000	6,000	6,000	6,000
Subtotal Retail	3,190,402	3,142,455	2,884,524	3,023,306	3,144,460	2,851,500	3,048,900	3,048,900	3,048,900	3,048,900	3,048,900
WHOLESALE											
SSJISD	824,759	861,009	902,767	958,593	946,047	961,200	979,300	991,300	991,300	991,300	991,300
National Beef Leathers	215,225	225,690	290,546	308,733	439,217	490,800	490,800	490,800	490,800	490,800	490,800
Triumph Foods	1,159,206	1,088,637	1,013,746	1,002,465	969,712	999,800	999,800	999,800	999,800	999,800	999,800
Subtotal Wholesale	2,199,190	2,175,336	2,207,059	2,269,791	2,354,976	2,451,800	2,469,900	2,481,900	2,481,900	2,481,900	2,481,900
Total System	5,389,592	5,317,791	5,091,583	5,293,097	5,499,435	5,303,300	5,518,800	5,530,800	5,530,800	5,530,800	5,530,800

(a) FY 2016 contributed volume is based on average of first eight months of fiscal year

3.3 WASTEWATER SERVICE CHARGE REVENUES UNDER EXISTING RATES

Estimates of revenues from wastewater service charges are based on projections of customer growth, billable wastewater volume, and surcharge billings. The estimates are obtained by applying the existing service charge and volume charge for each customer class to the projected number of customers and estimated billable wastewater volume. Approximately 99 percent of the retail customers pay the inside city rate while 1 percent pay the outside city rate. The City currently has ten retail surcharge customers, five of which have significant extra strength surcharges. Surcharge revenue in FY 2015 decreased 49 percent to an estimated $634,660. Multiple customers have significantly reduced their overage pounds resulting in surcharge revenue from FY 2014 to FY 2016 to decrease by 67 percent. Revenue is projected to be $413,400 from FY2017 (based on existing rates) through the remainder of the study period. As shown in Table 4, wastewater billed revenue from sales under existing rates are projected to be $25,545,300 in FY 2016, and increase to $26,349,200 in FY 2021.

3.4 OTHER REVENUE

Historical and projected miscellaneous operating and non-operating revenues are shown in Table 5. Miscellaneous operating revenues consist of Sewer Service Penalties, System Development Fees, BUILD Credit Revenue and Other Revenue. Miscellaneous revenue is projected to total about $1,085,600 in FY 2016, and remain fairly steady through the study period, with projected FY 2021 miscellaneous revenue of approximately $1,014,900.

As shown in Table 5, the City is receiving tax credits related to the Missouri Development Finance Board (MDFB) BUILD bonds. The BUILD program provides financial incentives for the location or expansion of large business projects that will result in specified levels of new jobs within a three-year period. The revenue is used to pay down existing debt service, specifically the 2004C Revenue Bonds.

The revenues shown in Table 5 do not include earnings from the investment of available cash balances. Interest earnings are considered in a subsequent section of this report.

Table 4 Historical and Projected Billed Revenue from Sales (Existing Rates)

Fiscal Years Ending June 30

Customer Class	Historical					Estimated	Projected				
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
	$	$	$	$	$	$	$	$	$	$	$
RETAIL											
Residential	8,970,439	9,941,598	10,926,734	12,139,563	13,548,199	14,422,800	14,981,700	14,981,700	14,981,700	14,981,700	14,981,700
Commercial/Industrial	4,888,730	5,454,130	5,044,030	6,057,964	7,162,555	7,672,800	7,874,000	7,874,000	7,874,000	7,874,000	7,874,000
Extra Strength Surcharges	508,077	723,851	1,281,068	1,251,538	634,660	413,400	413,400	413,400	413,400	413,400	413,400
Septage				57,785	129,456	135,600	135,600	135,600	135,600	135,600	135,600
Subtotal Retail	14,367,246	16,119,579	17,251,832	19,506,850	21,474,870	22,644,600	23,404,700	23,404,700	23,404,700	23,404,700	23,404,700
WHOLESALE											
SSJISD	995,505	1,036,998	1,178,478	1,381,013	1,364,209	1,648,500	1,684,100	1,692,300	1,692,300	1,692,300	1,692,300
National Beef Leathers	56,384	52,200	116,600	144,600	174,200	250,000	250,000	250,000	250,000	250,000	250,000
Triumph Foods	449,690	464,374	567,774	647,093	769,108	1,002,200	1,002,200	1,002,200	1,002,200	1,002,200	1,002,200
Subtotal Wholesale	1,501,580	1,553,572	1,862,852	2,172,706	2,307,517	2,900,700	2,936,300	2,944,500	2,944,500	2,944,500	2,944,500
Total System	15,868,826	17,673,151	19,114,684	21,679,555	23,782,387	25,545,300	26,341,000	26,349,200	26,349,200	26,349,200	26,349,200

Table 5 Historical and Projected Miscellaneous Revenues

Fiscal Years Ending June 30

Description	Historical					Estimated	Projected				
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
	$	$	$	$	$	$	$	$	$	$	$
Miscellaneous Revenues											
Sewer Service Penalties	255,595	303,000	370,974	422,973	647,983	636,000	550,000	550,000	550,000	550,000	550,000
Sewer System Development Fees	27,687	30,000	41,316	27,700	31,500	36,000	30,000	34,000	38,000	42,000	46,000
Refund Prior Year Expenditures	0	0	-3,823	233	0	0	0	0	0	0	0
BUILD Credit Revenue	383,100	387,700	381,400	380,100	378,900	378,700	387,700	386,700	385,500	384,400	384,400
Other Revenue	89,400	36,400	77,500	132,300	254,000	34,900	35,300	35,100	34,900	34,700	34,500
Total Miscellaneous Revenue	755,782	757,100	867,368	963,306	1,312,383	1,085,600	1,003,000	1,005,800	1,008,400	1,011,100	1,014,900

4 Revenue Requirements

Revenues required to provide for the continued operation of the Sewer Utility must be sufficient to meet the cash requirements for operation and maintenance expense, principal and interest payments on bonded debt, routine annual capital improvements and replacements, and other major capital expenditures that are not financed through debt. In addition, revenues must be adequate to meet applicable rate covenants included in the City's ordinances authorizing the outstanding revenue bonds. The revenue requirements developed in this report incorporate the financial conditions as of July 1, 2015, and are projected for the five-year period ending June 30, 2021.

4.1 OPERATING EXPENSE

Operating expenses of the Sewer Utility include the cost of operating and maintaining the sewer collection and treatment facilities, routine capital expenditures, and transfers to other City departments or funds for services provided. These expenses are classified as Wastewater Plant Administration, Wastewater Treatment, Laboratory, and Sewer Maintenance. Other operating expenses include Routine Capital Expense and Transfers. Because these costs are a continuing normal annual obligation of the utility, they are met from operating revenue as they are incurred.

Projected operating expense is summarized in Table 6. Operating expense for FY 2016 is estimated to be $14,922,500. This is about a 4.6 percent increase from FY 2015 actual direct expenses of $14,260,400. This increase is not primarily attributed to one specific increase, but to numerous small increases over several areas. Direct operating expense for FY 2017 is budgeted to be $14,289,500. This is a 4.2 percent decrease over the FY2016 total. Direct operating expenses are projected to increase an average of 3 percent per year to $ 16,230,800 in FY 2021.

The City is focused on reducing bad debt and, as mentioned in the Executive Summary, has taken several steps to help reduce it. Bad debt is budgeted to decrease from $1.1 million in FY 2016 to $1 million in the FY 2017. It should be noted that the FY 2016 results are an improvement over the original FY 2016 budget of $1.4 million and $300,000 of the FY 2016 amount is due to one customer's bankruptcy. This rate study is based on the assumption that the City will continue to reduce bad debt year over year. This study assumes a decrease of $85,000 in FY 2018, from the 2017 budgeted amount of $1 million, and continues to decrease until it reaches $750,000 in 2020.

Routine capital expenditures are purchases from the operating budget that are incurred annually for normal replacement of equipment and system expenses. As such, they are funded from annual revenues. Routine capital expenses are summarized in Table 6. The FY 2017 budget includes $784,700 for various in-house rehabilitation projects.

In addition, the Sewer Utility transfers monies annually to the City's General Fund to pay the utility's allocated share of the City's general and administrative costs. The Sewer Utility also transfers monies to the Computer Network Fund that provides monies for replacement of computers. In FY 2017, the basis for transfers to the General Fund is based on portions of the GIS system and costs for claims technician ($86,000) and a payment in lieu of tax (PILOT). The proposed budget estimates PILOT transfers of $1.72 million. Computer Network Fund may vary from year to year based on need; $ 30,500 is budgeted in FY 2017 with projected growth of about 3 percent annually. The Sewer Utility also transfers monies to the City's Aviation Department to pay for costs related to sludge disposal at the City airport. The Aviation Department transfers are budgeted for $48,300 in FY 2017 and are projected to be eliminated after FY 2017.

Table 6 Projected Operating Expense

Fiscal Years Ending June 30

Line No.	Description	Historical			Estimated	Budgeted	Projected			
		2013	2014	2015	2016	2017	2018	2019	2020	2021
				$	$	$	$	$	$	$
	Operation & Maintenance Expense									
1	Wastewater Plant Administration	1,565,000	2,753,400	2,860,700	2,530,900	2,328,300	2,281,600	2,235,700	2,196,100	2,237,800
2	Wastewater Treatment	5,083,400	5,578,400	6,495,300	6,299,500	6,645,800	6,905,800	7,191,900	7,488,200	7,798,600
3	Laboratory	545,100	604,700	622,100	687,800	586,600	611,200	637,100	664,200	692,700
4	Sewer Maintenance	1,538,500	1,760,100	1,807,400	1,992,100	2,062,500	2,143,500	2,228,300	2,314,800	2,405,600
5	Subtotal Direct O & M Expense	8,732,000	10,696,600	11,785,500	11,510,300	11,623,200	11,942,100	12,293,000	12,663,300	13,134,700
	Transfers									
6	General Fund	1,423,700	0	86,000	86,000	86,000	88,500	91,200	93,900	96,700
7	PILOT	0	1,535,500	1,441,900	1,743,900	1,716,800	1,905,700	2,001,000	2,041,000	2,081,800
8	Computer Network	22,900	22,900	30,500	28,300	30,500	31,400	32,400	33,400	34,400
9	Aviation	48,300	48,300	48,300	48,300	48,300	0	0	0	0
10	Subtotal Transfers	1,494,900	1,606,700	1,606,700	1,906,500	1,881,600	2,025,600	2,124,600	2,168,300	2,212,900
11	Total Direct O&M and Transfers	10,226,900	12,303,300	13,392,200	13,416,800	13,504,800	13,967,700	14,417,600	14,831,600	15,347,600
12	Routine Capital Expense	779,500	1,060,700	868,200	1,505,700	784,700	808,200	832,500	857,500	883,200
13	Total Operating Expense	11,006,400	13,364,000	14,260,400	14,922,500	14,289,500	14,775,900	15,250,100	15,689,100	16,230,800

4.2 CAPITAL IMPROVEMENT PROGRAM

The Sewer Utility's capital improvement program (CIP) provides for the major repair and replacement of existing facilities, as well as treatment plant expansions, required major environmental upgrades, and collection system extensions to provide service to new customers. As shown in Table 7, the proposed capital improvement program totals $90.5 million in FY 2017 (Line 68). The major project scheduled for FY 2017 is the construction phase of the project for Stormwater Separation Conduits in the Blacksnake watershed ($70 million).

The CIP shown in Table 7 is divided into six major sections: Environmental and Regulatory projects, CMOM Projects, CSO Long Term Control Plan projects, System Expansion projects, Collection System capital projects, and Water Protection Facility (WPF) capital projects.

4.2.1 Environmental and Regulatory Projects

The first section of Table 7 shows the projects classified as Environmental and Regulatory Projects. This section contains projects that are mandated by MDNR as part of the City's NPDES permit. The two projects for this section are the final components of the Ammonia Project ($2 million) in FY 2016 through FY 2017 and the KCPL/WPF Power Upgrades ($1.5 million) in FY 2017.

4.2.2 Capacity, Management, Operation and Maintenance (CMOM) Projects

The next section of Table 7 shows the projects classified as Capacity, Management, Operation and Maintenance (CMOM) Projects. CMOM is a program that is mandated in the City's NPDES permit. It provides documentation and planning which demonstrates actions being taken to prevent overloading of wastewater treatment plants, maintenance of the collection system, and the overflow prevention of sanitary sewage into lakes and streams. The specific CMOM projects are shown on Lines 4 through 21 of Table 7. All CMOM projects are forecast to be funded with annual revenues and not debt financed.

4.2.3 CSO Long Term Control Plan Projects

The focus of CSO LTCP projects included in the 5-year study period is to remove excess stormwater from entering the collection system with Stormwater Separation Conduits in the Blacksnake watershed. The total amount forecast for these projects from FY 2016 through FY 2021 is $77.3 million and will be financed with operating revenue and State Revolving Fund (SRF) bonds.

4.2.4 System Expansion Projects

In July 2007, the Department of Public Works was directed by the City Council to implement a plan to extend sewer mains throughout the city. Due to a lack of demand and economic conditions, few expansion projects have been executed to date. A total of $3.6 million is scheduled during the study period.

4.2.5 Capital Projects - Collection System and WPF

Lines 29 through 67 of Table 7 show the major capital projects necessary to maintain the sewer collection system and the existing water protection facility (WPF). These sections are comprised of projects are necessary to operate and maintain the collection system and WPF in a safe and efficient manner. The major projects in FY 2017 are for the Jules Street Diversion Box Repair ($1.2 million), Odor Control – Parkway A ($3 million), CSO Sluice Gate Repairs – Charles Street ($2.2 million), and WPF Levee Stormwater Pump Station ($5 million).

Table 7 Proposed Capital Improvement Program

Fiscal Years Ending June 30

Line No.	Description	Estimated 2016	Projected 2017	2018	2019	2020	2021	Total
		$	$	$	$	$	$	$
	ENVIRONMENTAL AND REGULATORY PROJECTS							
1	Ammonia Project	1,045,075	975,900	-	-	-	-	2,020,975
2	KCP&L and WPF Power Upgrades - Phase 2	-	1,474,000	-	-	-	-	1,474,000
3	**Subtotal**	**1,045,075**	**2,449,900**	-	-	-	-	**3,494,975**
	CMOM Projects							
4	TV Van	-	432,700	-	-	228,000	-	660,700
5	Other Rolling Stock - Sewer Maint.		-	-	621,000	-	-	621,000
6	Portable TV Unit	-	-	-	98,000	-	-	98,000
7	Easement Jet Machine	-	-	295,000	-	-	-	295,000
8	Purchase 50% of Street Sweeper A		-	-	196,000	-	-	196,000
9	Purchase 50% of Street Sweeper B	-	188,000		-	-	-	188,000
10	CMOM Cast-in-place Pipe Lining	365,100	376,100	380,000	391,000	403,000	415,000	2,330,200
11	CMOM Increased Root Control & Line Cleaning	128,000	126,700	127,000	130,000	134,000	138,000	783,700
12	CMOM Emergency Collection System Repairs	554,100	570,700	570,000	587,000	605,000	623,000	3,509,800
13	Major Mainline Sewer Repairs	54,500	56,100	53,000	55,000	56,000	58,000	332,600
14	CMOM Spray on Liner, Manhole, & Sewer Line Repair	183,100	188,600	185,000	190,000	196,000	202,000	1,144,700
15	CMOM Cave in Repairs	98,600	101,600	101,000	104,000	108,000	111,000	624,200
16	Large Diameter Sewer Rehab (for Sinking Fund - spend every five yea	500,000	500,000	500,000	500,000	-	-	2,000,000
17	I/I reduction	562,800	579,700	591,000	621,000	652,000	684,000	3,690,500
18	Manhole Inspection program from O & M	59,000	59,000	59,000	62,000	65,000	-	304,000
19	GPS Equipment	-	43,000	44,000	47,000	49,000	51,000	234,000
20	Update Aerial Photography	-	-	44,000	-	49,000	-	93,000
21	**Subtotal**	**2,505,200**	**3,222,200**	**2,949,000**	**3,602,000**	**2,545,000**	**2,282,000**	**17,105,400**
	CSO LONG TERM CONTROL PLAN PROJECTS							
22	Green Solutions	-	400,000	207,000	217,000	228,000	239,000	1,291,000
23	Water Quality Education Program from O & M	75,000	75,000	81,000	85,000	90,000	-	406,000
24	Blacksnake Stormwater Separation Conduit	5,500,000	70,000,000	-	-	-	-	75,500,000
25	Eastside Wastewater	50,000	-	-	-	-	-	50,000
26	**Subtotal**	**5,625,000**	**70,475,000**	**288,000**	**302,000**	**318,000**	**239,000**	**77,247,000**
	SYSTEM EXPANSION PROJECTS							
27	System Expansion Projects	34,889	1,465,111	593,500	1,551,000	-	-	3,644,500
28	**Subtotal**	**34,889**	**1,465,111**	**593,500**	**1,551,000**	-	-	**3,644,500**
	CAPITAL PROJECTS - COLLECTION SYSTEM							
29	Brown's Branch PS - Pump Replacement	-	-	148,000	-	-	-	148,000
30	Brown's Branch PS - MCC replacement	-	80,000	-	-	-	-	80,000
31	Brown's Branch PS - Pump Replacement	-	-	52,000	-	-	-	52,000
32	Roof - Brown's Branch PS	-	-	7,000	-	-	11,000	18,000
33	SSJISD PS - Replace VS Drives w/ EM Mag Drives	-	-	-	-	1,551,000	-	1,551,000
34	Odor Control - Parkway A	-	3,000,000	-	-	-	-	3,000,000
35	Rosecrans Lagoon Liner Replacement	49,123	950,877	-	-	-	-	1,000,000
36		**49,123**	**4,030,877**	**207,000**	-	**1,551,000**	**11,000**	**5,849,000**

Table 7 Proposed Capital Improvement Program (Continued)

Fiscal Years Ending June 30

Line No.	Description	Estimated 2016	Projected 2017	2018	2019	2020	2021	Total
		$	$	$	$	$	$	$
	CAPITAL PROJECTS - Water Protection Facility							
36	ICP/Mass Spectr. Equipment	140,000	-	-	-	-	-	140,000
37	Roof - Admin Bldg	-	-	251,000	-	-	-	251,000
38	Digester Heat Exchangers (X - 6)	-	-	-	665,000	-	-	665,000
39	Replace Gas Burnoff	-	67,000	-	-	-	-	67,000
40	Sludge Piping Replacement	-	-	-	-	-	171,000	171,000
41	Primary Sludge PS - Roofs	13,000	-	-	-	-	-	13,000
42	HVAC - Digester Complex	-	-	148,000	-	-	-	148,000
43	Motor Control Room (Belt Press Room	-	-	-	-	111,000	-	111,000
44	Replace Raw Sludge Magnetic Flowmeter	-	-	-	-	-	14,000	14,000
45	42" Plant Influent Magnetic Flowmeter	-	-	62,000	-	-	-	62,000
46	Primary Clarifier Complex - Piping Replacement	-	-	22,000	-	-	26,000	48,000
47	Primary Clarifier Complex - Replace Progressive Cavity Pumps	-	-	22,000	-	-	26,000	48,000
48	Plant PS - Replace Centrifugal Raw Wastewater Pumps (X - 3)	-	-	-	177,000	-	-	177,000
49	Plant PS - Roof	-	-	10,000	-	-	-	10,000
50	DAF - Rehab Flotation Equipment	-	-	148,000	-	-	-	148,000
51	DAF Motor Control Center	-	-	-	-	-	86,000	86,000
52	Roof - Flotation Building	-	-	-	70,000	-	-	70,000
53	Replacement Diffusers	-	425,000	-	372,000	-	-	797,000
54	Chemical Precipitation - Roof	-	-	7,000	-	-	-	7,000
55	Rehab Aeration Arms	-	-	-	586,000	-	-	586,000
56	Replace Butterfly Valves	-	-	16,000	-	-	-	16,000
57	Additional Centrifugal Blowers	-	-	-	1,773,000	-	-	1,773,000
58	Blower Building - Roof	-	-	-	70,000	-	-	70,000
59	Roof Repairs - Intermediate Pumping Station	-	-	25,000	-	-	-	25,000
60	Return Sludge PS #1 - Motor Control Center	-	-	-	74,000	-	-	74,000
61	Return Sludge PS #2 - Motor Control Center	-	-	-	74,000	-	-	74,000
62	CSO Sluice Gate Repairs - Charles Street	-	2,183,483	-	-	-	-	2,183,483
63	Administration Building Maintenance	1,008,199	-	-	-	-	-	1,008,199
64	Mo Ave Sewer Rehab	-	-	3,000,000	-	-	-	3,000,000
65	WPF Levee Stormwater PS	-	5,000,000	-	-	-	-	5,000,000
66	Jules Street Diversion Box Repair	-	1,180,805	-	-	-	-	1,180,805
67	**Subtotal**	**1,161,199**	**8,856,288**	**3,711,000**	**3,861,000**	**111,000**	**323,000**	**18,023,487**
68	**Total**	**10,420,486**	**90,499,376**	**7,748,500**	**9,316,000**	**4,525,000**	**2,855,000**	**125,364,362**
	SUMMARY							
69	**Financed with 2014B**	1,045,075	975,900	-	-	-	-	**2,020,975**
70	**Financed with 2015A**	1,107,322	4,315,165	-	-	-	-	**5,422,487**
71	**Total financed through SRF Bonds**							
72	Environmental/Regulatory Projects	-	-	-	-	-	-	-
73	CSO LTCP Projects	5,500,000	70,000,000	-	-	-	-	75,500,000
74	Collection System Capital Projects	-	-	-	-	-	-	-
75	WWTP Capital Projects	-	-	-	-	-	-	-
76								**75,500,000**
	Total financed through Conventional Bonds							
77	Environmental/Regulatory Projects	-	-	-	-	-	-	-
78	CMOM Projects	-	-	-	-	-	-	-
79	CSO LTCP Projects	-	-	-	-	-	-	-
80	System Expansion Projects	-	-	-	-	-	-	-
81	Collection System Capital Projects	-	3,000,000	-	-	1,551,000	-	4,551,000
82	WWTP Capital Projects	-	5,000,000	3,000,000	-	-	-	8,000,000
								12,551,000
83	**Total financed through Operating Funds**	2,768,089	7,208,311	4,748,500	9,316,000	2,974,000	2,855,000	29,869,900
84	Total Annual Expenditures	10,420,486	90,499,376	7,748,500	9,316,000	4,525,000	2,855,000	**125,364,362**

4.3 FINANCING PLAN

Total planned investment from FY 2016 through FY 2021 is $125.4 million, as shown on Table 7. The CIP financing plan is presented in Table 8. The funding sources are summarized on Lines 1 through 6 and the Capital Fund requirements, or use of funds, are shown on Lines 7 through 12. The Capital Fund had a balance of $7.4 million, as shown in Table 7 Line 69 and 70, is from the 2014B ($5,755,000) and 2015A ($10,300,000) Revenue bonds. The loans with remaining funds was used to reimburse cash reserves and were included as part of the beginning balance in Table 10 Line 27 (Series 2011($22,275,000) $1.3 million).

In April 2011 and again in February 2015, the voters of St. Joseph voted for bond approval that allows the city to apply to the Missouri Department of Natural Resources to participate in its SRF program. The SRF program provides low interest loans that have lower interest rates than

conventional bond issues. The projected interest rate and term for future SRF bonds are 1.3% for 30 years. This compares to 20-year conventional bonds with a 3.5%-5.0% interest rates used in this study. Bonding assumptions were provided by the City's advisors.

The SRF bonds are projected to be used for the major capital projects in the study period, as shown in Table 7 Lines 78-82. It is not guaranteed that the City will receive the SRF funding for each of the projects as many communities compete for a limited pool of funds each year. This study assumes that SRF funds will be available for all projects requesting SRF funding. Should some projects be denied SRF funding, additional conventional bonds may be required which could impact future rate increases.

The CIP presented in Table 7 is anticipated to be funded with the remaining proceeds from the 2014B revenue bonds ($2 million) and 2015A revenue bonds($5.4 million), as well as SRF Bonds in 2016 ($10 million) and 2017 ($80 million), and conventional bonds in 2017 ($12 million), and 2019 ($1.7 million).

The Operating Fund will be used to fund projects not included in the bond issues, such as the CMOM Program, CSO Green Solutions, and system expansion projects. The operating fund can also be used to offset minor contingencies on the proposed projects.

Table 8 Capital Flow of Funds

Fiscal Years Ending June 30

Line No.	Description	Estimated 2016	Projected 2017	2018	2019	2020	2021	Total
		$	$	$	$	$	$	$
	SOURCE OF FUNDS							
1	Funds on Hand at Beginning of Year	8,704,500	5,291,100	13,000,000	0	1,551,000	0	8,704,500
2	Transfer from Operating Fund	2,768,200	7,208,300	4,748,500	9,316,000	2,974,000	2,855,000	29,870,000
3	Conventional Bond at Par	0	11,997,000	0	1,692,000	0	0	13,689,000
4	Net Short Term Bond	0	0	0	0	0	0	0
5	SRF Loan	10,000,000	80,000,000	0	0	0	0	90,000,000
6	Total Funds Available	21,472,700	104,496,400	17,748,500	11,008,000	4,525,000	2,855,000	142,263,500
	USE OF FUNDS							
7	Major Capital Improvement Program	10,420,500	90,499,400	7,748,500	9,316,000	4,525,000	2,855,000	125,364,400
8	Bond Issuance Costs	0	114,200	0	16,500	0	0	130,700
9	Bond Reserve Fund	0	882,800	0	124,500	0	0	1,007,300
10	Net Payoff on Other Loans	0	0	10,000,000	0	0	0	10,000,000
11	Reimbursement to Operating Fund	5,761,100	0	0	0	0	0	5,761,100
12	Total Use of Funds	16,181,600	91,496,400	17,748,500	9,457,000	4,525,000	2,855,000	142,263,500
13	Funds on Hand at End of Year	5,291,100	13,000,000	0	1,551,000	0	0	0

4.4 DEBT SERVICE REQUIREMENTS

Table 9 presents a summary of the annual total of the monthly deposits into the Sewer Debt Fund for both the existing and proposed revenue bonds. The financial plan presented in this report uses the $10 million SRF bond to fund design work on Blacksnake and that will be paid off early with the proceeds from the $80 million SRF bond. The forecast projects a FY 2016 and FY 2017 SRF bond issue of $10 million and $80 million for the for Stormwater Separation Conduits in the Blacksnake watershed and they are projected to have a 30-year term and an average interest rate of 1.3 percent, plus a 1 percent administration fee.

Conventional bonds will be used to fund the remaining projects that are not covered with cash and unlikely to receive SRF funding. There are 4 projects included in these bond issuances for various major replacement or rehabilitation projects at the WPF. The conventional bond issues are projected in 2017 ($12 million) and 2019 (1.7 million). The forecast assumes 4.0 percent interest for 20 years, consistent with prior year assumptions provided by the City's financial advisor.

Annual debt service payments increase significantly in FY 2017 due to the full principal and interests payments starting on the 2014 (Ammonia Project) and 2014A (Whitehead Project) SRF loans. Annual debt service increases from $6.6 million in FY 2016 to $12.6 million in FY 2017. Annual debt service increases to $16.9 million by FY 2021.

Table 9 Existing and Proposed Debt Service

Fiscal Years Ending June 30

Description	2016	2017	2018	2019	2020	2021
	$	$	$	$	$	$
State Environmental Improvement & Energy Resources Authority, Series 1997	540,700	538,800	0	0	0	0
Sewer System Revenue Bonds Series 2003	59,400	62,500	60,300	58,100	60,900	58,400
Sewer System Revenue Bonds Series 2004	835,800	837,300	838,300	838,600	838,400	837,500
Sewer System Revenue Bonds Series 2011	1,591,900	1,593,900	1,594,100	1,593,300	1,591,500	1,593,700
State Revolving Fund Loan Series 2013	939,600	940,200	939,400	940,300	938,900	939,100
State Revolving Fund Loan Series 2014	574,500	3,678,400	3,681,000	3,682,100	3,684,700	3,684,500
Series 2014A	171,400	1,535,500	1,550,000	1,565,000	1,579,500	1,593,800
Conventional Bonds Series 2014B	382,700	378,700	379,700	380,600	386,400	387,000
Series 2015A	718,200	719,100	718,700	898,100	721,300	722,300
Series 2015B	819,000	1,534,300	2,096,000	2,098,400	2,098,800	2,099,300
Subtotal Existing Annual Debt Service	6,633,200	11,818,700	11,857,500	12,054,500	11,900,400	11,915,600
PROPOSED BONDS						
Proposed SRF Bonds FY 2016 Issue ($10.0 million)	0	397,500	623,400	624,400	0	0
Proposed SRF Bonds FY 2017 Issue ($80.0 million)	0	0	0	2,014,500	4,012,500	3,990,300
Proposed Conventional Bonds FY 2017 Issue ($12.0 million)	0	359,900	882,800	882,800	882,800	882,800
Proposed Conventional Bonds FY 2019 Issue ($1.7 million)	0	0	0	50,800	124,500	124,500
Subtotal Proposed Annual Debt Service	0	757,400	1,506,200	3,572,500	5,019,800	4,997,600
Total Annual Debt Service	6,633,200	12,576,100	13,363,700	15,627,000	16,920,200	16,913,200

5 Summary of Revenue Requirements and Proposed Adjustment to Revenue

The total revenue requirements of the Sewer Utility consist of operation and maintenance expense, debt service requirements, routine annual capital outlays, and cash financing of major capital improvements. Revenue levels must also be sufficient to meet existing and future revenue bond covenants that net revenues in each fiscal year be not less than 110 percent of the debt service requirement. It is also essential that the Sewer Utility maintain sufficient cash balances to provide for Operating Fund encumbrances, offset fluctuations in revenues and expenditures, and provide for funds for use in emergencies. Charges for wastewater service provide the principal source of revenues to meet these requirements with additional revenue being derived from miscellaneous operating and non-operating income and from interest earnings.

Table 10 combines the projected revenues and revenue requirements into a pro forma operations statement or cash flow summary. The cash flow summary provides a basis for evaluation of the timing and size of wastewater revenue increases that are indicated to be necessary to meet the projected revenue requirements for the period FY 2017 through FY 2021. Projected revenues from wastewater service charges under existing rates are shown on Lines 1 through 4. The indicated total additional revenues under proposed rate increases are shown on Line 10. The increased revenues are the result of the rate increases shown on Lines 5 through 9. The revenue increase effective dates shown on Lines 5 through 9 of Table 10 indicate when additional revenue associated with the revenue increases will be realized. These revenue increases are primarily needed to cover large increases in debt service due to implementation of mandated regulatory projects and the CSO LTCP, in addition to higher cash financed capital projects, which reduce net revenues available for debt coverage purposes, and net operating reserve balances available to cover a working capital allowance.

Projected miscellaneous operating revenues from Table 5 are shown on Line 12. Interest income from the Operating and Capital Fund balances are shown on Line 13. These monies are projected to yield an average annual interest rate of 1.0 percent for the period. Interest income on the Bond Reserve Fund, shown on Line 14, is also calculated using a 1.0 percent interest rate. With the proposed revenue increases, total Sewer Utility revenues are projected to range from $26,875,400 in FY 2016 to $36,576,700 in FY 2021 (Line 15).

Revenue requirements for operation and maintenance expense, including transfers, debt service, routine annual capital outlays, and cash financed capital projects are taken from Tables 6, 8, and 9 and are summarized on Lines 16 through 24. These annual operating requirements are projected to increase from $ 18,540,700 in FY 2016 to $ 35,999,000 in FY 2021, as shown on Line 25 of Table 10.

The projected net annual operating balance is shown on Line 26 and ranges from a low of negative $5.1 million in FY 2019 to a high of approximately $8.3 million in FY 2016. The 2016 balance includes a $5.7 million reimbursement to the operating fund from the 2016 SRF loan for prior capital project expenses. Any annual surpluses accrued will be used to finance future capital projects and reduce the amount of future bond issues. The end of year operating cash balances shown on Line 28 include monies that have been encumbered and which, by ordinance, must be available to the Sewer Utility. The City's current policy on operating reserves is 120 days of O&M expenses, which is approximately $5 million on Line 28-29. This serves two primary purposes: first, with the substantial amount of new debt the City is forecast to take on in the coming years, it is prudent utility practice to have additional liquidity to offset fluctuations in revenues and expenditures and allow for contingencies; and second, it provides the City with a stronger base for the City to maintain its current credit rating. With the significant amount of debt the City plans to

issue to fund its CSO LTCP and mandated regulatory projects, there is a risk the rating agencies could lower the City's credit rating, possibly increasing the cost of issuing additional debt.

Table 10 Operating Flow of Funds

Fiscal Years Ending June 30

Line No.	Operating Fund		Estimated	Projected				
			2016	2017	2018	2019	2020	2021
			$	$	$	$	$	$
	Revenue							
1	Retail Revenue Under Existing Rates (Table 4)		22,644,600	23,404,700	23,404,700	23,404,700	23,404,700	23,404,700
2	SSJISD Under Existing Rates (Table 4)		1,648,500	1,684,100	1,692,300	1,692,300	1,692,300	1,692,300
3	National Beef Leathers Under Existing Rates (Table 4)		250,000	250,000	250,000	250,000	250,000	250,000
4	Triumph Foods Under Existing Rates (Table 4)		1,002,200	1,002,200	1,002,200	1,002,200	1,002,200	1,002,200
	Additional Sewer Revenue Required:							
	Revenue Increase Effective Date	Annualized Revenue Increase (a)						
5	August 1, 2016	11.00%		2,656,100	2,898,000	2,898,400	2,898,400	2,898,400
6	August 1, 2017	11.00%			2,949,100	3,217,200	3,217,200	3,217,200
7	August 1, 2018	5.00%				1,488,000	1,623,200	1,623,200
8	August 1, 2019	2.00%					624,900	681,800
9	August 1, 2020	2.00%						637,400
10	Total Additional Sewer Revenue		-	2,656,100	5,847,100	7,603,600	8,363,700	9,058,000
11	Total Sewer Revenue		25,545,300	28,997,100	32,196,300	33,952,800	34,712,900	35,407,200
12	Miscellaneous Revenue (Table 5)		1,085,600	1,003,000	1,005,800	1,008,400	1,011,100	1,014,900
13	Interest Income - Operating & Capital Fund (b)		140,000	123,000	73,000	31,000	35,000	40,000
14	Interest Income - Bond Reserve Fund		104,500	108,900	113,400	114,000	114,600	114,600
15	Total Operating Fund Revenues Available		26,875,400	30,232,000	33,388,500	35,106,200	35,873,600	36,576,700
	Revenue Requirements							
16	Operation and Maintenance Expense (Table 6) (c)		13,416,800	13,504,800	13,967,700	14,417,600	14,831,600	15,347,600
17	Net Revenues		13,458,600	16,727,200	19,420,800	20,688,600	21,042,000	21,229,100
	Debt Service							
18	Existing Debt Service (Table 9)		6,633,200	11,818,700	11,857,500	12,054,500	11,900,400	11,915,600
19	Proposed Bond Debt Service (Table 9)		-	757,400	1,506,200	3,572,500	5,019,800	4,997,600
20	Total Debt Service		6,633,200	12,576,100	13,363,700	15,627,000	16,920,200	16,913,200
21	Less: Interest on EIERA Reserve Fund		(29,100)	(14,900)	-	-	-	-
22	EIERA Administrative Fee		7,000	4,000	-	-	-	-
23	Net Effective Debt Service		6,611,100	12,565,200	13,363,700	15,627,000	16,920,200	16,913,200
24	Routine Capital Outlay (Table 6)		1,505,700	784,700	808,200	832,500	857,500	883,200
24	Transfer to (from) Capital Fund		(2,992,900)	7,208,300	4,748,500	9,316,000	2,974,000	2,855,000
25	Total Operating Requirements		18,540,700	34,063,000	32,888,100	40,193,100	35,583,300	35,999,000
26	Net Annual Balance		8,334,700	(3,831,000)	500,400	(5,086,900)	290,300	577,700
27	Beginning of Year Balance		4,954,000	13,288,700	9,457,700	9,958,100	4,871,200	5,161,500
28	End of Year Balance		13,288,700	9,457,700	9,958,100	4,871,200	5,161,500	5,739,200
29	Desired Working Capital Allowance (d)		4,411,000	4,439,900	4,592,100	4,740,000	4,876,100	5,045,800

(a) Average annual revenue adjustment percentage. Revenues reflect nine effective months in the first year of revenue adjustment
(b) Interest earnings based on budget and projected fund balances
(c) Includes Operation & Maintenance Expense and Transfers
(d) Working capital allowance calculated as 120 days operation and maintenance expense

5.1 DEBT SERVICE COVERAGE

For existing debt, an annual debt service coverage test must be met regardless of whether additional bonds will be issued during the study period. The annual coverage test compares annual net revenues with annual debt service. Bond covenants stipulate that annual Net Revenues Available for Debt Service must be at least 110 percent of annual principal and interest payments.

5.2 RATE COVENANT

A summary of the annual revenue bonds test found in the bond indentures for the Series 1992 Bonds and similarly, in Section 902 of Article IX of the outstanding EIERA bonds, is as follows:

> The City will fix, establish, maintain and collect such rates and charges for the use and services furnished by or through the System as will produce Revenues sufficient to (a) pay the costs of the operation and maintenance of the System; (b) pay the principal of and interest on the Bonds as and when the same become due at the Maturity thereof or any Interest Payment Date; (c) enable the City to have in each fiscal year Net Revenues not less than 110 percent of the amount required to be paid in such fiscal year on account of both principal of and interest on all System Revenue Bonds at the time outstanding; and (d) provide reasonable and adequate reserves for the payment of the Bonds and the interest thereon and for the protection and benefit of the System as provided in the Ordinance. The City will require the prompt payment of accounts for service rendered by or through the System and will promptly take whatever action is legally permissible to enforce and collect delinquent charges. The City will, from time to time as often as necessary, in accordance with and subject to applicable legal requirements, revise the rates and charges aforesaid in such manner as may be necessary or proper so that the Net Revenues will be sufficient to cover the obligations of the City under the provisions of the Ordinance. If in any fiscal year Net Revenues are less than as hereinbefore provided, the City will immediately employ a Consultant to make recommendations with respect to such rates and charges. A copy of the Consultant's report and recommendations shall be filed with the City Clerk and with the Purchaser of the Bonds and shall be furnished to any Owner of the Bonds requesting a copy of the same, at the cost of such Owner. The City is required, to the extent feasible, to follow the recommendations of the Consultant.

In order for parity bonds to be issued, two additional bonds tests exist, only one of which must be met for parity to be attained. The historical additional bonds test stipulates that net revenues available for debt service (adjusted as defined in the bond resolution) be 110 percent of average annual debt service. The future additional bonds test requires that net revenues available for debt service (adjusted as defined in the bond resolution) be 110 percent of average annual debt service for the average of the two years following commercial operation of the capital improvements financed from the proceeds of the issue.

The financial plan demonstrated herein assumes issuance of bonds in fiscal year 2016, 2017, and 2019. For purposes of this report, 110 percent coverage is assumed for all future bond issues. A summary of the EIERA, SRF, and other conventional bonds additional bonds tests is as follows:

1. The City shall not be in default in the payment of principal of or interest on any Bonds or the Parity bonds or in making any payment at the time required to be made into the respective funds and accounts created by and referred to in this Ordinance or any Parity Ordinance; and

2. The City shall obtain a certificate showing either of the following:

a. The average annual Net Revenues Available for Debt Service as set forth in the last available annual audits for the two Fiscal Years immediately preceding the issuance of additional bonds, are at least 110 percent of the average annual debt service on the System Revenue Bonds, including the additional bonds proposed to be issued, to be paid out of the Net Revenues Available for Debt Service in succeeding Fiscal Years. Interest to be paid on any SRF Program Bonds may be reduced by the SRF Subsidy, if any. If the City has made any increase in rates for the use and services of the System and the increase has not been in effect during all of the two Fiscal Years for which annual audits are available, the City may add the additional Net Revenues Available for Debt Service which would have resulted if the rate increase been in effect for the entire period to the audited Net Revenues Available for Debt Service; or

b. The estimated average annual Net Revenues Available for Debt Service for the two Fiscal Years immediately following the Fiscal Year in which the improvements to the System being financed by the additional bonds are to be in commercial operation, as certified by the Consultant, is at least 110 percent of the average annual debt service on the System Revenue Bonds, including the additional bonds to be issued, to be paid out of the Net Revenues Available for Debt Service in succeeding Fiscal Years following the commencement of commercial operation of the improvements. Interest to be paid on any SRF Program Bonds may be reduced by the SRF Subsidy, if any. In determining the amount of estimated Net Revenues Available for Debt Service for the purpose of this subsection, the Consultant may adjust the estimated net income and revenues by adding the estimated increase in Net Revenues Available for Debt Service resulting from any increase in rates for the use and services of the System approved by the City.

Additional revenue bonds or other obligations of the City issued under the conditions set forth in this Section shall stand on a parity with the Bonds and shall enjoy complete equality of lien on and claim against the net revenues of the System with the Bonds, and the City may make equal provision for paying said bonds and the interest thereon out of the revenue Fund and may likewise provide for the creation of reasonable system debt service funds and system debt reserve funds for the payment of such additional bonds and the interest thereon out of moneys in the Revenue Fund.

Debt service coverage for existing and proposed bonds is shown in Table 11. The annual and future bond coverage test (Line 9 and 17) must meet or exceed 110 percent. The annual coverage ranges from a high of 145 percent in 2018 to low of 124 percent in 2020. The future additional bonds test minimum coverage of 110 percent is met every year, ranging from 140 percent to 112 percent.

The City needs to closely monitor both the annual debt service coverage and the additional bonds test as part of the annual budgeting process. Projected rate adjustments may need to be modified to assure that the City will meet the bond ordinance requirements.

Table 11 Debt Service Coverage Tests

Fiscal Years Ending June 30

Line No.	Description	2017	2018	2019	2020	2021
		$	$	$	$	$
	ANNUAL COVERAGE					
1	Total Operating Fund Revenues (a)	30,232,000	33,388,500	35,106,200	35,873,600	36,576,700
2	O&M Expense and Transfers	(13,504,800)	(13,967,700)	(14,417,600)	(14,831,600)	(15,347,600)
3	Net Operating Revenue	16,727,200	19,420,800	20,688,600	21,042,000	21,229,100
	Debt Service (b)					
4	Existing Bonds	5,664,600	5,687,100	5,867,100	5,697,300	5,698,200
5	Existing SRF	6,154,100	6,170,400	6,187,400	6,203,100	6,217,400
6	Proposed Bonds	757,400	1,506,200	3,572,500	5,019,800	4,997,600
7	EIERA Subsidy (c)	(10,900)	0	0	0	0
8	Net Debt Service	12,565,200	13,363,700	15,627,000	16,920,200	16,913,200
9	Annual Coverage = Line 3 / Line 8 (d)	133%	145%	132%	124%	126%
	ADDITIONAL BONDS TEST - FUTURE (e)					
10	Total Operating Fund Revenues (f)	30,232,000	33,388,500	33,618,200	33,625,500	33,634,300
11	O&M Expense and Transfers	(13,504,800)	(13,967,700)	(14,417,600)	(14,831,600)	(15,347,600)
12	Annual Appropriation Debt Service	(2,431,200)	(2,432,400)	(2,431,900)	(2,429,900)	(2,431,200)
13	Net Operating Revenue	14,296,000	16,988,400	16,768,700	16,364,000	15,855,500
14	Parity Debt Service (g)	10,144,900	10,931,300	13,144,300	14,365,800	14,357,500
15	Average Net Revenues Available for Debt Service (h)	16,878,550	16,566,350	16,109,750	n/a	n/a
16	Average Annual Debt Service (h)	12,037,800	13,755,050	14,361,650		
17	Future Coverage = Line 15 / Line 16 (i)	140%	120%	112%		

(a) Includes interest on Capital Fund
(b) Represents payments to bondholders.
(c) EIERA Admin Fee less Interest on EIERA Reserve Fund
(d) Requires 1.10 times coverage.
(e) Additional Bond Test is for FY16 & FY17 Blacksnake Stormwater Separation Conduit
(f) Does not include rate increases beyond FY18
(g) All Existing Bonds & Only Proposed Bonds through FY18
(h) Calculated as average of two years following test year.
(i) Requires 1.10 times coverage.

6 Cost of Service Analysis

The cost of service phase of the study consists of three steps: (1) the determination of the total cost of service to be recovered from charges for wastewater service, (2) the allocation of cost of service to functional cost components which recognize the system characteristics, and (3) the distribution of functionalized cost of service components to customer classes.

Revenue requirements to be derived from charges for wastewater service are synonymous with the total cost of service. As a basis for developing an equitable rate structure, these costs are allocable to the various customer classifications according to respective service requirements. Allocations of revenue requirements to customer classes should take into account the quantity of wastewater discharged, the number of customers, the quantity of pollutant loadings, and relative responsibility for infiltration/inflow into the wastewater system.

6.1 COST OF SERVICE TO BE ALLOCATED

The costs of service to be recovered from wastewater service revenue consist of the elements of operation and maintenance expense and capital costs, as shown in Table 12. Operation and maintenance expense includes costs directly related to the collection and treatment of wastewater, including administrative functions and maintenance of system facilities. Capital related costs include projected debt service payments on existing and proposed bonds and major capital improvements financed from revenues. The projected revenue requirement for the Sewer Utility for FY 2017 totals $34,063,000 (Line 6). Revenue requirements that are met from sources other than wastewater revenue such as miscellaneous revenues and interest income on Operating, Capital, and Bond Reserve Funds are deducted from total revenue requirements on Lines 7 through 10. This year's rate increases will be in place for 11 months. This requires an adjustment to the cost of service to adjust for the lost month in the rate design, as shown on Line 11. The projected decrease in the City's Operating Fund is $3,831,000 as shown on Line 12. The resulting total cost of service for FY 2017 totals $29,238,500.

Table 12 Development of Total Cost of Service

For Fiscal Year 2017

Line No.	Description	O&M Costs	Capital Costs	Total
	Revenue Requirements			
1	Operation and Maintenance Expense	13,504,800		13,504,800
2	Existing Debt Service		11,807,800	11,807,800
3	Proposed Debt Service		757,400	757,400
4	Routine Capital Outlay	784,700		784,700
5	Transfer to (from) Capital Fund	-	7,208,300	7,208,300
6	Total Revenue Requirements	$14,289,500	$19,773,500	$34,063,000
	Adjustments to Revenue Requirements			
7	Miscellaneous Revenues	973,000	30,000	1,003,000
8	Interest Income - Operating and Capital Funds		123,000	123,000
9	Interest Income - Bond Reserve Fund	-	108,900	108,900
10	Subtotal	$13,316,500	$19,511,600	$32,828,100
11	Full Year Rate Adjustment	97,900	143,500	241,400
12	Increase (Decrease) in Fund Balances	-	(3,831,000)	(3,831,000)
13	Total FY 2017 Cost of Service	$13,414,400	$15,824,100	$29,238,500

6.2 FUNCTIONAL COST COMPONENTS

The cost of wastewater service is analyzed by system function to properly allocate the costs to various classes of customers. Costs of service are separated into applicable functional cost components. The cost components are Volume, Capacity, Biochemical Oxygen Demand (BOD), Suspended Solids (SS), Fats, Oil, and Grease (FOG) for both common to retail customers and common to all customers, SSJISD Pump Station, Septage, and Billing.

Volume costs are those costs, which vary directly with the volume of wastewater flow in the system. Included in the volume component are costs associated with primary and secondary clarifiers and disinfection.

Capacity costs recognizes that certain facilities are designed to handle peak wastewater flows, in contrast to other "volume related" facilities that are based on annual flows, or average daily flows. The Capacity factor is the ratio of peak flow to average daily flow and represents the average peak flow a customer will have on any given day. It is calculated by taking the flow for Contributed and Infiltration/Inflow (I/I) for each class, multiplying each by an appropriate capacity factor, and then dividing it by the number of days in the year. The capacity factors for the different customers are as follows:

- Retail – Contribution 1.5 and Infiltration/Inflow 4.0
- Triumph Foods - Contribution 1.5
- National Beef Leathers - Contribution 1.5
- SSJISD – Contribution 2.5

It should be noted the SSJISD has a higher capacity factor than the other wholesale (and retail) customers. This is to reflect their prior issues with high flow during wet weather periods. These capacity factors will be reassessed in the next cost allocation update in 2019.

BOD strength costs include those costs, which are influenced in magnitude by the BOD in the influent flow. Principal costs included in the BOD component are the operating and capital costs related to roughing filters, aeration facilities, and that portion of sludge disposal facilities required for handling and disposal of BOD related sludge.

Suspended solids strength costs consist of the treatment plant related costs that vary with the quantity of suspended solids in the influent flow. Included in this cost component are the costs of sludge pumping and disposal of sludge resulting from removal of suspended solids from the raw wastewater.

FOG strength costs include those costs, which are influenced in magnitude by the FOG in the influent flow. Similar to BOD, principal costs included in the FOG component are the operating and capital costs related to roughing filters, aeration facilities, and that portion of sludge disposal facilities required for handling and disposal of FOG related sludge.

Septage cost are related to the operating and capital costs to treat and handle septage that is discharged at the Septage Upload Station by septage haulers that truck in waste from septic tanks or other hauled wastewater.

SSJISD Pump Station costs are costs associated with the SSJISD Pump Station and related facilities. Billing costs are costs associated with billing and collection, including bad debt expense.

6.3 ALLOCATION TO COST COMPONENTS

Each element of cost is allocated to functional cost components on the basis of the parameter or parameters having significant influence on the magnitude of the element of cost. The separation of costs into functional components provides a means for distributing such costs to the various classes of customers on the basis of the respective requirements for service of each particular class. Costs are allocated directly to cost components to the extent they are identifiable. General and administrative cost elements are then allocated on the basis of the allocation of other costs to which they are most nearly related. As mentioned in the Introduction of this report, the allocation factors must be updated at least every 5 years, and were last updated in FY 2015. The fixed asset allocation will be updated annually.

6.3.1 O&M Allocation Components

The first step in the O&M cost allocation process is to assign the O&M expenses shown in Table 13, developed from the budget details, to various categories of costs which are necessary for subsequent assignment to appropriate functional cost components. The allocation percentages for each line item are summarized in Table 13. The Headings from Table 13 (Column A - O) are carried forward and used in the Description Column in Table 14. Each of the cost categories from Table 13 are then distributed to the different functional cost components recognizing the primary cost driver for each of the various costs. The description for how each allocation is determined is found in Column Q. The dollar amounts, from Table 13 Column A, are then distributed in Table 15 based on the allocations identified in Table 14. The totals in Line 17 of Table 15 are also found on Line 6 in Table 12. Total O&M is then adjusted (Total O&M less Miscellaneous Revenues, Table 3 Line 7) and allocated based on Line 15.

Table 13 O&M Functional Cost Components

Line No.	Description	[A] Total	[B] Primary	[C] Secondary	[D] Sludge	[E] Pumping	[F] Vehicles	[G] Gas	[H] Power	[I] Chemicals	[J] Laboratory	[K] Gen. Treatment	[L] Treatment - Repair & Replace	[M] Sewer Maintenance	[N] General WW	[O] Billing
	WW Treatment															
1	Personnel	2,645,600	34.20%	33.37%	10.19%	18.65%	3.59%									
2	Chemicals	363,600								100.00%						
3	Motor Fuel & Lubricants	100,000								100.00%						
4	Other Materials and Supplies	729,100										100.00%				
5	Gas Service	165,000						100.00%								
6	Electric Service	1,478,000							100.00%							
7	Transfer to Aviation	48,300			100.00%											
8	Routine Repair and Replacement	1,949,200											100.00%			
9	Laboratory	586,600									100.00%					
10	Admin. & General	2,328,300										27.43%				72.57%
11	Sewer Maintenance	2,062,500												100.00%		
12	Transfer to General Fund	1,833,300													100.00%	
13	Total Wastewater O&M	14,289,500	904,787	882,920	317,782	493,357	95,054	165,000	1,478,000	463,600	586,600	1,367,795	1,949,200	2,062,500	1,833,300	1,689,605

Table 14 O&M Cost Allocation Factors

Line No.	Description	[A] Total	[B] Common to Retail: Volume	[C] Common to Retail: Capacity	[D] Common to Retail: BOD	[E] Common to Retail: TSS	[F] Common to Retail: Ammonia	[G] Common to Retail: FOG	[H] Common to All: Volume	[I] Common to All: Capacity	[J] Common to All: BOD	[K] Common to All: TSS	[L] Common to All: Ammonia	[M] Common to All: FOG	[N] SSJISD	[O] Septage	[P] Billing	[Q] Basis of Allocation
1	Primary Treatment	100.00%	90.0%		3.0%	6.0%		1.0%										90% Primary Volume and Sludge Based on Appendix A-1 (Primary Only)
2	Secondary Treatment	100.00%							19.1%	0.0%	62.7%	18.2%	0.0%					Appendix A-2
3	Sludge	100.00%			11.2%	22.0%		3.8%			42.9%	20.1%	0.0%					Appendix A-1
4	Pumping	100.00%		81.6%											18.4%			Based on Fixed Assets
5	Vehicles	100.00%	9.4%	5.4%	8.4%	16.6%		2.9%	2.8%	2.9%	35.0%	15.7%	0.0%		0.9%			Appendix A-3
6	Gas	100.00%	44.0%						56.0%									Average Day Primary & Secondary
7	Electric Service	100.00%	45.5%	0.0%	2.0%	4.0%		0.7%	5.3%	0.0%	36.2%	3.7%	0.0%		2.6%			Appendix A-5
8	Chemicals	100.00%			11.2%	22.0%		3.8%			42.9%	20.1%	0.0%					Appendix A-1
9	Laboratory	100.00%	12.5%	0.0%	12.5%	12.5%		12.5%	16.7%	0.0%	16.7%	16.6%	0.0%		0.0%			Appendix A-6
10	General Treatment	100.00%	23.9%	10.9%	5.2%	8.4%	0.0%	3.1%	7.2%	0.1%	27.2%	11.5%	0.0%	0.0%	2.4%			Allocate on Basis of Treatment O&M , Less Power, Chem.
11	Treatment Repair & Replacement	100.00%	2.4%	7.6%	3.1%	7.7%	0.0%	1.1%	8.5%	42.1%	20.8%	5.5%	0.0%	0.0%	0.0%	1.1%	0.0%	Allocate on Basis of Treatment Plant in Service
12	Sewer Maintenance	100.00%		100.0%														Primary Capacity
13	Transfer to General Fund	100.00%	16.8%	46.2%	2.7%	4.0%	0.0%	1.8%	5.0%	0.1%	15.4%	6.3%	0.0%	0.0%	1.7%			Allocate on Basis of Treatment O&M and Sewer Maint., Less Power, & Chem.
14	Billing	100.00%															100.0%	Billing

Table 15 O&M Allocated Costs

		[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	[O]	[P]
			Common to Retail						Common to All								
Line No.	Description	Total	Volume	Capacity	BOD	TSS	Ammonia	FOG	Volume	Capacity	BOD	TSS	Ammonia	FOG	SSJISD	Septage	Billing
		$	$	$	$	$	$	$	$	$	$	$	$	$	$		$
1	Primary Treatment	904,787	814,308	-	27,144	54,287	-	9,048	-	-	-	-	-	-	-		-
2	Secondary Treatment	882,920	-	-	-	-	-	-	168,638	-	553,591	160,691	-	-	-		-
3	Sludge	317,782	-	-	35,592	69,912	-	12,076	-	-	136,329	63,874	-	-	-		-
4	Pumping	493,357	-	402,579	-	-	-	-	-	-	-	-	-	-	90,778		-
5	Vehicles	95,054	8,935	5,133	7,985	15,779	-	2,757	2,662	2,757	33,269	14,923	-	-	855		-
6	Gas	165,000	72,600	-	-	-	-	-	92,400	-	-	-	-	-	-		-
7	Electric Service	1,478,000	672,490	-	29,560	59,120	-	10,346	78,334	-	535,036	54,686	-	-	38,428		-
8	Chemicals	463,600	-	-	51,923	101,992	-	17,617	-	-	198,884	93,184	-	-	-		-
9	Laboratory	586,600	73,325	-	73,325	73,325	-	73,325	97,962	-	97,962	97,376	-	-	-		-
10	General Treatment	1,367,795	327,534	148,945	71,591	115,184	-	41,947	98,367	1,007	372,639	157,105	-	-	33,475		-
11	Treatment Repair & Replacement	1,949,200	46,724	148,702	60,659	150,085	-	20,571	166,009	821,379	405,746	107,286	-	-	-	21,999	-
12	Sewer Maintenance	2,062,500	-	2,062,500	-	-	-	-	-	-	-	-	-	-	-		-
13	Transfer to General Fund	1,833,300	307,632	847,584	49,425	73,189	-	33,353	92,389	946	281,755	115,586	-	-	31,441		-
14	Billing	1,689,605	-	-	-	-	-	-	-	-	-	-	-	-	-		1,689,605
15	Total O&M	14,289,500	2,323,549	3,615,443	407,202	712,873	-	221,039	796,761	826,088	2,615,211	864,712	-	-	194,978	21,999	1,689,605
16	Less: O&M Adjustments	(973,000)															
17	Net O&M From Rates	13,414,400	2,181,200	3,394,000	382,300	669,200	-	207,500	748,000	775,500	2,455,100	811,800	-	-	183,000	20,700	1,586,100

6.3.2 Capital Allocation Components

The first step in the Capital allocation process was to assign the various fixed assets line items to appropriate functional cost components. The fixed asset categories are shown in Table 16 in the Description Column. The description for how each fixed asset category is to be assigned to one or more of the functional cost components is found in Column Q. The results of the allocations of the fixed assets are shown in Table 17. The total capital costs to be recovered from wastewater rates are shown on Line 43 of Table 17. This total may also be found in Table 12 by adding Line 2, 3, and 5 and subtracting Lines 7 through 9.

The specific allocation of the Ammonia Removal project is found on Table 16 Lines 27 through 28 and the results of the allocation are shown in Table 17 Lines 33 and 34. Table 17 Line 44 shows the applicable amount of debt service for the Ammonia project. This amount is recovered in the fixed charge shown in Table 23. This amount is separated from the capital allocations and is shown in Column N of Tables 19 and 20. This year the fixed charge now includes principal, interest, and administration fees from the SRF loan that will applicable to the Ammonia Removal project in FY 2017. The debt service is estimated each year until the project is complete. FY2016 overestimated the debt service payment; therefore, the fixed charge will be discounted for FY2017 to correct the charge for last year.

The allocation of Existing and Proposed Debt Service (Table 17 Lines 39-42) includes Construction Work in Progress (CWIP) (Appendix I-6.7). Starting in FY15, the fixed asset (plant) allocation factors are updated every year as part of the rate study.

Table 16 Capital Cost Allocation Factors

Line No.	Description	[A] Total	[B] Common to Retail: Volume	[C] Common to Retail: Capacity	[D] Common to Retail: BOD	[E] Common to Retail: Suspended Solids	[F] Common to Retail: Ammonia	[G] Common to Retail: FOG	[H] Common to All: Volume	[I] Common to All: Capacity	[J] Common to All: BOD	[K] Common to All: Suspended Solids	[L] Common to All: Ammonia	[M] Common to All: FOG	[N] SSJISD	[O] Septage	[P] Billing	[Q] Basis of Allocation
	COLLECTION & CONVEYANCE																	
1	Collection and Conveyance Mains	100%		100.0%														Primary Capacity
2	Pumping & Lift Stations	100%		100.0%														Primary Capacity
3	SSJISD Pump Stations	100%													100.0%			SSJISD
	TREATMENT																	
4	Grit Basins	100%				100.0%												Suspended Solids
5	Primary Clarifiers	100%	90.0%		3.0%	5.9%		1.0%										90% Primary Volume and Sludge Based on Appendix A-1 (Primary Only)
6	Other Primary	100%		100.0%														Primary Capacity
7	Pumping	100%		100.0%														Primary Capacity
8	Septage	100%														100.0%		Septage
9	Trickling Filters	100%									100.0%							Secondary Capacity
10	Blowers	100%									100.0%		0.0%					BOD & Ammonia on Appendix A-1
11	Aeration	100%									100.0%		0.0%					BOD & Ammonia on Appendix A-1
12	Secondary Clarifiers	100%							90.0%		10.0%		0.0%					90% Secondary Volume 10% Secondary BOD & SS
13	Other Secondary	100%							30.5%	10.5%	50.6%	8.4%	0.0%	0.0%				Secondary Treatment Plant
14	Sludge Pumping	100%			11.2%	22.0%		3.8%			42.9%	20.1%	0.0%					Appendix A-1
15	Aerobic Digesters	100%			11.2%	22.0%		3.8%			42.9%	20.1%	0.0%					Appendix A-1
16	Dissolved Air Flotation (DAF)	100%			11.2%	22.0%		3.8%			42.9%	20.1%	0.0%					Appendix A-1
17	Sludge Handling	100%			11.2%	22.0%		3.8%			42.9%	20.1%	0.0%					Appendix A-1
18	Outfall	100%								100.0%								Secondary Capacity
19	Meters	100%							100.0%									Secondary Volume
20	Laboratory	100%							100.0%									Secondary Volume
21	General	100%	5.3%	11.8%	2.8%	11.4%	0.0%	1.0%	18.9%	6.5%	31.3%	5.2%	0.0%	0.0%	0.0%	5.9%		Treatment Plant
	SECONDARY EXPANSION																	
22	Secondary Expansion - Secondary Clarifiers	100%							90.0%		10.0%		0.0%					90% Secondary Volume 10% Secondary BOD & SS
	ADMINISTRATIVE																	
23	Admin. & General	100%	4.3%	18.7%	2.3%	9.3%	0.0%	0.8%	19.5%	5.3%	26.1%	4.3%	0.0%	0.0%	0.0%	4.8%	4.5%	Total Treatment Plant
24	Billing Software	100%															100.0%	Billing
	CONTRIBUTIONS																	
25	Secondary Expansion - Secondary Clarifiers	100%							90.0%		10.0%		0.0%					90% Secondary Volume 10% Secondary BOD & Primary Capacity
26	Collection and Conveyance Mains	100%		100.0%														
	AMMONIA PROJECT																	
27	Secondary Expansion - Ammonia Project	100%	0.0%	0.0%	0.0%	0.0%		0.0%	16.0%	2.8%	60.9%	3.1%	17.3%		0.0%			Appendix A-12
28	Ammonia Phase I	100%	0.0%	0.0%	0.0%	0.0%		0.0%	16.0%	2.8%	60.9%	3.1%	17.3%		0.0%			Appendix A-12

Table 17 Capital Allocated Costs

Line No.	Description	[A] Total	[B] Common to Retail Volume	[C] Common to Retail Capacity	[D] Common to Retail BOD	[E] Common to Retail Suspended Solids	[F] Common to Retail Ammonia	[G] Common to Retail FOG	[H] Common to All Volume	[I] Common to All Capacity	[J] Common to All BOD	[K] Common to All Suspended Solids	[L] Common to All Ammonia	[M] Common to All FOG	[N] SSJISD	[O] Septage	[P] Billing	[Q] Basis of Allocation
	COLLECTION & CONVEYANCE																	
1	Collection and Conveyance Mains	81,432,438	-	81,432,438	-	-	-	-	-	-	-	-	-	-	-	-	-	
2	Pumping & Lift Stations	1,944,055	-	1,944,055	-	-	-	-	-	-	-	-	-	-	-	-	-	
3	SSJISD Pump Stations	1,741,429	-	-	-	-	-	-	-	-	-	-	-	-	1,741,429	-	-	
4	Subtotal	85,117,922	-	83,376,493	-	-	-	-	-	-	-	-	-	-	1,741,429	-	-	
	TREATMENT																	
5	Grit Basins	5,113,987	-	-	-	5,113,987	-	-	-	-	-	-	-	-	-	-	-	
6	Primary Clarifiers	965,487	868,938	-	28,965	56,964	-	9,655	-	-	-	-	-	-	-	-	-	
7	Other Primary	511,481	-	511,481	-	-	-	-	-	-	-	-	-	-	-	-	-	
8	Pumping	2,495,340	-	2,495,340	-	-	-	-	-	-	-	-	-	-	-	-	-	
9	Septage	276,210	-	-	-	-	-	-	-	-	-	-	-	-	-	276,210	-	
10	Trickling Filters	1,711,879	-	-	-	-	-	-	-	-	1,711,879	-	-	-	-	-	-	
11	Blowers	552,538	-	-	-	-	-	-	-	-	552,538	-	-	-	-	-	-	
12	Aeration	794,593	-	-	-	-	-	-	-	-	794,593	-	-	-	-	-	-	
13	Secondary Clarifiers	3,617,853	-	-	-	-	-	-	3,256,068	-	361,785	-	-	-	-	-	-	
14	Other Secondary	91,344	-	-	-	-	-	-	27,825	9,595	46,209	7,714	-	-	-	-	-	
15	Sludge Pumping	668,557	-	-	74,878	147,083	-	25,405	-	-	286,811	134,380	-	-	-	-	-	
16	Aerobic Digesters	10,005,992	-	-	1,120,671	2,201,318	-	380,228	-	-	4,292,570	2,011,204	-	-	-	-	-	
17	Dissolved Air Flotation (DAF)	15,079	-	-	1,689	3,317	-	573	-	-	6,469	3,031	-	-	-	-	-	
18	Sludge Handling	3,437,347	-	-	384,983	756,216	-	130,619	-	-	1,474,622	690,907	-	-	-	-	-	
19	Outfall	26,730,214	-	-	-	-	-	-	-	26,730,214	-	-	-	-	-	-	-	
20	Meters	34,275	-	-	-	-	-	-	34,275	-	-	-	-	-	-	-	-	
21	Laboratory	1,121,897	-	-	-	-	-	-	1,121,897	-	-	-	-	-	-	-	-	
22	General	4,988,625	264,119	586,932	140,277	569,030	-	47,541	940,447	324,292	1,561,790	260,731	-	-	-	293,466	-	
23	Subtotal	63,132,698	1,133,057	3,593,752	1,751,462	8,847,915	-	594,021	5,380,512	27,064,101	11,089,268	3,107,967	-	-	-	569,675	-	
	SECONDARY EXPANSION																	
24	Secondary Expansion - Secondary Clarifiers	12,881,704	-	-	-	-	-	-	11,593,533	-	1,288,170	-	-	-	-	-	-	
25	Subtotal	12,881,704	-	-	-	-	-	-	11,593,533	-	1,288,170	-	-	-	-	-	-	
	ADMINISTRATIVE																	
26	Admin. & General	3,069,314	132,955	574,498	70,614	286,445	-	23,932	598,981	163,246	800,144	131,250	-	-	-	147,728	139,521	
27	Billing Software	123,167	-	-	-	-	-	-	-	-	-	-	-	-	-	-	123,167	
28	Subtotal	3,192,481	132,955	574,498	70,614	286,445	-	23,932	598,981	163,246	800,144	131,250	-	-	-	147,728	262,688	
	CONTRIBUTIONS																	
29	Secondary Expansion - Secondary Clarifiers	(12,881,704)	-	-	-	-	-	-	(11,593,533)	-	(1,288,170)	-	-	-	-	-	-	
30	Collection and Conveyance Mains	(3,423,309)	-	(3,423,309)	-	-	-	-	-	-	-	-	-	-	-	-	-	
31	**CWIP**	33,307,208	14,075	22,485,444	175,702	2,364,417	-	24,759	1,535,736	335,921	4,246,535	1,934,798	(0)	-	182,749	7,071	-	Appendix A-13
32	Subtotal Existing Plant	181,327,000	1,280,088	106,606,878	1,997,779	11,498,778	-	642,712	7,515,230	27,563,268	16,135,947	5,174,014	(0)	-	1,924,178	724,474	262,688	
	AMMONIA PROJECT																	
33	Secondary Expansion - Ammonia Project	23,211,918	-	-	-	-	-	-	3,702,763	660,253	14,129,299	709,315	4,010,288	-	-	-	-	
34	Ammonia Phase I	19,550,896	-	-	-	-	-	-	3,118,757	556,117	11,900,802	597,441	3,377,779	-	-	-	-	
35	Subtotal	42,762,814	-	-	-	-	-	-	6,821,521	1,216,369	26,030,101	1,306,756	7,388,067	-	-	-	-	
36	**TOTAL**	224,089,814	1,280,088	106,606,878	1,997,779	11,498,778	-	642,712	14,336,751	28,779,638	42,166,048	6,480,770	7,388,067	-	1,924,178	724,474	262,688	
37	Existing Plant	100.0%	0.9%	56.8%	1.2%	6.2%	0.0%	0.4%	4.0%	18.4%	8.0%	2.2%	0.0%	0.0%	1.2%	0.5%	0.2%	
38	Plant Including CWIP	100.0%	0.7%	58.8%	1.1%	6.3%	0.0%	0.4%	4.1%	15.2%	8.9%	2.9%	0.0%	0.0%	1.1%	0.4%	0.1%	
																		Basis of Allocation
39	Existing Debt Service	11,807,800	83,421	6,942,114	130,093	748,787	-	41,853	489,383	1,794,887	1,050,754	336,926	(0)	-	125,300	47,177	17,106	Plant Including CWIP
40	Less: Misc Revenues	(3,949,400)	(27,902)	(2,321,955)	(43,513)	(250,450)	-	(13,999)	(163,686)	(600,343)	(351,450)	(112,693)	0	-	(41,910)	(15,779)	(5,721)	Plant Including CWIP
41	Transfer to Capital Fund	7,208,300	50,926	4,237,948	79,418	457,111	-	25,550	298,753	1,095,724	641,453	205,683	(0)	-	76,492	28,800	10,443	Plant Including CWIP
42	Proposed Debt	757,400	5,351	445,295	8,345	48,030	-	2,685	31,391	115,131	67,400	21,612	(0)	-	8,037	3,026	1,097	Plant Including CWIP
43	Net Capital for Rates	15,824,100	111,795	9,303,402	174,343	1,003,479	-	56,088	655,841	2,405,400	1,408,157	451,527	(0)	-	167,920	63,224	22,924	
44	Less: Debt Service for Ammonia Project	1,836,200							244,721	897,554	525,441	168,483						
45	Net Capital for Rates Less: Ammonia Project	13,987,900	111,795	9,303,402	174,343	1,003,479	-	56,088	411,120	1,507,846	882,715	283,044	(0)	-	167,920	63,224	22,924	

6.4 DISTRIBUTION OF COSTS TO CUSTOMER CLASSES

The total cost responsibility of customer classes is determined by the allocation of the costs of service for each cost component to customers based on the respective units of service of each class. Each class is assigned its proportionate share of the costs by function using projected units of service.

6.4.1 Customer Classification

For purposes of cost of service analysis and rate design, wastewater customers are classified to reflect groups of customers with similar service requirements. The classifications used by the City for record keeping purposes are satisfactory for this purpose. The customer classifications include residential, commercial, SSJISD, National Beef Leathers, and Triumph Foods. Costs are also allocated to BOD, suspended solids, and FOG surcharges for commercial customers with wastewater strength that exceeds 300 mg/l for BOD, 350 mg/l for suspended solids, and 100 mg/l for FOG.

6.4.2 Units of Service

Volume related costs vary with, and are allocated on, the basis of the volume of billable wastewater volume and infiltration and inflow conveyed by the wastewater system. Capacity related costs vary by customer class and the units are calculated by taking contributed flow multiplied by the capacity factor and then dividing by the number of days in the year. This provides the average day capacity units. Infiltration and inflow also has a capacity component as shown on Table 18 Column G. Strength costs are related to the function of reducing BOD, suspended solids, and FOG concentrations and are allocated to customer classes in proportion to the respective strength loadings. Septage units are based on the gallons of waste received at the septage upload station. Billing costs are related to the number of bills sent to customers.

The estimated FY 2017 service requirements or units of service for the various customer classes are shown in Table 18. Estimates of annual billable wastewater volume and number of bills are based on the projection of the number of Sewer Utility customers and their estimated billable wastewater volume. Contributed wastewater volume shown for the residential class is based upon the average water usage billed during the winter period that serves as the basis for assessing charges.

Infiltration/inflow includes flow entering the wastewater system from groundwater infiltration through wastewater service pipe and main joints and inflow from manhole covers and the combined wastewater system. Infiltration/inflow is estimated to total approximately 61 percent of the total wastewater flow reaching the primary treatment plant on an annual basis.

Each customer class, with the exception of the secondary wholesale customers whose flows are measured at the treatment plant, should bear its proportionate share of the costs associated with infiltration/inflow. 60 percent of infiltration/inflow is allocated to customer classes in proportion to the number of individual customers and 40 percent is allocated in proportion to customer class contributed volume. Table 18 shows the results of the allocations.

The BOD, suspended solids, and FOG responsibility of each retail customer class is based on the estimated average strength concentrations and contributed wastewater volume for each class. The average strength for contributed wastewater flow is estimated to be 295 mg/l for BOD, 345 mg/l for suspended solids, and 36 mg/l for FOG. Infiltration/inflow is estimated to have a BOD strength of 80 mg/l, suspended solids strength of 190 mg/l, FOG strength of 8 mg/l.

The estimates of suspended solids and BOD strengths in excess of normal limits are assigned to the surcharge customer classification, and are shown separately in Table 18. The estimates are based on extra strength data maintained by the Sewer Utility and utilized for current average billings.

Estimates of the strength related loadings on the secondary treatment plant (common to all) are based on the strength of the effluent from the primary treatment plant and the strength of the flows from the secondary wholesale customers.

In an effort to mitigate the impact of the decrease in loadings at the secondary plant primarily due to the closing of the Monfort Plant in November 1993, a Secondary Service Minimum (SSM) class was added to the cost allocation procedures by means of contracts between the City and SSJISD. Contract provisions provide that wholesale rates shall be established using a minimum flow of 1,725,000 hundred cubic feet of flow, 6,800,000 pounds of BOD, and 3,250,000 pounds of suspended solids. By City policy, the costs associated with the Secondary Service Minimum class are recovered in the retail volume charge; therefore lessening the impact to the wholesale customers.

As part of updating the cost of service allocations in FY 2015, the City began phasing out the SSM. This will be accomplished by reducing the subsidy units, minimum flow of 1,725,000 hundred cubic feet of flow, 6,800,000 pounds of BOD, and 3,250,000 pounds, by 20 percent each year until the units are completely removed. This means that for FY 2017 only 40 percent of the units will be available to reduce the impact to the wholesale customer. In FY 2018, 20 percent will be used and so on. The full units are shown on Table 18 Line 9 and the adjusted units are shown on Table 19 Line 9.

Table 18 Retail and Wholesale Units of Service

Line No.		[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[K]	[L]	[M]	[O]
		Assignable Volume			Capacity			Common to Retail			Common to All		Retail	Retail
		Contributed Volume	Infiltration/ Inflow	Total	Contributed	Infiltration/ Inflow	Total	BOD	SS	FOG	BOD	SS	Customers	Bills
		Ccf	Ccf	Ccf	Ccf/Day	Ccf/Day	Ccf/Day	lbs	lbs	lbs	lbs	lbs		
	Retail													
1	Residential	1,449,000	3,491,100	4,940,100	6,000	38,300	44,300	4,410,100	7,267,400	499,800	3,087,100	2,907,000	23,278	279,336
2	Commercial/Industrial	1,599,900	1,222,000	2,821,900	6,600	13,400	20,000	3,555,100	4,903,000	420,400	2,488,600	1,961,200	2,087	25,044
3	Surcharge							1,535,900	8,900	41,800	1,075,100	3,600		
4	Septic							122,600	245,200	1,400	85,800	98,100		
5	Subtotal	3,048,900	4,713,100	7,762,000	12,600	51,700	64,300	9,623,700	12,424,500	963,400	6,736,600	4,969,900	25,365	304,380
	Wholesale													
6	SSJISD			979,283	6,700	0	6,700				2,241,691	798,434		
7	National Beef Leathers			490,757	2,000	0	2,000				56,769	180,458		
8	Triumph Foods			999,800	4,100	0	4,100				1,749,900	568,400		
9	Secondary Service Minimum (a)			0							2,751,640	1,702,708		
10	Subtotal	0	0	2,469,840	12,800	0	12,800	0	0	0	6,800,000	3,250,000	0	0
11	Total	3,048,900	4,713,100	10,231,840	25,400	51,700	77,100	9,623,700	12,424,500	963,400	13,536,600	8,219,900	25,365	304,380

6.4.3 Customer Class Costs of Service

Costs of service are allocated to the customer classes by application of unit costs of service to respective service requirements. The unit costs are developed by dividing the total cost allocated to each functional cost component by the total applicable units of service. The customer class cost of service is obtained by applying the unit costs of service to the number of units for which the customer class is responsible. Table 19 shows the development of the unit costs of service for each functional cost component, and Table 20 shows the subsequent application of unit costs to the respective service requirements of each customer class. By City policy, the cost of service for retail customers is adjusted in Column P to reflect the Secondary Service Minimum class cost of service.

Table 19 Unit Cost of Service

For Fiscal Year Ending June 30, 2017

Line No.	Description	[A] Common to Retail: Volume	[B] Common to Retail: Capacity	[C] Common to Retail: BOD	[D] Common to Retail: Suspended Solids	[E] Common to Retail: FOG	[F] Common to All: Volume	[G] Common to All: Capacity	[H] Common to All: BOD	[I] Common to All: Suspended Solids	[J] Common to All: Ammonia	[K] SSJISD Pump Station	[L] Septage	[M] Billing	[N] Ammonia Debt Service	[O] Total
	Units of Service															
	Units	Ccf	Ccf/Day	lbs	lbs	lbs	Ccf	Ccf/Day	lbs	lbs	lbs	Ccf	lbs	Bills		
	Retail															
1	Residential	4,940,100	44,300	4,410,100	7,267,400	499,800	4,940,100	44,300	3,087,100	2,907,000	0			279,336		
2	Commercial/Industrial	2,821,900	20,000	3,555,100	4,903,000	420,400	2,821,900	20,000	2,488,600	1,961,200	0			25,044		
3	Surcharge			1,535,900	8,900	41,800			1,075,100	3,600	0					
4	Septage			122,600	245,200	1,400			85,800	98,100	0		2,261			
5	Wholesale															
6	SSJISD						979,283	6,700	2,241,691	798,434	0	979,283				
7	National Beef Leathers						490,757	2,000	56,769	180,458	0					
8	Triumph Foods						999,800	4,100	1,749,900	568,400	0					
9	Secondary Service Minimum (reduced by 60%)						0		1,100,656	681,083						
10	Total	7,762,000	64,300	9,623,700	12,424,500	963,400	10,231,840	77,100	11,885,616	7,198,275	0	979,283	2,261	304,380		
	Functional Cost Allocations															
11	Net Operation, Maint. & Replacement - $	2,181,200	3,394,000	382,300	669,200	207,500	748,000	775,500	2,455,100	811,800	0	183,000	20,700	1,586,100		13,414,400
12	Net Capital- $	111,795	9,303,402	174,343	1,003,479	56,088	411,120	1,507,846	882,715	283,044	0	167,920	63,224	22,924	1,836,200	15,824,100
13	Total Cost of Service - $	2,292,995	12,697,402	556,643	1,672,679	263,588	1,159,120	2,283,346	3,337,815	1,094,844	0	350,920	83,924	1,609,024	1,836,200	29,238,500
14	Total Annual Units	7,762,000	64,300	9,623,700	12,424,500	963,400	10,231,840	77,100	11,885,616	7,198,275	0	979,283	2,261	304,380		
15	Op, Maint & Replace. Unit Cost (a) - $/Unit	0.2810	52.7838	0.0397	0.0539	0.2154	0.0731	10.0584	0.2066	0.1128	0.0000	0.1869	9.1564	5.2109		
16	Capital Unit Cost (a) - $/Unit	0.0144	144.6874	0.0181	0.0808	0.0582	0.0402	19.5570	0.0743	0.0393	0.0000	0.1715	27.9661	0.0753		
17	Total Unit Cost (a)- $/Unit	0.2954	197.4713	0.0578	0.1346	0.2736	0.1133	29.6154	0.2808	0.1521	0.0000	0.3583	37.1225	5.2862		

(a) Unit costs are dollars per one hundred cubic feet ($/Ccf) for volume and dollars per pound ($/lb) for both BOD and suspended solids.

Table 20 Customer Class Allocated Cost of Service

For Fiscal Year Ending June 30, 2017

Line No.	Description	[A] Common to Retail Volume	[B] Common to Retail Capacity	[C] Common to Retail BOD	[D] Common to Retail Suspended Solids	[E] Common to Retail FOG	[F] Common to All Volume	[G] Common to All Capacity	[H] Common to All BOD	[I] Common to All Suspended Solids	[J] Common to All Ammonia	[K] SSJISD Pump Station	[L] Septage	[M] Billing	[N] Ammonia Debt Service	[O] Total	[P] Adjusted Retail Cost of Service
	Allocated Cost of Service																
	Residential																
1	Operation, Maint. & Replacement - $	1,388,218	2,338,323	175,191	391,432	107,648	361,148	445,586	637,673	327,843	0			1,455,598		7,628,660	
2	Capital - $	71,152	6,409,653	79,893	586,960	29,098	198,495	866,376	229,271	114,306	0			21,038	703,337	9,309,579	
3	Residential Subtotal - $	1,459,370	8,747,976	255,084	978,392	136,746	559,643	1,311,962	866,944	442,149	0			1,476,636	703,337	16,938,239	17,134,370
	Commercial/Industrial																
4	Operation, Maint. & Replacement - $	792,982	1,055,677	141,226	264,081	90,547	206,296	201,167	514,047	221,178	0			130,502		3,617,703	
5	Capital - $	40,644	2,893,749	64,404	395,996	24,475	113,385	391,140	184,822	77,117	0			1,886	401,763	4,589,381	
6	Commercial Monthly Subtotal - $	833,626	3,949,426	205,630	660,077	115,022	319,681	592,307	698,869	298,295	0			132,388	401,763	8,207,084	8,423,640
	Surcharge																
7	Operation, Maint. & Replacement - $	0	0	61,013	479	9,003	0	0	222,073	406	0			0		292,974	
8	Capital - $	0	0	27,824	719	2,434	0	0	79,845	142	0			0		110,964	
9	Surcharge Subtotal - $	0	0	88,837	1,198	11,437	0	0	301,918	548	0			0		403,938	403,938
	Septage																
10	Operation, Maint. & Replacement - $	0	0	4,870	13,207	302	0	0	17,723	11,063	0		20,700	0		67,865	
11	Capital - $	0	0	2,221	19,804	82	0	0	6,372	3,857	0		63,224	0		95,560	
12	Septage Subtotal - $	0	0	7,091	33,011	384	0	0	24,095	14,920	0		83,924	0		163,425	163,425
	Secondary Service Minimum (a)																
13	Operation, Maint. & Replacement - $	0	0	0	0	0	0	0	227,352	76,811	0		0	0		304,163	
14	Capital - $	0	0	0	0	0	0	0	81,743	26,781	0		0	0		108,524	
	Subtotal Secondary Service Minimum - $	0	0	0	0	0	0		309,095	103,592	0		0	0		412,687	0
15	Subtotal Retail - $	2,292,996	12,697,402	556,642	1,672,678	263,589	879,324	1,904,269	2,200,921	859,504	0		83,924	1,609,024	1,105,100	26,125,373	26,125,373
	South St. Joseph Industrial Sewer District																
16	Operation, Maint. & Replacement - $						71,591	67,391	463,045	90,045	0	183,000		0		875,072	
17	Capital - $						39,348	131,032	166,485	31,395	0	167,920		0	367,300	903,480	
18	SSJISD Subtotal - $						110,939	198,423	629,530	121,440	0	350,920		0	367,300	1,778,552	1,778,552
	National Beef Leathers																
19	Operation, Maint. & Replacement - $						35,877	20,117	11,726	20,352	0	0		0		88,072	
20	Capital - $						19,719	39,114	4,216	7,096	0	0		0	121,700	191,845	
21	National Beef Leathers Subtotal						55,596	59,231	15,942	27,448	0	0		0	121,700	279,917	279,917
	Triumph Foods																
22	Operation, Maint. & Replacement - $						73,091	41,239	361,460	64,102	0	0		0		539,892	
23	Capital - $						40,172	80,184	129,961	22,350	0	0		0	242,100	514,767	
24	Triumph Foods Subtotal						113,263	121,423	491,421	86,452	0	0		0	242,100	1,054,659	1,054,659
25	Total	2,292,996	12,697,402	556,642	1,672,678	263,589	1,159,122	2,283,346	3,337,814	1,094,844	0	350,920	83,924	1,609,024	1,836,200	29,238,501	29,238,501

(a) Per agreement with SSJISD cost allocations are based on minimum units of service from Secondary Service customers. Secondary Service Minimum is allocated costs for the units of service required to meet the minimum amount. Secondary Service Minimum allocated costs are recovered from Retail Service customers.

A comparison of projected revenue under existing rates and allocated cost of service are shown in Table 21. This table provides guidance to the rate design phase to show what class increase could be justified. The indicated revenue changes required to meet costs of service are shown for each customer class. The indicated changes in retail rates range from negative 2.3 percent to 20.5 percent. The average indicated increase for retail customers is 11.6 percent. The indicated rate change for wholesale customers is an increase of 5.6 percent for South St. Joseph Industrial Sewer District, an increase of 12.0 percent for National Beef Leathers, and an increase of 5.2 percent for Triumph Foods. The overall adjustment indicated for wholesale customers is an increase of 6.0 percent.

Table 21 Comparison of Revenue Under Existing Rates with Allocated Cost of Service

For Fiscal Year Ending June 30, 2017

		[A]	[B]	[C]	[D]
Line No.	Customer Class	Revenue Under Existing Rates	Allocated Cost of Service	Adjusted Allocated Cost of Service	Indicated Percent Change
		$	$	$	%
	Retail				
1	Residential	14,981,700	16,938,239	17,134,370	14.4
2	Commercial/Industrial	7,874,000	8,207,084	8,423,640	7.0
3	Surcharge	413,400	403,938	403,938	(2.3)
4	Septage	135,600	163,425	163,425	20.5
5	Secondary Service Minimum		412,687		
6	Total Retail	23,404,700	26,125,373	26,125,373	11.6
	Secondary Wholesale Treatment				
7	South St. Joseph Industrial Sewer District	1,684,100	1,778,552	1,778,552	5.6
8	National Beef Leathers	250,000	279,917	279,917	12.0
9	Triumph Foods	1,002,200	1,054,659	1,054,659	5.2
10	Total Secondary Wholesale	2,936,300	3,113,128	3,113,128	6.0
11	Total	26,341,000	29,238,501	29,238,501	11.0

7 Wastewater Rate Adjustments

The revenue requirements studies described in the preceding sections of this report provide a basis for the design of wastewater rates. It should be recognized, however, that these studies are the result of engineering estimates, based on historical data and, to some extent, upon judgment and experience. Detailed results should not be used as literal and exact answers, but as guides for rate adjustments. Judgment and City policy must enter into the final choice of rates, and consideration must be given to factors such as previous rate levels, existing contractual requirements, and past local practice.

7.1 PROPOSED WASTEWATER RATES

Table 22 presents the proposed wastewater rate schedule recommended to be fully effective August 1, 2016. The proposed rates provide for a 11.0 percent overall revenue increase once the rates are in effect.

7.2 LIMIT FEES

Limit fees started in FY 2015 and are applicable to SIUs in the retail and wholesale classes. The limit fees are applicable to wholesale customers and any retail SIUs with a permit and the limit fees will be applicable to both volume and strength limits.

The retail class will continue with the same procedure of extra strength surcharges over a certain strength limit as it has been in the past. Retail SIUs will also have a limit fee in addition to normal surcharge billings if the daily maximum limits in its permit are exceeded. These two types of fees serve two different purposes. Extra strength surcharges are used to recover the cost of removing pollutants from wastewater in an equitable manner relative to the each customer's contribution. The limit fees for exceeding the daily permit limit are to provide a financial incentive to enforce the permit and protect the biological treatment process from washing out.

Limit Fees are applied to SIU customers when the daily maximum, as defined in each customer's permit, for Volume, BOD, and TSS are exceeded for any given day. The limit fee would be applied to everything exceeding the daily maximum limit in each SIU customer's permit. All contributed volume and strength would be billed at normal rates up to the daily limit and the limit fee would be applied on the incremental flow and pollutants above that amount. This revenue is not part of the cost of service and will be above and beyond what is assumed for revenue estimates. These rates are based on cost of service rates multiplied by a factor of 1.5. The limit fees for Retail SIU customers are adjusted so they are only paying 1.5 times the contributed portion of the volume charge. The portion of the rate associated with I/I is based on a system calculation that is not entirely in their control, therefore it is removed from the limit fee calculation.

A sample calculation for a day with an overage for a wholesale customer is as follows. Based on a daily charge using the proposed rates in Table 22, if the limit was 600 lbs. per day and the actual discharge was 850 lbs. BOD, would be (600 lbs. x $0.289/lb.) + [(850-600) lbs. x $0.434/lb.].

Table 22 Schedule of Proposed Rates

for Fiscal Year Ending June 30, 2017

RETAIL

	Monthly Charge $
Service Charge	
Inside City	33.40
Outside City	78.38

	Monthly $/Ccf	Limit Fees	
Volume Charge			
Inside City	4.98	2.02	$/Ccf
Outside City	11.38	4.62	$/Ccf

	Inside City	Outside City			
Extra Strength Surcharge					
BOD in excess of 300 mg/l	0.254	0.378	$/lb	0.381	$/lb.
Suspended solids in excess of 350 mg/l	0.196	0.465	$/lb	0.294	$/lb.
Fats, Oils, & Grease in Excess of 100 mg/l	0.274	0.629	$/lb		
Septage	70.00	70.00	$/Kgal		

WHOLESALE (a)

Ammonia Project Fixed Charge				
South St. Joseph Industrial Sewer District	30,610	$/Month		
National Beef Leathers	10,140	$/Month		
Triumph Foods	20,180	$/Month		
Flow charge				
South St. Joseph Industrial Sewer District	0.316	$/Ccf	0.474	$/Ccf
National Beef Leathers	0.234	$/Ccf	0.351	$/Ccf
Triumph Foods	0.235	$/Ccf	0.352	$/Ccf
Pump Station (b)	0.358	$/Ccf		
BOD	0.281	$/lb.	0.422	$/lb.
Suspended Solids	0.152	$/lb.	0.228	$/lb.
Fats, Oils, & Grease	0.274	$/lb.		

(a) Applicable to the South St. Joseph Industrial Sewer District (SSJISD), National Beef Leathers, and Triumph for secondary treatment service.

(b) Applicable to SSJISD only.

7.3 AMMONIA PROJECT FIXED CHARGE

The rates in Table 22 have a fixed charge for wholesale customers to recover their share of the debt service related to the Ammonia Removal project, as shown in Table 23, Line 4. The driver for this is if a customer significantly reduces its ammonia loadings, due to changes in onsite treatment, they will still be responsible for the fixed cost of the treatment process that was designed for them. This allocation will be updated every five years, or if a SIU joins the system. Table 23 provides the basis for how the charge is structured. The first step in developing the fixed charge was to functionalize the individual components of the Ammonia project based on their designed function, with the results shown on Line 3. The units on Lines 5-8 form the allocations in Lines 13-16. Then the debt service charge on Line 4 is multiplied by each allocation to form the totals in Line 13-16. These

costs are totaled in Column A Line 17. The wholesale amounts are then divided by twelve to create a monthly bill and the retail amount is divided by the contributed flows. The reason flows are used for the retail calculation is there is no customer with higher than normal strength flows. Therefore, flows are the main determinant of each customer's contribution to the system and not the number of connections.

The debt service is estimated each year until the project is complete. Actual FY 2016 debt service payments were lower than projected; therefore, the fixed charge in FY 2017 will be discounted to adjust the charge for last year's differential. Once construction is complete, the payment will be based on the loan amortization schedule.

Table 23 Development of Ammonia Project Fixed Charge for Wholesale

Line No.	Description		[A] Total	[B] Volume	[C] Capacity	[D] BOD	[E] Suspended Solids	[F] Ammonia
	Ammonia Project Capital Costs							
1	Existing Plant		$ 23,211,918	$ 3,702,763	$ 660,253	$ 14,129,299	$ 709,315	$ 4,010,288
2	CIP		$ 19,550,896	$ 3,118,757	$ 556,117	$ 11,900,802	$ 597,441	$ 3,377,779
3	Total		$ 42,762,814	$ 6,821,521	$ 1,216,369	$ 26,030,101	$ 1,306,756	$ 7,388,067
4	Debt Service Applicable to Ammonia Project		$ 1,836,200	$ 293,000	$ 52,200	$ 1,117,700	$ 56,100	$ 317,200
	Units for Plant Design			Ccf	Ccf/Day	lbs	lbs	lbs
5	Retail			7,612,000	61,600	6,376,700	3,651,200	946,000
6	South St Joseph			975,936	6,700	2,555,000	1,095,000	375,950
7	Triumph			1,219,920	5,000	1,095,000	657,000	693,500
8	National Beef			487,968	2,000	73,000	219,000	876,000
	Allocation to Customer Classes							
9	Retail	= Line 5 / Total Units for Plant		73.9%	81.8%	63.1%	64.9%	32.7%
10	South St Joseph	= Line 6 / Total Units for Plant		9.5%	8.9%	25.3%	19.5%	13.0%
11	Triumph	= Line 7 / Total Units for Plant		11.8%	6.6%	10.8%	11.7%	24.0%
12	National Beef	= Line 8 / Total Units for Plant		4.7%	2.7%	0.7%	3.9%	30.3%
	Allocated Ammonia Capital Costs to Customer Classes							
13	Retail	= Line 4 x Line 9	$ 1,105,100	$ 216,600	$ 42,700	$ 705,600	$ 36,400	$ 103,800
14	South St Joseph	= Line 4 x Line 10	$ 367,300	$ 27,800	$ 4,600	$ 282,800	$ 10,900	$ 41,200
15	Triumph	= Line 4 x Line 11	$ 242,100	$ 34,700	$ 3,500	$ 121,200	$ 6,600	$ 76,100
16	National Beef	= Line 4 x Line 12	$ 121,700	$ 13,900	$ 1,400	$ 8,100	$ 2,200	$ 96,100
17	Total Applicable to Ammonia Project		$ 1,836,200	$ 293,000	$ 52,200	$ 1,117,700	$ 56,100	$ 317,200

		Costs	Units		Charge	
18	Retail	$ 1,105,100	3,048,900	Ccf	$ 0.36	$/Ccf
19	South St Joseph	$ 367,300	12	Bills	$ 30,610	$/Bill
20	Triumph	$ 242,100	12	Bills	$ 20,180	$/Bill
21	National Beef	$ 121,700	12	Bills	$ 10,140	$/Bill
22	Total	$ 1,836,200				

Presented in Table 24 is a comparison of adjusted allocated cost of service with revenue under proposed rates. The proposed retail rates are projected to recover 100.0 percent of the cost of service and results in an average increase over existing rates of 11.6 percent. Septage was capped at no more than a 150% increase over the 11% system increase or approximately 16.5%. The proposed wholesale rates are projected to recover 100.0 percent of the cost of service and results in an average increase over existing rates of 6.0 percent.

Table 24 Comparison of Cost of Service With Revenue Under Proposed Rates

for Fiscal Year Ending June 30, 2017

Line No.	Customer Class	[A] Allocated Cost of Service	[B] Revenue Under Estimated Rates	[C] Revenue as Percent of Adjusted Cost of Service	[D] Revenue Inc/(Dec) Compared to Existing Rates
		$	$	%	%
	Retail				
1	Residential	17,134,370	16,706,300	97.5	11.5
2	Commercial/Industrial	8,423,640	8,859,700	105.2	12.5
3	Surcharge	403,938	403,300	99.8	(2.4)
4	Septage	163,425	158,300	96.9	16.7
5	Total Retail	26,125,373	26,127,600	100.0	11.6
	Secondary Wholesale Treatment				
6	South St. Joseph Industrial Sewer District	1,778,552	1,778,600	100.0	5.6
7	National Beef Leathers	279,917	279,900	100.0	12.0
8	Triumph Foods	1,054,659	1,055,200	100.1	5.3
9	Total Secondary Wholesale Treatment	3,113,128	3,113,700	100.0	6.0
10	Total	29,238,501	29,241,300	100.0	11.0

7.4 COMPARISON OF TYPICAL CUSTOMER BILLS

A comparison of typical bills for various quantities of billable wastewater volume under the proposed schedule of wastewater rates with those under existing rates is shown in Table 25. The resulting increase in the typical bills is also indicated. The average residential user contributes approximately 6 Ccf per month, or approximately 4,500 gallons. At this level, a customer's monthly bill would increase by $6.57 to $63.28.

Table 25 Typical Retail Sewer Bills Under Existing and Proposed Rates

Monthly Billed Sewer Volume	Inside City			Outside City		
	Existing Rates	Estimated Rates	Increase	Existing Rates	Estimated Rates	Increase
Ccf	$	$	%	$	$	%
0	30.19	33.40	10.6	70.85	78.38	10.6
2	39.03	43.36	11.1	91.05	101.14	11.1
6	56.71	63.28	11.6	131.45	146.66	11.6
10	74.39	83.20	11.8	171.85	192.18	11.8
30	162.79	182.80	12.3	373.85	419.77	12.3
50	251.19	282.40	12.4	575.85	647.37	12.4
75	361.69	406.90	12.5	828.35	931.86	12.5
100	472.19	531.40	12.5	1,080.85	1,216.35	12.5
150	693.19	780.40	12.6	1,585.85	1,785.33	12.6
200	914.19	1,029.40	12.6	2,090.85	2,354.31	12.6
500	2,240.19	2,523.40	12.6	5,120.85	5,768.20	12.6
1,000	4,450.19	5,013.40	12.7	10,170.85	11,458.02	12.7

Appendix A - Detailed Allocation to Cost Components

Updated for

Fiscal Year 2017

Revised O&M and Plant Allocators

For Fiscal Year 2017

Appendix A-1 Sludge Handling Cost Allocation Factors

Primary Sludge	Secondary Sludge	Total
pounds	pounds	pounds
9,815,099	16,240,403	26,055,503
37%	63%	100%

Description	Common to Retail				Common to All			
	Volume	BOD	Suspended Solids	FOG	Volume	BOD	Suspended Solids	Ammonia
Sludge Handling (a)		11.2%	22.0%	3.8%		42.9%	20.1%	0.0%

(a) Assume Primary Treatment related sludge is 37 percent of the total sludge processed and allocate 11 percent to Primary Treatment related BOD and 22 percent to Primary Treatment related Suspended Solids. Allocate the remaining 63 percent, 43 percent to Secondary Treatment related BOD and 20 percent to Secondary Treatment related Suspended Solids.

Appendix A-2 Secondary Operations Allocation Factors

Secondary Cost Components	EPA Manual Estimated Hours (a)	Common to Retail					Common to All				
		Volume	Capacity	BOD	Suspended Solids	FOG	Volume	Capacity	BOD	Suspended Solids	Ammonia
Aeration	2,700								2,700		
Secondary Clarifiers	3,000						3,000				
Trickling Filters	5,000								5,000		
Sludge Digestion	5,000								2,145	2,855	0
Total	15,700	0	0	0	0	0	3,000	0	9,845	2,855	0
Percentage	100%	0.0%	0.0%	0.0%	0.0%	0.0%	19.1%	0.0%	62.7%	18.2%	0.0%

(a) "Estimating Cost and Manpower Requirements for Conventional Wastewater Treatment Facilities", Office of Research and Monitoring-Environmental Protection Agency, 1971.

Appendix A-3 Wastewater Treatment Plant Vehicle Allocation Factors

Description	Total	Common to Retail					Common to All					SSJISD Pump Station
		Volume	Capacity	BOD	Suspended Solids	FOG	Volume	Capacity	BOD	Suspended Solids	Ammonia	
Sludge Related (a)	70.00%			7.84%	15.40%	2.66%			30.03%	14.07%	0.00%	
Other (b)	30.00%	9.50%	5.39%	0.57%	1.22%	0.19%	2.76%	2.86%	4.95%	1.63%	0.00%	0.93%
Total	100.00%	9.50%	5.39%	8.41%	16.62%	2.85%	2.76%	2.86%	34.98%	15.70%	0.00%	0.93%
Total (Rounded)	100%	9.4%	5.4%	8.4%	16.6%	2.9%	2.8%	2.9%	35.0%	15.7%	0.0%	0.9%

(a) Allocation based on Sludge Handling Cost allocation Factors, Appendix A-1.
(b) Allocation based on Wastewater Treatment Plant and Lift Station Personnel Expense Allocation Factors, excluding Vehicles, Appendix A-4.

Appendix A-4 Wastewater Treatment Plant and Personnel Expense

Activity	Percentage Dist (a)	Common to Retail					Common to All					SSJISD Pump Station
		Volume	Capacity	BOD	Suspended Solids	FOG	Volume	Capacity	BOD	Suspended Solids	Ammonia	
	%	%	%	%	%	%	%	%	%	%	%	%
Primary Operations	12%	12.4%										
Secondary Operations (b)	12%						2.0%		7.0%	2.0%	0.0%	
Sludge - Belt Press (c)	5%			0.5%	1.1%	0.2%			2.1%	1.0%	0.0%	
Sludge - Haul & Spread (c)	5%			0.6%	1.2%	0.2%			2.3%	1.1%	0.0%	
Equipment Maintenance (d)												
Primary Operations	22%	17.5%	1.7%	0.7%	1.7%	0.2%						
Secondary Operations	22%						6.9%	9.2%	4.5%	1.2%	0.0%	
Pump Station (e)	19%		15.6%									3.0%
Vehicle Maintenance (f)	4%	0.3%	0.2%	0.3%	0.6%	0.1%	0.1%	0.1%	1.3%	0.6%	0.0%	0.0%
Total	100%	30.3%	17.5%	2.1%	4.5%	0.7%	9.0%	9.3%	17.2%	5.8%	0.0%	3.0%
Percentage Distribution												
Wastewater Treatment Plant & L.S.	100.00%	30.90%	17.50%	2.10%	4.50%	0.70%	9.00%	9.30%	17.20%	5.80%	0.00%	3.00%
Wastewater Treatment Plant Only	100.00%	38.70%	2.20%	2.40%	5.10%	0.80%	11.50%	11.90%	20.60%	6.80%	0.00%	
Vehicles	100.00%	12.30%	5.40%	8.40%	16.60%		2.80%	2.90%	35.00%	15.70%		0.90%

(a) Percentage distribution based on analysis of functional duties and salary budget
(b) Allocation based on Secondary Operation Allocation Factors, Appendix A-2.
(c) Allocation based on Sludge Handling Cost Allocation Factors, Appendix A-1.
(d) Allocation based on Wastewater Treatment
(e) Allocation based on SSJISD pump station fixed assets as a percent of total pump station fixed assets.
(f) Allocation based on Vehicle Allocation Factors, Appendix A-3.

Appendix A-5 Power Cost Allocation Factors

Location	Power Costs (a)	Common to Retail					Common to All					SSJISD Pump Station
		Volume	Capacity	BOD	Suspended Solids	FOG	Volume	Capacity	BOD	Suspended Solids	Ammonia	
	$	$	$	$	$	$	$	$	$	$	$	$
Substation 1- Intermed. P.S.	239,453	160,433	0	0	0	0	79,019	0	0	0	0	0
Substation 2- Blower Bldg.	419,313	0	0	0	0	0	0	0	419,313	0	0	0
Substation 3- Util. Water P.S.	42,216	42,216	0	0	0	0	0	0	0	0	0	0
Substation 4- Control Bldg.	269,665	0	0	30,202	59,326	10,247	0	0	115,686	54,203	0	0
Ammonia Project	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	970,647	202,649	0	30,202	59,326	10,247	79,019	0	534,999	54,203	0	0
Lift Stations	507,353	468,563	0	0	0	0	0	0	0	0	0	38,791
Total	1,478,000	671,212	0	30,202	59,326	10,247	79,019	0	534,999	54,203	0	38,791
Percentage Distribution	100.00%	45.50%	0.00%	2.00%	4.00%	0.70%	5.30%	0.00%	36.20%	3.70%	0.00%	2.60%

(a) Wastewater Treatment electricity cost for fiscal year 2015.

Appendix A-6 Laboratory Allocation Factors

Description	Total	Common to Retail					Common to All					SSJISD Pump Station
		Volume	Capacity	BOD	Suspended Solids	FOG	Volume	Capacity	BOD	Suspended Solids	Ammonia	
Secondary Treatment Plant (a)	50.00%						16.67%		16.67%	16.66%	0.00%	
Other Laboratory Expense (b)	50.00%	12.50%		12.50%	12.50%	12.50%						
Total Laboratory	100.00%	12.50%	0.00%	12.50%	12.50%	12.50%	16.67%	0.00%	16.67%	16.66%	0.00%	0.00%
Total Laboratory (Rounded)	100%	12.5%	0.0%	12.5%	12.5%	12.5%	16.7%	0.0%	16.7%	16.6%	0.0%	0.0%

(a) Allocate equally to each Secondary cost component.
(b) Allocate equally to each Primary cost component.

Appendix A-7 O&M Details

Line No	Description	[A] FY 2017	[B] Used in Appendix A-8
	Wastewater Treatment Plant (a)		
1	Personnel Related	2,645,600	Line 1
	Materials & Supplies		
2	Wastewater Treatment	363,600	Line 2
3	Motor Fuel & Lubricants	100,000	Line 3
4	Other	729,100	Line 4
5	Subtotal Mat. & Supplies	1,192,700	
	Outside Services		
6	Gas Service	165,000	Line 5
7	Electric Service	1,478,000	Line 6
8	M&R Buildings/Facilities	936,000	Line 8
9	M&R Machinery & Equip.	12,500	Line 8
10	M&R Motor Vehicles	50,000	Line 8
11	Other	166,000	Line 8
12	Subtotal	2,807,500	
13	Transfer to Aviation	48,300	Line 7
14	Capital Outlay	784,700	Line 8
15	Total Wastewater Treatment	7,478,800	
16	Laboratory	586,600	Line 9
17	Subtotal	8,065,400	
18	Wastewater Plant Admin.	2,328,300	Line 10
19	Sewer Maintenance (b)	2,062,500	Line 11
20	Transfer to General (c)	1,833,300	Line 12
21	Subtotal	6,224,100	
22	Total Revenue Requirement	14,289,500	

(a) Including Lift Stations.
(b) Includes Street & Sewer Maintanance, Sewer Rehabilitation, Trunk Sewer Development, and District Sewer Improvements.
(c) Including Legal Services.

Appendix A-8 O&M Functional Cost Allocation

Line No.	Description	[A] Total	[B] Primary	[C] Secondary	[D] Sludge	[E] Pumping	[F] Vehicles	[G] Gas	[H] Power	[I] Chemicals	[J] Laboratory	[K] Gen. Treatment	[L] Treatment - Repair & Replace	[M] Sewer Maintenance	[N] General WW	[O] Billing
	WW Treatment															
1	Personnel	2,645,600	34.20%	33.37%	10.19%	18.65%	3.59%									
2	Chemicals	363,600								100.00%						
3	Motor Fuel & Lubricants	100,000								100.00%						
4	Other Materials and Supplies	729,100										100.00%				
5	Gas Service	165,000						100.00%								
6	Electric Service	1,478,000							100.00%							
7	Transfer to Aviation	48,300			100.00%											
8	Routine Repair and Replacement	1,949,200											100.00%			
9	Laboratory	586,600									100.00%					
10	Admin. & General	2,328,300										27.43%				72.57%
11	Sewer Maintenance	2,062,500												100.00%		
12	Transfer to General Fund	1,833,300													100.00%	
13	Total Wastewater O&M	14,289,500	904,787	882,920	317,782	493,357	95,054	165,000	1,478,000	463,600	586,600	1,367,795	1,949,200	2,062,500	1,833,300	1,689,605

Appendix A-9 O&M Cost Allocation Factors

Line No.	Description	[A] Total	[B] Common to Retail: Volume	[C] Common to Retail: Capacity	[D] Common to Retail: BOD	[E] Common to Retail: TSS	[F] Common to Retail: Ammonia	[G] Common to Retail: FOG	[H] Common to All: Volume	[I] Common to All: Capacity	[J] Common to All: BOD	[K] Common to All: TSS	[L] Common to All: Ammonia	[M] Common to All: FOG	[N] SSJISD	[O] Septage	[P] Billing	[Q] Basis of Allocation
1	Primary Treatment	100.00%	90.0%		3.0%	6.0%		1.0%										90% Primary Volume and Sludge Based on Appendix A-1 (Primary Only)
2	Secondary Treatment	100.00%							19.1%	0.0%	62.7%	18.2%	0.0%					Appendix A-2
3	Sludge	100.00%			11.2%	22.0%		3.8%			42.9%	20.1%	0.0%					Appendix A-1
4	Pumping	100.00%		81.6%											18.4%			Based on Fixed Assets
5	Vehicles	100.00%	9.4%	5.4%	8.4%	16.6%		2.9%	2.8%	2.9%	35.0%	15.7%	0.0%		0.9%			Appendix A-3
6	Gas	100.00%	44.0%						56.0%									Average Day Primary & Secondary
7	Electric Service	100.00%	45.5%	0.0%	2.0%	4.0%		0.7%	5.3%	0.0%	36.2%	3.7%	0.0%		2.6%			Appendix A-5
8	Chemicals	100.00%			11.2%	22.0%		3.8%			42.9%	20.1%	0.0%					Appendix A-1
9	Laboratory	100.00%	12.5%	0.0%	12.5%	12.5%		12.5%	16.7%	0.0%	16.7%	16.6%	0.0%		0.0%			Appendix A-6
10	General Treatment	100.00%	23.9%	10.9%	5.2%	8.4%	0.0%	3.1%	7.2%	0.1%	27.2%	11.5%	0.0%	0.0%	2.4%			Allocate on Basis of Treatment O&M , Less Power, Chem.
11	Treatment Repair & Replacement	100.00%	2.4%	7.6%	3.1%	7.7%	0.0%	1.1%	8.5%	42.1%	20.8%	5.5%	0.0%	0.0%	0.0%	1.1%	0.0%	Allocate on Basis of Treatment Plant in Service
12	Sewer Maintenance	100.00%		100.0%														Primary Capacity
13	Transfer to General Fund	100.00%	16.8%	46.2%	2.7%	4.0%	0.0%	1.8%	5.0%	0.1%	15.4%	6.3%	0.0%	0.0%	1.7%			Allocate on Basis of Treatment O&M and Sewer Maint., Less Power, & Chem.
14	Billing	100.00%															100.0%	Billing

Appendix A-10 O&M Allocated Costs

		[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	[O]	[P]
			Common to Retail						Common to All								
Line No.	Description	Total	Volume	Capacity	BOD	TSS	Ammonia	FOG	Volume	Capacity	BOD	TSS	Ammonia	FOG	SSJISD	Septage	Billing
		$	$	$	$	$	$	$	$	$	$	$	$	$	$		$
1	Primary Treatment	904,787	814,308	-	27,144	54,287	-	9,048	-	-	-	-	-	-	-		-
2	Secondary Treatment	882,920	-	-	-	-	-	-	168,638	-	553,591	160,691	-	-	-		-
3	Sludge	317,782	-	-	35,592	69,912	-	12,076	-	-	136,329	63,874	-	-	-		-
4	Pumping	493,357	-	402,579	-	-	-	-	-	-	-	-	-	-	90,778		-
5	Vehicles	95,054	8,935	5,133	7,985	15,779	-	2,757	2,662	2,757	33,269	14,923	-	-	855		-
6	Gas	165,000	72,600	-	-	-	-	-	92,400	-	-	-	-	-	-		-
7	Electric Service	1,478,000	672,490	-	29,560	59,120	-	10,346	78,334	-	535,036	54,686	-	-	38,428		-
8	Chemicals	463,600	-	-	51,923	101,992	-	17,617	-	-	198,884	93,184	-	-	-		-
9	Laboratory	586,600	73,325	-	73,325	73,325	-	73,325	97,962	-	97,962	97,376	-	-	-		-
10	General Treatment	1,367,795	327,534	148,945	71,591	115,184	-	41,947	98,367	1,007	372,639	157,105	-	-	33,475		-
11	Treatment Repair & Replacement	1,949,200	46,724	148,702	60,659	150,085	-	20,571	166,009	821,379	405,746	107,286	-	-	-	21,999	-
12	Sewer Maintenance	2,062,500	-	2,062,500	-	-	-	-	-	-	-	-	-	-	-		-
13	Transfer to General Fund	1,833,300	307,632	847,584	49,425	73,189	-	33,353	92,389	946	281,755	115,586	-	-	31,441		-
14	Billing	1,689,605	-	-	-	-	-	-	-	-	-	-	-	-	-		1,689,605
15	Total O&M	14,289,500	2,323,549	3,615,443	407,202	712,873	-	221,039	796,761	826,088	2,615,211	864,712	-	-	194,978	21,999	1,689,605
16	Less: O&M Adjustments	(973,000)															
17	Net O&M From Rates	13,414,400	2,181,200	3,394,000	382,300	669,200	-	207,500	748,000	775,500	2,455,100	811,800	-	-	183,000	20,700	1,586,100

Appendix A-11 Fixed Assets (1 of 6)

Location	Function	FA ID	Asset Description	Code	Original Cost	Accumulated Depreciation	Year in Service	Trend Factor	Trended Cost	Trended Cost Less Depr	Allocation
					$	$			$	$	
LAND											
LAND	Primary	A900287	TREATMENT PLANT LAND	LD	126,553	0	1967	1.000	126,553	126,553	Treatment - Other Primary
LAND	Secondary	A870895	SECONDARY PLANT	LD	91,344	0	1967	1.000	91,344	91,344	Treatment - Other Secondary
LAND	Pump Station	A870889	R2-1 WHITEHEAD PUMP STATION	LD	57,836	0	1967	1.000	57,836	57,836	Pumping
LAND	Primary	A870891	R-3 INTERCEPTOR MISC EXP	LD	16,174	0	1967	1.000	16,174	16,174	Collection & Conveyance
LAND	Pump Station	870883	WHITEHEAD PUMP STATION LAND	LD	12,565	0	1967	1.000	12,565	12,565	Pumping
LAND	Pump Station	870892	BROWN'S BRANCH PUMP STATION	LD	8,339	0	1967	1.000	8,339	8,339	Pumping
LAND	Pump Station	870893	ROY'S BRANCH PUMP STATION LAND	LD	3,008	0	1967	1.000	3,008	3,008	Pumping
LAND	Sewer	A870932	D#217 GF LAND PARCEL	LD	2,550	0	1967	1.000	2,550	2,550	Collection & Conveyance
LAND	Sewer	A870896	LAND EASEMENTS	LD	2,521	0	1967	1.000	2,521	2,521	Collection & Conveyance
LAND	Pump Station	870879	BLACKSNAKE PUMP STATION LAND	LD	2,048	0	1967	1.000	2,048	2,048	Pumping
LAND	Sewer	A870936	G1-1 PICKETT-MITCHELL	LD	1,667	0	1967	1.000	1,667	1,667	Collection & Conveyance
LAND	Sewer	A870884	G7-1 6TH STREET	LD	1,421	0	1967	1.000	1,421	1,421	Collection & Conveyance
LAND	Sewer	A870890	R2-2 WHITEHEAD FORCE MAIN	LD	1,295	0	1967	1.000	1,295	1,295	Collection & Conveyance
LAND	Sewer	A870885	G7-2 KING HILL EXTENSION	LD	1,029	0	1967	1.000	1,029	1,029	Collection & Conveyance
LAND	Pump Station	870881	FARAON PUMP STATION LAND	LD	90,594	0	1969	1.000	90,594	90,594	Pumping
LAND	Sewer	A870897	102 INTERCEPTOR	LD	26,262	0	1976	1.000	26,262	26,262	Collection & Conveyance
LAND	Primary	A870899	OUTFALL LINE	LD	18,300	0	1976	1.000	18,300	18,300	Treatment - Outfall
LAND	Sewer	A870898	CARNATION EASEMENT	LD	2,928	0	1976	1.000	2,928	2,928	Collection & Conveyance
SSJ	SSJISD Pump Stations	A900288	SOUTH ST JOSEPH PUMP STATION	LD	3,500	0	1978	1.000	3,500	3,500	SSJISD Pump Stations
LAND	Sewer	A870900	COUNTRY SQUIRE	LD	2,100	0	1984	1.000	2,100	2,100	Collection & Conveyance
LAND	Pump Station	870901	EASTON RD LIFT STATION LAND	LD	1,000	0	1984	1.000	1,000	1,000	Pumping
LAND	Sewer	A870933	SD#262 GF LAND PARCEL	LD	1,000	0	1986	1.000	1,000	1,000	Collection & Conveyance
LAND	Sewer	A880450	LAND EASEMENTS	LD	9,390	0	1967	1.000	9,390	9,390	Collection & Conveyance
LAND	Sewer	A880042	LAND EASEMENT SEWER DIST #317	LD	2,000	0	1987	1.000	2,000	2,000	Collection & Conveyance
LAND	Sewer	A880041	LAND EASEMENT SEWER NORTHRIDGE	LD	1,650	0	1987	1.000	1,650	1,650	Collection & Conveyance
WPC	Sewer	70049	4316 STOCKYARDS EXPRESSWAY	LD	151,220	0	2006	1.000	151,220	151,220	Collection & Conveyance
WPC	Sewer	90060	UP Railroad Land Purch-Blcksnk	LD	175,638	0	2009	1.000	175,638	175,638	Pumping
SWMTN	Sewer	100137	Hausman Trstee Land Purchase	LD	29,000	0	2010	1.000	29,000	29,000	Collection & Conveyance
SWMTN	Sewer	100136	Word of Life Land Purchase	LD	15,000	0	2010	1.000	15,000	15,000	Collection & Conveyance
SWMTN	Sewer	100138	Kennedy Land Purchase	LD	5,900	0	2010	1.000	5,900	5,900	Collection & Conveyance
LAND	Sewer	110204	FY11 Sewer Easements	LD	18,563	0	2011	1.000	18,563	18,563	Collection & Conveyance
LAND	Pump Station	120069	2012 land purch for Whthd Pump	LD	551,862	0	2012	1.000	551,862	551,862	Pumping
LAND	Pump Station	120067	Disinf Pump Stat-land (Pallet)	LD	200,000	0	2012	1.000	200,000	200,000	Treatment - Outfall
LAND	Pump Station	120068	Disinf Pump Sta-land(Bartlett)	LD	17,900	0	2012	1.000	17,900	17,900	Treatment - Outfall
LAND	Sewer	120065	Jessen Perm Easemt CTYL/Yrk St	LD	10,500	0	2012	1.000	10,500	10,500	Collection & Conveyance
LAND	Sewer	130204	2013 Sewer Easements	LD	47,810	0	2013	1.000	47,810	47,810	Collection & Conveyance
LAND	Sewer	130205	Whitehead-BNSF Easements	LD	16,775	0	2013	1.000	16,775	16,775	Collection & Conveyance
WPC		140076	Atha/Janice East Side Imp Land	LD	381,179	0	2014	1.000	381,179	381,179	Collection & Conveyance
SWMTN	Sewer	140202	2014 Sewer Easements	LD	349,379	0	2014	1.000	349,379	349,379	Collection & Conveyance
			TOTAL LAND		2,457,800				2,457,800	2,457,800	
				Check	2,457,800						
BUILDINGS AND IMPROVEMENTS											
WHITEHEAD	Other	850076	WHITEHEAD PUMPING STATION	BD	172,854.00	172,854	1965	10.929	1,889,047	0	Pumping
GRITBASIN	Other Primary	850138	AERATED GRIT BASIN EAST & WEST	BD	130,368.00	130,368	1965	10.929	1,424,736	0	Treatment - Grit Basin
SEWAGE	Other Primary	850156	PLANT SEWAGE PUMP STATION	BD	100,336.80	100,337	1965	10.929	1,096,538	0	Treatment - Pumping
STATIONS	Other	850128	ZIMMERMAN LIFT STATION	BD	12,280.00	11,913	1967	10.033	123,203	3,677	Pumping
BROWN	Other	850072	BROWNS BRANCH PUMPING STATION	BD	76,080.00	76,080	1968	9.563	727,515	0	Pumping
STATIONS	Other	850127	ROYS BRANCH LIFT STATION	BD	16,120.00	14,026	1972	6.652	107,233	13,929	Pumping
STATIONS	Other	850122	PHILLIPS & SHERMAN LIFT STATIO	BD	19,520.00	16,200	1974	5.231	102,105	17,366	Pumping
STATIONS	Other	850130	SHERWOOD LIFT STATION	BD	20,880.00	16,913	1975	4.744	99,059	18,821	Pumping
STATIONS	Other	850126	CAMBRIDGE LIFT STATION	BD	23,200.00	17,865	1977	4.340	100,698	23,154	Pumping
SSJ	SSJISD Pump Stations	850075	SOUTH ST JOE INDUSTRIAL PUMP	BD	118,472.20	118,472	1978	3.948	467,774	0	SSJISD Pump Stations
OLDCONTROL	Filter/Anaerobic Digeste	850137	FILTER/CTRL BLDG W/ DIGESTERS	BD	4,179,844.00	3,051,288	1979	3.621	15,136,476	4,086,844	Treatment - Digester
BLOWER	Aerobic Digestors	850154	AEROBIC DIGESTER	BD	2,289,326.00	1,671,207	1979	3.621	8,290,340	2,238,397	Treatment - Digester
INTERMED	Intermediate P.S.	850144	INTERMEDIATE PUMP STATION	BD	1,554,740.00	1,134,959	1979	3.621	5,630,183	1,520,154	Treatment - Pumping
WPC	Aeration	850148	AERATION TANK RETURN	BD	812,666.80	593,245	1979	3.621	2,942,912	794,593	Treatment - Aeration
CLARIFIERS	Secondary Clarifiers	850149	SECONDARY CLARIFIER #2	BD	675,758.00	493,302	1979	3.621	2,447,124	660,728	Treatment - Secondary Clarifier
CLARIFIERS	Secondary Clarifiers	850151	SECONDARY CLARIFIER #3	BD	675,758.00	493,302	1979	3.621	2,447,124	660,728	Treatment - Secondary Clarifier
CLARIFIERS	Secondary Clarifiers	850150	SECONDARY CLARIFIER #4	BD	675,758.00	493,302	1979	3.621	2,447,124	660,728	Treatment - Secondary Clarifier
FLOTATION	DAF	850155	DISSOLVED AIR FLOTATION	BD	524,027.60	524,028	1979	3.621	1,897,662	0	Treatment - DAF
BLOWER	Blower	850153	BLOWER BUILDING	BD	517,151.60	377,521	1979	3.621	1,872,762	505,645	Treatment - Blower Bldg.
FARAON	Other	850073	FARAON STREET PUMP STATION	BD	485,292.80	485,293	1979	3.621	1,757,392	0	Pumping
CHEMICAL	Other Primary	850157	C P CLARIFIER WITH CONTROL	BD	393,689.20	287,394	1979	3.621	1,425,667	384,928	Treatment - Other Primary
RETURNPUMP	Other Primary	850147	RETURN #1 ONE STORY BLDG	BD	284,208.00	207,472	1979	3.621	1,029,203	277,885	Treatment - Sludge Pumping
RETURNPUMP	Other Primary	850146	RETURN #2 ONE STORY BLDG	BD	284,208.00	207,472	1979	3.621	1,029,203	277,885	Treatment - Sludge Pumping
SWMTN	General	850158	MAINTENANCE BUILDING	BD	277,866.80	202,842	1979	3.621	1,006,240	271,687	Collection & Conveyance
CLARIFIERS	Other Primary	850141	PRIMARY CLARIFIER #2	BD	271,220.00	197,989	1979	3.621	982,169	265,191	Treatment - Primary Clarifier
CLARIFIERS	Other Primary	850142	PRIMARY CLARIFIER #3	BD	271,220.00	197,989	1979	3.621	982,169	265,191	Treatment - Primary Clarifier
CLARIFIERS	Other Primary	850143	PRIMARY CLARIFIER #4	BD	271,220.00	197,989	1979	3.621	982,169	265,191	Treatment - Primary Clarifier
TRANSFER	Other Primary	850152	TRANSFER PUMP/UTILITY WATER	BD	233,249.20	170,272	1979	3.621	844,666	228,058	Treatment - Pumping
EASTON	Other	850123	EASTON RD LIFT STATION 6294FS	BD	68,760.00	50,195	1979	3.621	249,001	67,230	Pumping
RAWPUMP	Other Primary	850139	RAW SLUDGE PUMP HOUSE #1	BD	57,682.00	42,109	1979	3.621	208,884	56,394	Treatment - Sludge Pumping
RAWPUMP	Other Primary	850140	RAW SLUDGE PUMP HOUSE #2	BD	57,682.00	42,109	1979	3.621	208,884	56,394	Treatment - Sludge Pumping
EASTON	Other	850077	EASTON GENERATOR SHED WET WELL	BD	33,493.76	33,494	1979	3.621	121,291	0	Pumping
FARAON	Other	850074	STORAGE SHED	BD	4,660.40	4,660	1979	3.621	16,877	0	Pumping
STATIONS	Other	880323	LIFT STATION 16 AIRPRT 15-1578	BD	22,000.00	22,000	1987	2.550	56,100	0	Pumping
BLUESIDE	Aerobic Digestors	900216	AEROBIC ACTIVATED SLUDGE SYSTE	BD	1,723,974.00	1,465,379	1990	2.363	4,073,637	611,043	Treatment - Digester
BLOWER	Blower	920424	ELECTRICAL IMPROVEMENTS	BD	65,496.64	51,307	1991	2.318	151,833	32,894	Treatment - Blower Bldg.
OLDCONTROL	Filter/Anaerobic Digeste	910298	FILTER BLDG ROOF REPLACEMENT	BD	27,321.00	22,312	1991	2.318	63,335	11,612	Treatment - Digester
BLOWER	Blower	920418	WPC ROOF REPAIR/REPLACEMENT	BD	27,761.00	21,745	1992	2.327	64,600	13,999	Treatment - Blower Bldg.
BROWN	Other	920262	INSULATED ROLL UP OVRHEAD DOOR	BD	4,165.00	3,263	1992	2.327	9,692	2,100	Admin. & General
BROWN	Other	920263	INSULATED ROLL UP OVRHEAD DOOR	BD	2,980.00	2,335	1992	2.327	6,934	1,501	Admin. & General
STATIONS	Other	940744	GENERATOR FLOOD REPLACEMENT	BD	26,452.00	18,958	1993	2.225	58,868	16,678	Pumping
STATIONS	Other	930383	LIFT STATION WHEATRIDGE	BD	13,000.00	5,851	1993	2.225	28,931	15,910	Pumping
STATIONS	Pump Station	930382	OLD 12 OAKS Lift Station	BD	13,000.00	5,851	1993	2.225	28,931	15,910	Pumping
AIRPORT	Other	940743	AIRPORT LIFT STATION FLOOD REP	BD	26,560.99	19,035	1994	2.132	56,639	16,048	Pumping
AIRPORT	Other	940742	DRAINAGE PUMP STATION FLOOD RP	BD	18,008.06	12,905	1994	2.132	38,400	10,881	Pumping
INTERMED	Trickling Filters	940694	TRICKLING FILTER #3	BD	968,100.10	661,536	1995	2.026	1,961,845	621,250	Treatment - Trickling Filter
SEWAGE	Other Primary	950697	MAG METER & PLC INSTALLATION	BD	26,707.50	18,251	1995	2.026	54,122	17,138	Treatment - Meters
RAWPUMP	Other Primary	950698	MAG METER 7 PLC INSTALLATIONS	BD	26,707.50	18,251	1995	2.026	54,122	17,138	Treatment - Meters
FLOTATION	DAF	950695	OVERHEAD HOISTING RAIL	BD	23,500.00	16,059	1995	2.026	47,623	15,079	Treatment - DAF
WPC	General	950660	MAIN OFFICE ROOF REPLACEMENT	BD	16,306.00	16,306	1995	2.026	33,044	0	Admin. & General
WPC	Aerobic Digestors	940693	AEROBIC DIGESTER IMPROVEMENTS	BD	906,506.30	559,012	1996	1.981	1,795,411	688,242	Treatment - Digester

Appendix A-11 Fixed Assets (2 of 6)

Location	Function	FA ID	Asset Description	Code	Original Cost	Accumulated Depreciation	Year in Service	Trend Factor	Trended Cost	Trended Cost Less Depr	Allocation
					$	$			$	$	
INTERMED	Trickling Filters	940695	TRICKLING FILTER #2	BD	786,658.00	511,327	1996	1.981	1,558,041	545,315	Treatment - Trickling Filter
INTERMED	Trickling Filters	940696	TRICKLING FILTER #4	BD	786,658.00	511,327	1996	1.981	1,558,041	545,315	Treatment - Trickling Filter
INTERMED	Intermediate P.S.	940697	INTERMEDIATE PUMPING ST IMPROV	BD	457,163.20	297,157	1996	1.981	905,449	316,906	Treatment - Pumping
SEWAGE	Other Primary	940692	PLANT SEWAGE PUMP STATION IMPR	BD	421,822.40	260,124	1996	1.981	835,454	320,257	Treatment - Pumping
BROWN	Other	940706	BROWNS BRANCH PUMP ST IMPROVEM	BD	138,960.90	90,324	1996	1.981	275,224	96,329	Pumping
WPC	Aerobic Digestors	950659	DIGESTER REHABS 1,2,3,4	BD	36,718.86	23,868	1996	1.981	72,725	25,452	Treatment - Digester
OLDCONTROL	Filter/Anaerobic Digeste	970364	STAIRS AND 2 RAILINGS	BD	17,662.00	10,891	1996	1.981	34,981	13,410	Treatment - Digester
WPC	Other Primary	960905	MISC TRTMNT PLANT IMPRV 420026	BD	3,828,936.00	2,361,177	1997	1.937	7,415,534	2,842,623	Treatment - General
NEWCONTROL	General	960895	ADMIN BLDG CIP 420-060	BD	1,615,267.87	996,083	1997	1.937	3,128,304	1,199,181	Treatment - General
WPC	Other Primary	940691	FILTER CTRL BLDG IMPROVEMENTS	BD	1,165,280.00	718,590	1997	1.937	2,256,808	865,109	Treatment - Sludge
OLDCONTROL	Filter/Anaerobic Digeste	990129	ROOF REPLACEMNT WASTEWTR PLANT	BD	37,160.00	20,438	1999	1.855	68,915	31,012	Treatment - Digester
SSJ	SSJISD Pump Stations	990128	ROOF REPLACEMENT STJOE PLANT	BD	14,774.00	8,126	1999	1.855	27,399	12,329	SSJISD Pump Stations
BROWN	Other	990127	ROOF REPLACEMENT BROWN'S BRNCH	BD	14,077.00	7,742	1999	1.855	26,106	11,749	Pumping
WHITEHEAD	Other	32	ROOF REPLACE-WHITEHEAD	BD	42,350.00	42,350	2000	1.805	76,455	0	Pumping
FARAON	Other	33	ROOF REPLACE - FARAON PUMP STA	BD	39,420.00	39,420	2000	1.805	71,165	0	Pumping
WPC	General	40040	ROOF REPLACEMENT	BD	23,941.00	23,941	2003	1.569	37,569	0	Treatment - General
SWMTN	General	70026	SEWER MAINT GARAGE	BD	31,270.86	8,860	2007	1.291	40,375	28,936	Collection & Conveyance
SWMTN	General	100120	Sewer Mtce/Recyc Ctr Facility	BD	889,011.90	133,352	2011	1.125	1,000,138	850,118	Collection & Conveyance
WPC		110106	Disinf/Effluent Pump Station	BD	26,931,480.00	1,346,574	2014	1.036	27,888,436	26,494,014	Treatment - Outfall
WPC	General	100112	Septage Receivng Sys Building	BD	290,487.80	24,207	2013	1.037	301,320	276,210	Treatment - Septage
		130112	WP Maintenance Building	BD	2,328,531.81	116,427	2015	1.000	2,328,532	2,212,105	Admin. & General
WHITEHEAD	Other	853750	C/O ASPHALT PAVING AND FENCING	IM	6,282.20	6,282	1965	10.929	68,655	0	Pumping
WPC	Other Primary	853305	LOT OF LAND IMPROVEMENTS	IM	195,000.00	195,000	1979	3.621	706,154	0	Treatment - Other Primary
WPC	Other Primary	960896	INTERCEPTOR CLEANING & REHAB	IM	616,327.20	400,613	1996	1.981	1,220,687	427,240	Collection & Conveyance
WPC	General	950696	WPC FACILITY FENCES	IM	10,940.00	7,111	1996	1.981	21,668	7,583	Treatment - General
WPC	Aerobic Digestors	970389	DIGESTER #1&2 REHAB (R-28)	IM	1,765,081.00	1,088,466	1997	1.937	3,418,448	1,310,406	Treatment - Digester
AIRPORT	Other	980180	PUMP STATION WIRING 420-137	IM	263,340.38	263,340	1998	1.918	505,217	0	Pumping
WHITEHEAD	Other	990219	INSTALL 3 FREQUENCY DRIVES	IM	61,854.00	34,020	1999	1.855	114,711	51,619	Pumping
WPC	General	36	MANHOLE REHAB PROJECT	IM	148,899.50	148,900	2000	1.805	268,810	0	Collection & Conveyance
CLARIFIERS	Secondary Clarifiers	30108	REPAIRS TO SEC CLARIFIER #3	IM	144,523.00	36,131	2002	1.645	237,764	178,323	Treatment - Secondary Clarifier
WHITEHEAD	Other	40003	Magnetic Flow Meter	IM	19,745.38	7,569	2003	1.569	30,985	19,107	Pumping
SEWAGE	Other Primary	40052	FLOWSERVE CENTRIFICAL PUMP	IM	45,269.71	17,353	2004	1.534	69,436	42,819	Treatment - Pumping
WPC	General	40054	REPLACE STAINLESS AIR FILTER	IM	45,200.00	45,200	2004	1.534	69,329	0	Treatment - Blower Bldg.
SSJ	SSJISD Pump Stations	70047	INVERTER REPLACEMENT	IM	583,629.10	165,361	2006	1.360	793,736	568,844	SSJISD Pump Stations
WPC	General	60045	SECURITY GATE SYSTEM	IM	41,703.00	13,206	2006	1.360	56,716	38,756	Treatment - General
WPC	Secondary Clarifiers	40129	WWTP EXPAN FOR TRIUMPH FOODS	IM	14,004,292.00	3,501,073	2008	1.226	17,175,605	12,881,704	Treatment - Industrial Secondary Clarifier
WPC	Aerobic Digestors	40128	DIGESTER REHAB	IM	1,075,810.00	268,952	2008	1.226	1,319,430	989,573	Treatment - Digester
INFRAS	Sewer	80115	Block St. Drainage Improvments	IM	144,008.80	31,202	2009	1.155	166,289	130,260	Collection & Conveyance
SWMTN	Sewer	90101	Llama Ln Storm Drainage Projt	IM	113,896.00	24,678	2009	1.155	131,518	103,022	Collection & Conveyance
CLARIFIERS	Secondary Clarifiers	100114	Rehab Primary Clarifier #2	IM	334,006.10	61,234	2010	1.166	389,356	317,974	Treatment - Secondary Clarifier
EASTON	Other	80126	Easton Rd Station & Force Main	IM	123,644.00	22,668	2010	1.166	144,134	117,709	Collection & Conveyance
SSJ	SSJISD Pump Stations	90121	SSJ Pump Stat Wet Well Rehab	IM	1,217,525.00	142,044	2012	1.076	1,309,535	1,156,756	SSJISD Pump Stations
	Secondary Clarifiers	100113	Rehab Secondary Clar #2 & #4	IM	1,199,227.00	139,910	2012	1.076	1,289,854	1,139,371	Treatment - Secondary Clarifier
	General	100116	Overhaul 4 Elevators	IM	469,178.30	54,737	2012	1.076	504,635	445,761	Admin. & General
	Other Primary	90120	Rosecrans Sewage Lagoon Effluе	IM	431,670.20	50,361	2012	1.076	464,292	410,125	Treatment - General
Other	Pumping	120106	County Line/York Pump Station	IM	652,107.10	54,342	2013	1.037	676,423	620,054	Pumping
		130111	Greens Demonstration Project	IM	325,288.32	16,264	2015	1.000	325,288	309,024	Collection & Conveyance
		100115	Whitehead Creek Strmwtr Separation	IM	16,285,514.68	161,587	2015	1.000	16,285,515	16,123,928	Collection & Conveyance
		130109	WP Lab Rehab & Improvements	IM	873,110.38	43,656	2015	1.000	873,110	829,455	Laboratory
		150049	WPC Lab Light Replacement	IM	305,577.00	15,279	2015	1.000	305,577	290,298	Laboratory
					100,928,420	29,343,659			167,527,343	90,924,303	
			Less Contributed Property		(14,004,292)	(3,501,073)			(17,175,605)	(12,881,704)	Contribution - Treatment
					86,924,128				150,351,739	78,042,600	
MACHINERY AND EQUIPMENT											
BROWN	Other	853748	PROCESS PIPING C/O PIPE	ME	105,790.00	105,790	1965	11.095	1,173,765	0	Pumping
BROWN	Other	853749	PROCESS PIPING C/O PIPE	ME	77,480.00	77,480	1965	11.095	859,659	0	Pumping
INTERMED	Intermediate P.S.	853251	PROCESSING PIPING C/O PIPE	ME	41,400.00	41,400	1965	11.095	459,343	0	Treatment - Pumping
INTERMED	Intermediate P.S.	853208	PROCESSING PIPING C/O PIPE	ME	39,425.40	39,425	1965	11.095	437,434	0	Treatment - Pumping
GRITBASIN	Machinery/Equip.	654980	GRIT REMOVAL SYSTEM	ME	23,840.00	23,840	1965	11.095	264,510	0	Treatment - Grit Basin
GRITBASIN	Machinery/Equip.	654981	GRIT REMOVAL SYSTEM	ME	23,840.00	23,840	1965	11.095	264,510	0	Treatment - Grit Basin
BROWN	Other	853740	PROCESS PIPING C/O PIPE	ME	23,840.00	23,840	1965	11.095	264,510	0	Pumping
INTERMED	Intermediate P.S.	853209	PROCESSING PIPING C/O PIPE	ME	19,370.00	19,370	1965	11.095	214,915	0	Treatment - Pumping
GRITBASIN	Machinery/Equip.	654984	SLUDGE COLLETOR CHAM & FLIGHT	ME	13,410.00	13,410	1965	11.095	148,787	0	Treatment - Grit Basin
GRITBASIN	Machinery/Equip.	654985	SLUDGE COLLETOR CHAM & FLIGHT	ME	13,410.00	13,410	1965	11.095	148,787	0	Treatment - Grit Basin
BROWN	Other	650342	CHART RECORDER CABINET	ME	7,450.00	7,450	1965	11.095	82,660	0	Pumping
BLOWER	Blower	650341	MOTOR CONTROL CENTER	ME	7,450.00	7,450	1965	11.095	82,660	0	Treatment - Blower Bldg.
GARAGE	Machinery/Equip.	734222	LATHE-METAL	ME	8,540.00	8,540	1973	6.990	59,695	0	Admin. & General
WHITEHEAD	Other	770317	SEWAGE PUMP CENTRIFUAL #3	ME	47,440.00	47,440	1977	4.599	218,162	0	Pumping
WHITEHEAD	Other	770318	SEWAGE PUMP CENTRIFUAL #4	ME	47,440.00	47,440	1977	4.599	218,162	0	Pumping
WHITEHEAD	Other	770319	SEWAGE PUMP CENTRIFUAL #5	ME	47,440.00	47,440	1977	4.599	218,162	0	Pumping
BLOWER	Blower	770316	MOTOR CONTROL CENTER	ME	35,580.00	35,580	1977	4.599	163,621	0	Treatment - Blower Bldg.
WHITEHEAD	Other	650321	SEWAGE PUMP CENTRIFUAL #1	ME	23,840.00	23,840	1977	4.599	109,633	0	Pumping
WHITEHEAD	Other	650320	SEWAGE PUMP CENTRIFUAL #2	ME	23,840.00	23,840	1977	4.599	109,633	0	Pumping
WHITEHEAD	Other	853746	SHAW BOX CRANE 5 TON	ME	14,825.00	14,825	1977	4.599	68,175	0	Pumping
BROWN	Other	853744	PROCESS PIPING C/O PIPE	ME	144,450.00	144,450	1978	4.262	615,674	0	
FARAON	Other	780336	SEWAGE PUMP CENTRIFUGAL	ME	51,360.00	51,360	1978	4.262	218,906	0	
FARAON	Other	780337	SEWAGE PUMP CENTRIFUGAL	ME	51,360.00	51,360	1978	4.262	218,906	0	
FARAON	Other	780338	SEWAGE PUMP CENTRIFUGAL	ME	51,360.00	51,360	1978	4.262	218,906	0	
OLDCONTROL	Machinery/Equip.	A90026	3 TON ELECTRIC HOIST	ME	6,420.00	6,420	1978	4.262	27,363	0	Treatment - General
SSJ	SSJISD Pump Stations	780335	HOIST ELECTRIC 3 TON	ME	6,420.00	6,420	1978	4.262	27,363	0	SSJISD Pump Stations
BLOWER	Aerobic Digestors	853263	SWING FUSERS INCLUDING PIPING	ME	231,840.00	231,840	1979	3.905	905,342	0	
INTERMED	Intermediate P.S.	853250	PROCESSING PIPING C/O PIPE	ME	207,000.00	207,000	1979	3.905	808,341	0	
BROWN	Other	853742	PROCESS PIPING C/O PIPE	ME	172,500.00	172,500	1979	3.905	673,617	0	
WPC	Machinery/Equip.	853258	SWINGFUSER INCLUD PIPING RETUR	ME	132,480.00	132,480	1979	3.905	517,338	0	
INTERMED	Intermediate P.S.	853254	PROCESSING PIPING C/O PIPE	ME	120,750.00	120,750	1979	3.905	471,532	0	
BROWN	Other	853264	PROCESS PIPING C/O PIPE	ME	103,500.00	103,500	1979	3.905	404,170	0	
INTERMED	Intermediate P.S.	853256	PROCESSING PIPING C/O PIPE	ME	103,500.00	103,500	1979	3.905	404,170	0	
EASTON	Other	790292	EMERGENCY GENERATOR SET	ME	86,250.00	86,250	1979	3.905	336,809	0	
SEWAGE	Sewer	794398	MECHANICAL BAR SCREEN	ME	69,000.00	69,000	1979	3.905	269,447	0	
SEWAGE	Sewer	853265	PROCESS PIPING C/O PIPER	ME	69,000.00	69,000	1979	3.905	269,447	0	
INTERMED	Intermediate P.S.	790716	RAW SEWAGE PUMP CENTRIFUGAL	ME	62,100.00	62,100	1979	3.905	242,502	0	
INTERMED	Intermediate P.S.	790717	RAW SEWAGE PUMP CENTRIFUGAL	ME	62,100.00	62,100	1979	3.905	242,502	0	
INTERMED	Intermediate P.S.	790718	RAW SEWAGE PUMP CENTRIFUGAL	ME	62,100.00	62,100	1979	3.905	242,502	0	
BLOWER	Blower	790792	MOTOR CONTROL CENTER	ME	58,650.00	58,650	1979	3.905	229,030	0	
BROWN	Other	790770	MECHANICAL BAR SCREEN #1	ME	55,200.00	55,200	1979	3.905	215,558	0	
BROWN	Other	790771	MECHANICAL BAR SCREEN #2	ME	55,200.00	55,200	1979	3.905	215,558	0	
	Other	790310	MECHANICAL BAR SCREEN 36in	ME	55,200.00	55,200	1979	3.905	215,558	0	
	Other	790311	MECHANICAL BAR SCREEN 36in	ME	55,200.00	55,200	1979	3.905	215,558	0	
CHEMICAL	Secondary Clarifiers	794437	CLARIFIER MECHANISM ASSY	ME	51,750.00	51,750	1979	3.905	202,085	0	
OLDCONTROL	Trickling Filters	790632	HEAT EXCHANGER	ME	51,750.00	51,750	1979	3.905	202,085	0	

Appendix A-11 Fixed Assets (3 of 6)

Location	Function	FA ID	Asset Description	Code	Original Cost	Accumulated Depreciation	Year in Service	Trend Factor	Trended Cost	Trended Cost Less Depr	Allocation
					$	$			$	$	
OLDCONTROL	Trickling Filters	790633	HEAT EXCHANGER	ME	51,750.00	51,750	1979	3.905	202,085	0	
OLDCONTROL	Trickling Filters	790634	HEAT EXCHANGER	ME	51,750.00	51,750	1979	3.905	202,085	0	
INTERMED	Intermediate P.S.	853252	PROCESSING PIPING C/O PIPE	ME	51,750.00	51,750	1979	3.905	202,085	0	
BLOWER	Blower	794395	ROTARY LOBE BLOWER W/ENGINE	ME	51,750.00	51,750	1979	3.905	202,085	0	
BLOWER	Blower	794396	ROTARY LOBE BLOWER W/ENGINE	ME	51,750.00	51,750	1979	3.905	202,085	0	
BLOWER	Blower	794397	ROTARY LOBE BLOWER W/ENGINE	ME	51,750.00	51,750	1979	3.905	202,085	0	
FLOTATION	DAF	794411	G E MOTOR CONTROL CENTER	ME	48,300.00	48,300	1979	3.905	188,613	0	
TRANSFER	Machinery/Equip.	790829	SEWAGE PUMP-C/O SCREW PUMP #1	ME	41,400.00	41,400	1979	3.905	161,668	0	
TRANSFER	Machinery/Equip.	790828	SEWAGE PUMP-C/O SCREW PUMP #2	ME	41,400.00	41,400	1979	3.905	161,668	0	
TRANSFER	Machinery/Equip.	790827	SEWAGE PUMP-C/O SCREW PUMP #3	ME	41,400.00	41,400	1979	3.905	161,668	0	
EASTON	Other	790329	EMERGENCY GENERATOR SET	ME	34,500.00	34,500	1979	3.905	134,723	0	
BLOWER	Blower	A90018	ROTARY LOBE BLOWER #5	ME	34,500.00	34,500	1979	3.905	134,723	0	
BLOWER	Blower	790783	ROTARY LOBE BLOWER 200HP	ME	34,500.00	34,500	1979	3.905	134,723	0	
BLOWER	Blower	790784	ROTARY LOBE BLOWER 200HP	ME	34,500.00	34,500	1979	3.905	134,723	0	
BLOWER	Blower	790785	ROTARY LOBE BLOWER 200HP	ME	34,500.00	34,500	1979	3.905	134,723	0	
BLOWER	Blower	790786	ROTARY LOBE BLOWER 200HP	ME	34,500.00	34,500	1979	3.905	134,723	0	
BLOWER	Blower	790787	ROTARY LOBE BLOWER 200HP	ME	34,500.00	34,500	1979	3.905	134,723	0	
BLOWER	Blower	790788	ROTARY LOBE BLOWER 200HP	ME	34,500.00	34,500	1979	3.905	134,723	0	
BLOWER	Blower	790789	ROTARY LOBE BLOWER 200HP	ME	34,500.00	34,500	1979	3.905	134,723	0	
BLOWER	Blower	790790	ROTARY LOBE BLOWER 200HP	ME	34,500.00	34,500	1979	3.905	134,723	0	
BLOWER	Blower	790791	ROTARY LOBE BLOWER 200HP	ME	34,500.00	34,500	1979	3.905	134,723	0	
BLOWER	Blower	790793	ADJUSTABLE FREQUENCY DRIVE	ME	31,050.00	31,050	1979	3.905	121,251	0	
BLOWER	Blower	790794	ADJUSTABLE FREQUENCY DRIVE	ME	31,050.00	31,050	1979	3.905	121,251	0	
BLOWER	Blower	790795	ADJUSTABLE FREQUENCY DRIVE	ME	31,050.00	31,050	1979	3.905	121,251	0	
BLOWER	Blower	790746	MOTOR CONTROL CENTER	ME	31,050.00	31,050	1979	3.905	121,251	0	
BLOWER	Blower	790775	MOTOR CONTROL CENTER	ME	31,050.00	31,050	1979	3.905	121,251	0	
RETURNPUMP	Machinery/Equip.	790762	MOTOR CONTROL CENTRAL	ME	31,050.00	31,050	1979	3.905	121,251	0	
FARAON	Other	790287	POWER CONTROL CENTER MAIN	ME	27,600.00	27,600	1979	3.905	107,779	0	
FARAON	Other	790284	MOTOR CONTROL CENTER C/O	ME	24,150.00	24,150	1979	3.905	94,306	0	
TRANSFER	Machinery/Equip.	853262	PROCESS PIPING	ME	24,150.00	24,150	1979	3.905	94,306	0	
CHEMICAL	Machinery/Equip.	794430	GE MOTOR CENTRAL CENTER	ME	20,700.00	20,700	1979	3.905	80,834	0	
BLOWER	Blower	790826	MOTOR CONTROL CENTER	ME	20,700.00	20,700	1979	3.905	80,834	0	
BROWN	Other	853266	PROCESS PIPING C/O PIPE	ME	20,700.00	20,700	1979	3.905	80,834	0	
INTERMED	Intermediate P.S.	853247	PROCESSING PIPING C/O PIPE	ME	18,768.00	18,768	1979	3.905	73,290	0	
SEWAGE	Sewer	794399	FLOW CABINET, TWO INDICATORS	ME	17,250.00	17,250	1979	3.905	67,362	0	
BLOWER	Blower	790714	MOTOR CONTROL CENTER	ME	17,250.00	17,250	1979	3.905	67,362	0	
FARAON	Other	790285	MOTOR CONTROL CENTER C/O	ME	17,250.00	17,250	1979	3.905	67,362	0	
FARAON	Other	790294	SEWAGE PUMP CENTRIFUGAL	ME	17,250.00	17,250	1979	3.905	67,362	0	
FARAON	Other	790295	SEWAGE PUMP CENTRIFUGAL	ME	17,250.00	17,250	1979	3.905	67,362	0	
FARAON	Other	790296	SEWAGE PUMP CENTRIFUGAL	ME	17,250.00	17,250	1979	3.905	67,362	0	
FARAON	Other	790303	SEWAGE PUMP CENTRIFUGAL	ME	17,250.00	17,250	1979	3.905	67,362	0	
FARAON	Other	790304	SEWAGE PUMP CENTRIFUGAL	ME	17,250.00	17,250	1979	3.905	67,362	0	
FARAON	Other	790305	SEWAGE PUMP CENTRIFUGAL	ME	17,250.00	17,250	1979	3.905	67,362	0	
FLOTATION	DAF	794412	G E 7700 LINE CONTROL CENTER	ME	13,800.00	13,800	1979	3.905	53,889	0	
INTERMED	Intermediate P.S.	790719	CRANE ELECTRIC 5 TON W/50LF	ME	10,350.00	10,350	1979	3.905	40,417	0	
SEWAGE	Sewer	794404	FAIRBANKS SEWAGE PUMP #1	ME	10,350.00	10,350	1979	3.905	40,417	0	
SEWAGE	Sewer	794405	FAIRBANKS SEWAGE PUMP #2	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790728	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790729	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790730	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790731	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790732	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790733	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790734	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790735	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790737	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790738	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790739	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790741	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790742	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790750	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790751	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790752	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790753	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790754	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790763	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790764	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790765	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790766	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790767	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
RETURNPUMP	Machinery/Equip.	790768	GATE VALVE MOTORIZED	ME	10,350.00	10,350	1979	3.905	40,417	0	
INTERMED	Intermediate P.S.	790727	HOIST/CRANE ELECTRIC 5TON	ME	10,350.00	10,350	1979	3.905	40,417	0	
	Machinery/Equip.	880361	MOTORIZED GATE VALVE 24in	ME	10,350.00	10,350	1979	3.905	40,417	0	
FARAON	Other	790286	SHOW BOX CRANE	ME	10,350.00	10,350	1979	3.905	40,417	0	
RAWPUMP	Machinery/Equip.	790713	EMERGENCY GENERATOR SET 20KVA	ME	6,900.00	6,900	1979	3.905	26,945	0	
FARAON	Other	790290	INCOMING POWER PANEL THREE	ME	6,900.00	6,900	1979	3.905	26,945	0	
SEWAGE	Sewer	794403	LOAD LIFTER CRANE, ELECTRIC	ME	6,900.00	6,900	1979	3.905	26,945	0	
FARAON	Other	790312	SHAW BOX CRANE 2TON WITH 50LF	ME	6,900.00	6,900	1979	3.905	26,945	0	
FLOTATION	DAF	794424	SLUDGE PUMP	ME	6,900.00	6,900	1979	3.905	26,945	0	
TRANSFER	Machinery/Equip.	853261	TRAVELING HOIST-25LF ELECTRIC	ME	6,900.00	6,900	1979	3.905	26,945	0	
OLDCONTROL	Trickling Filters	790620	STORAGE TANK FERRIC CHLORIDE	ME	6,210.00	6,210	1979	3.905	24,250	0	
OLDCONTROL	Trickling Filters	790621	STORAGE TANK FERRIC CHLORIDE	ME	6,210.00	6,210	1979	3.905	24,250	0	
FARAON	Other	790297	HOIST CAHIN 2 TON WITH 100LF	ME	5,520.00	5,520	1979	3.905	21,556	0	
CHEMICAL	Machinery/Equip.	794434	SLUDGE PUMP C/T 15H P	ME	5,520.00	5,520	1979	3.905	21,556	0	
OLDCONTROL	Machinery/Equip.	790640	SLUDGE PUMP CENTRIFUGAL #1	ME	5,520.00	5,520	1979	3.905	21,556	0	
OLDCONTROL	Machinery/Equip.	790641	SLUDGE PUMP CENTRIFUGAL #2	ME	5,520.00	5,520	1979	3.905	21,556	0	
OLDCONTROL	Machinery/Equip.	790642	SLUDGE PUMP CENTRIFUGAL #3	ME	5,520.00	5,520	1979	3.905	21,556	0	
OLDCONTROL	Machinery/Equip.	790643	SLUDGE PUMP CENTRIFUGAL #4	ME	5,520.00	5,520	1979	3.905	21,556	0	
WPC	Machinery/Equip.	854087	1 TON TRUCK	ME	16,704.00	16,704	1983	2.877	48,050	0	
	Machinery/Equip.	871049	Ford 4610 Tractor	ME	15,669.00	15,669	1986	2.638	41,331	0	
WPC	Machinery/Equip.	871050	ROTARY MOWER	ME	1,508.00	1,508	1986	2.638	3,978	0	
OLDCONTROL	Machinery/Equip.	870800	BLOWER/BURNER	ME	20,845.00	20,845	1987	2.560	53,372	0	
AIRPORT	Machinery/Equip.	890128	TW-35 FORD TRACTOR	ME	47,929.00	47,929	1988	2.533	121,385	0	
AIRPORT	Machinery/Equip.	890129	JOHN DEERE SPREADER #780	ME	9,822.44	9,822	1988	2.533	24,876	0	
WPC	Machinery/Equip.	910049	PRESSURE WASHER W/TRAILER	ME	8,550.00	8,550	1990	2.369	20,259	0	
OLDCONTROL	Machinery/Equip.	900048	KOCH STATIC MIXING UNIT	ME	3,245.00	3,245	1990	2.369	7,689	0	
OLDCONTROL	Machinery/Equip.	900097	KOCH STATIC MIXING UNIT	ME	3,245.00	3,245	1990	2.369	7,689	0	
GARAGE	Machinery/Equip.	910051	FLOOR CRANE #2200	ME	1,771.00	1,771	1990	2.369	4,196	0	
GRITBASIN	Machinery/Equip.	A920294	MAGNETIC FLOW METER	ME	83,925.00	83,925	1991	2.330	195,545	0	
WPC	Machinery/Equip.	910047	PORTABLE AIR COMPRESSOR	ME	14,233.00	14,233	1991	2.330	33,163	0	

Appendix A-11 Fixed Assets (4 of 6)

Location	Function	FA ID	Asset Description	Code	Original Cost	Accumulated Depreciation	Year in Service	Trend Factor	Trended Cost	Trended Cost Less Depr	Allocation
					$	$			$	$	
SEWAGE	Sewer	920413	MECH BAR SCREEN REPLACEMENT BU	ME	160,259.96	160,260	1992	2.284	366,084	(0)	
OLDCONTROL	Machinery/Equip.	920387	EAST HEAT EXCHANGE ROOM	ME	29,000.00	29,000	1992	2.284	66,245	0	
BLOWER	Blower	920290	MOTOR CONTROL CENTER	ME	29,000.00	29,000	1992	2.284	66,245	0	
RETURNPUMP	Machinery/Equip.	A93125	REPLACE 3 VALVESA AT WPC	ME	17,417.00	17,417	1992	2.284	39,786	0	
GARAGE	Machinery/Equip.	920210	15HP 1750 CHOPPER SUBMERSIBLE	ME	9,620.00	9,620	1992	2.284	21,975	0	
OLDCONTROL	Machinery/Equip.	920121	ADJUSTABLE LIFTING CANTRY	ME	3,140.95	3,141	1992	2.284	7,175	0	
OLDCONTROL	Machinery/Equip.	920122	ADJUSTABLE LIFTING CANTRY	ME	3,140.95	3,141	1992	2.284	7,175	0	
GRITBASIN	Machinery/Equip.	920223	EAST GRIT CHAMBR DOOR 12x12.25	ME	2,650.00	2,650	1992	2.284	6,053	0	
GRITBASIN	Machinery/Equip.	920224	WEST GRIT CHAMBR DOOR 12x12.16	ME	2,650.00	2,650	1992	2.284	6,053	0	
GRITBASIN	Machinery/Equip.	920234	SLUICE GATE FOR SPLITTER BOX	ME	2,492.00	2,492	1992	2.284	5,693	0	
GRITBASIN	Machinery/Equip.	920235	SLUICE GATE FOR SPLITTER BOX	ME	2,492.00	2,492	1992	2.284	5,693	0	
GRITBASIN	Machinery/Equip.	920236	SLUICE GATE FOR SPLITTER BOX	ME	2,492.00	2,492	1992	2.284	5,693	0	
GRITBASIN	Machinery/Equip.	920237	SLUICE GATE FOR SPLITTER BOX	ME	2,492.00	2,492	1992	2.284	5,693	0	
GRITBASIN	Machinery/Equip.	920238	SLUICE GATE FOR SPLITTER BOX	ME	2,492.00	2,492	1992	2.284	5,693	0	
GRITBASIN	Machinery/Equip.	920239	SLUICE GATE FOR SPLITTER BOX	ME	2,492.00	2,492	1992	2.284	5,693	0	
GRITBASIN	Machinery/Equip.	920240	SLUICE GATE FOR SPLITTER BOX	ME	2,492.00	2,492	1992	2.284	5,693	0	
GRITBASIN	Machinery/Equip.	920241	SLUICE GATE FOR SPLITTER BOX	ME	2,492.00	2,492	1992	2.284	5,693	0	
GARAGE	Machinery/Equip.	920222	EAST GARAGE DOOR 12' W X 12' H	ME	2,490.00	2,490	1992	2.284	5,688	0	
GARAGE	Machinery/Equip.	920220	TEKTRONIC OSCILLOSCOPE	ME	2,475.00	2,475	1992	2.284	5,654	0	
RETURNPUMP	Machinery/Equip.	920214	MULTIRANGER PLUS TRANSCEIVER	ME	1,900.00	1,900	1992	2.284	4,340	0	
RETURNPUMP	Machinery/Equip.	920215	MULTIRANGER PLUS TRANSCEIVER	ME	1,900.00	1,900	1992	2.284	4,340	0	
RETURNPUMP	Machinery/Equip.	920217	MULTIRANGER PLUS TRANSCEIVER	ME	1,900.00	1,900	1992	2.284	4,340	0	
RETURNPUMP	Machinery/Equip.	920218	MULTIRANGER PLUS TRANSCEIVER	ME	1,900.00	1,900	1992	2.284	4,340	0	
RETURNPUMP	Machinery/Equip.	920219	MULTIRANGER PLUS TRANSCEIVER	ME	1,900.00	1,900	1992	2.284	4,340	0	
AIRPORT	Machinery/Equip.	940117	JOHN DEERE 630 DISKS	ME	11,977.13	11,977	1993	2.219	26,578	0	
GARAGE	Machinery/Equip.	A97025	STANLEY HYDE VALVE OPERATOR	ME	7,875.00	7,875	1993	2.219	17,475	0	
GARAGE	Machinery/Equip.	A97026	STANLEY HYDE VALVE OPERATOR	ME	7,875.00	7,875	1993	2.219	17,475	0	
RAWPUMP	Machinery/Equip.	930367	MOYNA PROGRESSIVE CAV PUMP #4	ME	6,653.00	6,653	1993	2.219	14,763	0	
RAWPUMP	Machinery/Equip.	930368	MOYNA PROGRESSIVE CAV PUMP #5	ME	6,653.00	6,653	1993	2.219	14,763	0	
RAWPUMP	Machinery/Equip.	930369	MOYNA PROGRESSIVE CAV PUMP #6	ME	6,653.00	6,653	1993	2.219	14,763	0	
TRANSFER	Machinery/Equip.	A94037	CENTRIFUGAL PROCESS TYPE PUMP	ME	5,659.86	5,660	1993	2.219	12,559	0	
TRANSFER	Machinery/Equip.	A94038	CENTRIFUGAL PROCESS TYPE PUMP	ME	5,659.86	5,660	1993	2.219	12,559	0	
TRANSFER	Machinery/Equip.	A94039	CENTRIFUGAL PROCESS TYPE PUMP	ME	5,659.86	5,660	1993	2.219	12,559	0	
GARAGE	Machinery/Equip.	930166	GENIE AERIAL WORK PLATFORM	ME	5,587.00	5,587	1993	2.219	12,398	0	
FARAON	Other	930189	550GALLON TANK W/ CONTAINMENT	ME	1,088.88	1,089	1993	2.219	2,416	0	
AIRPORT	Machinery/Equip.	950271	CATERPILLAR 924F WHEEL LOADER	ME	70,572.00	70,572	1994	2.164	152,724	0	
WPC	Machinery/Equip.	940053	SLUDGE TRANKER TRAILER	ME	33,434.00	33,434	1994	2.164	72,354	0	
WPC	Machinery/Equip.	940052	SLUDGE TANKER TRAILER	ME	30,558.00	30,558	1994	2.164	66,130	0	
FLOTATION	DAF	940575	ROTARY SCREW COMPRESSOR	ME	5,420.00	5,420	1994	2.164	11,729	0	
FLOTATION	DAF	940576	ROTARY SCREW COMPRESSOR	ME	5,420.00	5,420	1994	2.164	11,729	0	
TRANSFER	Machinery/Equip.	940577	GLDS PUMP 3X4-8GS	ME	4,480.00	4,480	1994	2.164	9,695	0	
TRANSFER	Machinery/Equip.	940578	GLDS PUMP 3X4-8GS	ME	4,480.00	4,480	1994	2.164	9,695	0	
OLDCONTROL	Machinery/Equip.	940029	VENTILATION FAN	ME	3,960.00	3,960	1994	2.164	8,570	0	
OLDCONTROL	Machinery/Equip.	940030	VENTILATION FAN	ME	3,960.00	3,960	1994	2.164	8,570	0	
AIRPORT	Machinery/Equip.	960482	400 BU SPREADER	ME	11,050.00	11,050	1995	2.099	23,195	0	Treatment - General
GARAGE	Machinery/Equip.	A97027	PERSONNEL WINCH RETRIEVEL SYST	ME	3,320.13	3,320	1995	2.099	6,969	0	
GARAGE	Machinery/Equip.	950470	3 WAY RETRIVAL TRIPOD	ME	3,119.00	3,119	1995	2.099	6,547	0	Treatment - General
FARAON	Other	960436	HYDRORANGER I W/ 120' CABLE	ME	1,797.10	1,797	1995	2.099	3,772	0	
FARAON	Other	960437	HYDRORANGER I W/ 120' CABLE	ME	1,735.00	1,735	1995	2.099	3,642	0	
WPC	Machinery/Equip.	970278	1997 8200 6X4 3AXLE TRACTOR	ME	61,801.16	61,801	1996	2.044	126,313	0	
STREETS	Sewer	970281	JCB 215 BACKHOE/LOADER 1996	ME	57,830.00	57,830	1996	2.044	118,196	0	
WPC	Machinery/Equip.	960503	1996 INT DUMPSTER TRUCK	ME	30,811.58	30,812	1996	2.044	62,975	0	
WPC	Machinery/Equip.	970279	1997 CHEVROLET 1/2 TON 4X4 PU	ME	19,882.00	19,882	1996	2.044	40,636	0	
WPC	Machinery/Equip.	960505	NISSAN NOMAD FORKLIFT TRUCK	ME	19,468.00	19,468	1996	2.044	39,790	0	
SWMTN	Sewer	960487	TRASH PUMP SELF-PRIMING 6X6 GR	ME	16,029.00	16,029	1996	2.044	32,761	0	
FLOTATION	DAF	970394	DAF SLUDGE PUMP & DRIVE	ME	13,554.00	13,554	1996	2.044	27,702	0	
FLOTATION	DAF	970395	DAF SLUDGE PUMP & DRIVE	ME	13,554.00	13,554	1996	2.044	27,702	0	
CLARIFIERS	Secondary Clarifiers	970396	SEC CLARIFIER SCUM PIT PUMP #2	ME	10,451.00	10,451	1996	2.044	21,360	0	
CLARIFIERS	Secondary Clarifiers	970397	SEC CLARIFIER SCUM PIT PUMP #3	ME	10,451.00	10,451	1996	2.044	21,360	0	
CLARIFIERS	Secondary Clarifiers	970398	SEC CLARIFIER SCUM PIT PUMP #4	ME	10,451.00	10,451	1996	2.044	21,360	0	
GARAGE	Machinery/Equip.	970365	SUTORBUILT BLOWER	ME	4,999.00	4,999	1996	2.044	10,217	0	
SWMTN	Sewer	970283	SA-1 REVERSE DIAL INDICATOR	ME	2,982.95	2,983	1996	2.044	6,097	0	
SWMTN	Sewer	960781	60 FOOT MANHANDLER WINCH	ME	2,004.75	2,005	1996	2.044	4,097	0	
WPC	Machinery/Equip.	970363	8W 10'6' FLAT BED FOR 952-16	ME	1,156.00	1,156	1996	2.044	2,363	0	
WPC	Machinery/Equip.	980031	1998 CHEVROLET 1 TON CAB	ME	22,686.00	22,686	1997	1.986	45,050	0	
WPC	Machinery/Equip.	980030	1998 CHEVROLET 3/4 TON PICKUP	ME	21,521.00	21,521	1997	1.986	42,736	0	
WPC	Machinery/Equip.	970294	1997 FORD F-250 TRUCK	ME	20,726.00	20,726	1997	1.986	41,158	0	
AIRPORT	Machinery/Equip.	980028	3HP TORNADO AERATOR	ME	16,370.00	16,370	1997	1.986	32,507	0	Treatment - General
OLDCONTROL	Machinery/Equip.	A98057	MOYNO SLUDGE PUMP #1A	ME	13,541.00	13,541	1997	1.986	26,890	0	
OLDCONTROL	Machinery/Equip.	A98059	MOYNO SLUDGE PUMP #1B	ME	13,541.00	13,541	1997	1.986	26,890	0	
OLDCONTROL	Machinery/Equip.	A98058	MOYNO SLUDGE PUMP #2A	ME	13,541.00	13,541	1997	1.986	26,890	0	
OLDCONTROL	Machinery/Equip.	A98060	MOYNO SLUDGE PUMP #2B	ME	13,541.00	13,541	1997	1.986	26,890	0	
	Machinery/Equip.	970291	STETCO 12" ROUND CRANE BUCKETT	ME	4,160.00	4,160	1997	1.986	8,261	0	
	Machinery/Equip.	970292	STETCO 15"ORANGE CRANE BUCKET	ME	2,995.00	2,995	1997	1.986	5,947	0	
GARAGE	Machinery/Equip.	970296	XK PACEMASTER PLASMA CUTTER	ME	2,908.00	2,908	1997	1.986	5,775	0	
BROWN	Other	A98061	ALLEN BRADLEY CONTROLLER	ME	2,747.39	2,747	1997	1.986	5,456	0	
BROWN	Other	A98062	ALLEN BRADLEY CONTROLLER	ME	2,747.39	2,747	1997	1.986	5,456	0	
SWMTN	Sewer	980032	8HP HONDA STONE MORTAR MIXER	ME	2,505.00	2,505	1997	1.986	4,974	0	
SWMTN	Sewer	990094	1999 GMC CAB & CHASSIS	ME	55,495.72	55,496	1998	1.915	106,278	0	
WPC	Machinery/Equip.	980044	TRAILER MOUNTED VACUUM SYSTEM	ME	35,400.00	35,400	1998	1.915	67,793	0	
WPC	Machinery/Equip.	990078	SKID STEER LOADER 873 BOBCAT	ME	31,603.44	31,603	1998	1.915	60,523	0	
YARD	Machinery/Equip.	990077	6000 GALLON ABOVE GROUND FUEL	ME	21,300.00	21,300	1998	1.915	40,791	0	
FARAON	Other	990033	3250 GALLON CHEMICAL TANK	ME	5,887.00	5,887	1998	1.915	11,274	0	
FARAON	Other	990034	3250 GALLON STORAGE TANK	ME	5,887.00	5,887	1998	1.915	11,274	0	
GARAGE	Machinery/Equip.	990026	300 GALLON 3 POINT SPRAYER	ME	1,352.94	1,353	1998	1.915	2,591	0	Treatment - General
GARAGE	Machinery/Equip.	990113	FURNACE	ME	23,665.00	23,665	1999	1.844	43,646	0	
BLOWER	Blower	990114	ADJUSTABLE FREQUENCY DRIVE	ME	17,584.00	17,584	1999	1.844	32,431	0	
BLOWER	Blower	990115	ADJUSTABLE FREQUENCY DRIVE	ME	17,584.00	17,584	1999	1.844	32,431	0	
BLOWER	Blower	990116	ADJUSTABLE FREQUENCY DRIVE	ME	17,584.00	17,584	1999	1.844	32,431	0	
YARD	Machinery/Equip.	990126	3000 GALLON ABOVE FUEL TANK	ME	14,900.00	14,900	1999	1.844	27,480	0	Treatment - General
RAWPUMP	Machinery/Equip.	21	R&M 1G065G1-CDQ-AAA PUMP #2	ME	9,748.00	9,748	1999	1.844	17,979	0	
YARD	Machinery/Equip.	29	FLYGT CS3152-432 PUMP 20HP	ME	8,203.00	8,203	1999	1.844	15,129	0	
YARD	Machinery/Equip.	30	FLYGT CS3152-432 PUMP 20HP	ME	8,203.00	8,203	1999	1.844	15,129	0	
FLOTATION	DAF	A03009	SLUDGE PUMP	ME	5,040.00	5,040	1999	1.844	9,295	0	
SWMTN	Sewer	990093	TRENCH BOX	ME	2,744.00	2,744	1999	1.844	5,061	0	
SWMTN	Sewer	35	SEWER JET ROD MACHINE	ME	99,353.00	99,353	2000	1.797	178,529	0	
WPC	Machinery/Equip.	28	2000 INTL 9200I 6X4 TRUCK/TRCT	ME	69,243.56	69,244	2000	1.797	124,425	0	
EASTON	Other	31	EASTON ROAD SLUICE GATE	ME	26,412.00	13,647	2000	1.797	47,460	22,938	Collection & Conveyance
WPC	Machinery/Equip.	24	2000 CHEVY 3/4 TON CAB/CHASSIS	ME	25,800.00	25,800	2000	1.797	46,360	0	
WPC	Machinery/Equip.	26	2000 CHEVY 3/4 TON CAB/CHASSIS	ME	25,800.00	25,800	2000	1.797	46,360	0	

Appendix A-11 Fixed Assets (5 of 6)

Location	Function	FA ID	Asset Description	Code	Original Cost	Accumulated Depreciation	Year in Service	Trend Factor	Trended Cost	Trended Cost Less Depr	Allocation
					$	$			$	$	
	Machinery/Equip.	10024	36" AMERICAN R/D 50 LINE DI	ME	24,500.00	24,500	2000	1.797	44,024	0	Treatment - General
WPC	Machinery/Equip.	25	2000 CHEVY 3/4 TON CAB/CHASSIS	ME	23,400.00	23,400	2000	1.797	42,048	0	
RAWPUMP	Machinery/Equip.	23	R&M 1GO65G1 CDQ AAA PUMP #1	ME	12,321.45	12,321	2000	1.797	22,141	0	
RAWPUMP	Machinery/Equip.	22	R&M 1GO65G1 CDQ AAA PUMP #3	ME	12,321.45	12,321	2000	1.797	22,141	0	
SWMTN	Sewer	37	PRO SCOUT INSPECTION SYSTEM	ME	11,000.00	11,000	2000	1.797	19,766	0	
FARAON	Other	10055	HEATING AND VENTILATION UNITS	ME	155,838.00	155,838	2001	1.752	273,009	0	
INTERMED	Intermediate P.S.	20004	Lower Bearing Type Rotary Arm	ME	92,760.00	92,760	2001	1.752	162,504	0	
WPC	Machinery/Equip.	10022	2001 VOLVO TRUCK	ME	90,818.00	90,818	2001	1.752	159,102	0	
WPC	Machinery/Equip.	10023	2001 VOLVO TRUCK	ME	90,818.00	90,818	2001	1.752	159,102	0	
YARD	Machinery/Equip.	20021	Air Compressor, 260 CFM	ME	14,903.92	14,904	2001	1.752	26,110	0	
STATIONS	Other	10001	Emergency Generator for Roy's	ME	8,669.00	8,669	2001	1.752	15,187	0	
SWMTN	Sewer	10026	TRENCH SHIELD	ME	5,835.10	5,835	2001	1.752	10,222	0	
WPC	Machinery/Equip.	20027	2001 VOLVO DUMP TRUCK	ME	89,510.00	89,510	2002	1.688	151,129	0	
WPC	Machinery/Equip.	30002	2003 INERNATIONAL 4200	ME	34,564.00	34,564	2002	1.688	58,358	0	Treatment - General
WPC	Machinery/Equip.	20054	2002 Chevrolet Impala, 4 Door	ME	17,600.00	17,600	2002	1.688	29,716	0	
WPC	Machinery/Equip.	30003	WARREN DUMP BODY U451-10	ME	6,111.00	6,111	2002	1.688	10,318	0	Treatment - General
	Machinery/Equip.	T12010	2002 Ford F150 Truck	ME	0.00	0	2002	1.688	0	0	Admin. & General
SWMTN	Sewer	30046	2003 INTERNTL 7400 & CATCH BAS	ME	98,454.30	98,454	2003	1.626	160,045	0	Collection & Conveyance
INTERMED	Intermediate P.S.	30059	LOWER BEARING ROTARY ARM	ME	93,500.00	93,500	2003	1.626	151,992	0	Treatment - Pumping
SWMTN	Sewer	40012	2004 CHEVY 2500 PICKUP	ME	23,787.00	23,787	2003	1.626	38,668	0	Collection & Conveyance
	Machinery/Equip.	30041	Ford F450 One ton Cab/Chassis	ME	24,973.95	24,974	2003	1.626	40,597	0	Admin. & General
WPC	Machinery/Equip.	30042	2003 Chevrolet Silverado 2500	ME	24,683.00	24,683	2003	1.626	40,124	0	Treatment - General
WPC	Machinery/Equip.	30066	Chevrolet S-10 Crew Cab Pickup	ME	18,867.00	18,867	2003	1.626	30,670	0	Admin. & General
SWMTN	Sewer	40025	VACTOR 2110 SEWER MACHINE	ME	153,318.00	153,318	2004	1.578	241,917	0	Collection & Conveyance
INTERMED	Intermediate P.S.	40055	LOWER BEARING ROTARY DISTRIBUT	ME	93,500.00	93,500	2004	1.578	147,532	0	Treatment - Pumping
	Machinery/Equip.	40039	2004 CHEVY Silverado 2500	ME	24,963.00	24,963	2004	1.578	39,389	0	Admin. & General
WPC	Machinery/Equip.	40124	TORO WORKMAN UTILITY VEHICLE	ME	23,517.09	23,517	2004	1.578	37,107	0	Treatment - General
SWMTN	Sewer	50013	2005 CHEVY SILVERADO	ME	22,550.00	22,550	2004	1.578	35,581	0	Collection & Conveyance
SWMTN	Sewer	50012	2005 CHEVY SILVERADO	ME	22,550.00	22,550	2004	1.578	35,581	0	Collection & Conveyance
SWMTN	Sewer	50011	2005 CHEVY SILVERADO	ME	17,793.00	17,793	2004	1.578	28,075	0	Collection & Conveyance
NEWLAB	Machinery/Equip.	50033	LABRATORY CENTRIFUGE	ME	14,249.17	14,249	2004	1.578	22,483	0	Laboratory
SWMTN	Sewer	40015	INGERSOL RAND AIR COMPRESSOR	ME	12,110.00	12,110	2004	1.578	19,108	0	Collection & Conveyance
FLOTATION	DAF	50051	ASPIRATING PUMP	ME	8,340.00	8,340	2004	1.578	13,160	0	Treatment - DAF
FLOTATION	DAF	50052	ASPIRATING PUMP	ME	8,340.00	8,340	2004	1.578	13,160	0	Treatment - DAF
FLOTATION	DAF	50053	ASPIRATING PUMP	ME	8,340.00	8,340	2004	1.578	13,160	0	Treatment - DAF
NEWLAB	Machinery/Equip.	40048	SPECTROPHOTOMETER	ME	5,293.50	5,294	2004	1.578	8,352	0	Laboratory
WPC	Machinery/Equip.	50021	2005 CHEVY COLORADO	ME	16,083.00	16,083	2005	1.513	24,333	0	Treatment - General
WPC	Machinery/Equip.	60008	GENIE GS2032 SCISSOR LIFT	ME	10,076.49	10,076	2005	1.513	15,246	0	Treatment - General
FLOTATION	DAF	50045	ASPIRATING PUMP	ME	8,340.00	8,340	2004	1.578	13,160	0	Treatment - DAF
FLOTATION	DAF	50046	ASPIRATING PUMP	ME	8,340.00	8,340	2004	1.578	13,160	0	Treatment - DAF
FLOTATION	DAF	50047	ASPIRATING PUMP	ME	8,340.00	8,340	2004	1.578	13,160	0	Treatment - DAF
FLOTATION	DAF	50048	ASPIRATING PUMP	ME	8,340.00	8,340	2004	1.578	13,160	0	Treatment - DAF
FLOTATION	DAF	50049	ASPIRATING PUMP	ME	8,340.00	8,340	2004	1.578	13,160	0	Treatment - DAF
FLOTATION	DAF	50050	ASPIRATING PUMP	ME	8,340.00	8,340	2004	1.578	13,160	0	Treatment - DAF
SWMTN	Sewer	60046	2006 INTERNATIONAL 7300	ME	62,256.00	62,256	2006	1.450	90,284	0	Collection & Conveyance
SWMTN	Sewer	60033	MANHOLE REHABILIATION MACHINE	ME	52,353.00	52,353	2006	1.450	75,923	0	Collection & Conveyance
NEWLAB	Machinery/Equip.	70029	3000XL-PLUS SS AUTO EXTRACTOR	ME	32,664.59	32,665	2006	1.450	47,370	0	Treatment - General
WPC	Machinery/Equip.	70003	2007 CHEVY SILVERADO	ME	18,582.00	18,582	2006	1.450	26,948	0	Treatment - General
SWMTN	Sewer	70035	VACTOR SEWER MACHINE	ME	261,384.00	261,384	2007	1.406	367,621	0	Collection & Conveyance
AIRPORT	Machinery/Equip.	80108	New Holland Tractor	ME	110,264.00	110,264	2007	1.406	155,080	0	Admin. & General
NEWLAB	Machinery/Equip.	70028	ICP PLASMA UNIT	ME	87,508.00	87,508	2007	1.406	123,075	0	Laboratory
SWMTN	Sewer	70017	CASE 590 BACKHOE LOADER	ME	72,695.00	72,695	2007	1.406	102,241	0	Collection & Conveyance
WPC	Machinery/Equip.	80019	2007 Freightliner Sprinter Van	ME	34,344.00	34,344	2007	1.406	48,303	0	Treatment - General
WPC	Machinery/Equip.	70042	CSO FLOW MONITORING EQUIPMENT	ME	28,345.00	28,345	2007	1.406	39,866	0	Collection & Conveyance
AIRPORT	Machinery/Equip.	70007	BIOSOLIDS SPREADER	ME	27,450.00	27,450	2007	1.406	38,607	0	Treatment - Sludge
NEWLAB	Machinery/Equip.	70031	Thermo BOD Incubator	ME	7,221.71	7,222	2007	1.406	10,157	0	Laboratory
NEWLAB	Machinery/Equip.	70033	Thermo BOD Incubator	ME	6,088.00	6,088	2007	1.406	8,562	0	Laboratory
	Other Primary	80036	Mechanism for Prim Clarif #3	ME	263,500.00	197,625	2008	1.290	339,827	84,957	Treatment - Primary Clarifier
	Other Primary	80037	Mechanism for Prim Clarif #4	ME	263,500.00	197,625	2008	1.290	339,827	84,957	Treatment - Primary Clarifier
NEWLAB	Machinery/Equip.	80020	UVAS Hach Probe	ME	15,525.35	15,525	2008	1.290	20,023	0	Laboratory
SWMTN	Sewer	100009	2009 Dodge TV Inspection Van	ME	198,136.70	198,137	2009	1.205	238,789	0	Collection & Conveyance
	Machinery/Equip.	100006	12" Mob Emer Centrifugal Pump	ME	112,186.50	112,187	2009	1.205	135,204	0	Treatment - Pumping
SWMTN	Sewer	100015	2010 International 7400	ME	57,622.00	57,622	2009	1.205	69,444	0	Collection & Conveyance
SWMTN	Sewer	90033	Easement Machine	ME	48,750.00	48,750	2009	1.205	58,752	0	Collection & Conveyance
WPC	Machinery/Equip.	90018	2006 Snorkel Boom Lift	ME	45,000.00	45,000	2009	1.205	54,233	0	Treatment - General
YARD	Machinery/Equip.	90049	Cummins 80KW Generator	ME	33,869.00	33,869	2009	1.205	40,818	0	Admin. & General
YARD	Machinery/Equip.	90050	Cummins 80KW Generator	ME	33,869.00	33,869	2009	1.205	40,818	0	Admin. & General
NEWLAB	Machinery/Equip.	90028	KJELTEC Distiller	ME	29,245.30	29,245	2009	1.205	35,246	0	Laboratory
WPC	Machinery/Equip.	90048	2009 Ford F250	ME	26,000.00	26,000	2009	1.205	31,334	0	Treatment - General
WPC	Machinery/Equip.	100010	2010 Alumweld Talon Boat	ME	21,947.00	21,947	2009	1.205	26,450	0	Treatment - General
WPC	Machinery/Equip.	90026	2009 Ford Ranger	ME	12,236.00	12,236	2009	1.205	14,746	0	Treatment - General
WPC	Machinery/Equip.	90027	2009 Ford Ranger	ME	12,236.00	12,236	2009	1.205	14,746	0	Treatment - General
INTERMED	Intermediate P.S.	100119	DSI Dynamatic Freq Mag Drive	ME	217,193.34	217,193.34	2010	1.159	251,771	0	Treatment - Pumping
INTERMED	Intermediate P.S.	100117	DSI Dynamatic Freq Mag Drive	ME	217,193.33	217,193.33	2010	1.159	251,771	0	Treatment - Pumping
INTERMED	Intermediate P.S.	100118	DSI Dynamatic Freq Mag Drive	ME	217,193.33	217,193.33	2010	1.159	251,771	0	Treatment - Pumping
WPC	Machinery/Equip.	90119	Septage Receiving Sys - JWC	ME	104,459.00	104,459	2010	1.159	121,089	0	Treatment - Septage
	Machinery/Equip.	110077	Grinder #1	ME	70,035.50	63,032	2010	1.159	81,185	8,118	Treatment - Grit Basin
	Machinery/Equip.	110078	Grinder #2	ME	70,035.50	63,032	2010	1.159	81,185	8,118	Treatment - Grit Basin
RETURNPUMP	Machinery/Equip.	90139	Screw Pump #2	ME	52,795.02	52,795	2010	1.159	61,200	0	Treatment - Sludge Pumping
	Machinery/Equip.	110069	Replace Screw Pump #5	ME	52,658.00	23,696	2010	1.159	61,041	33,573	Treatment - Pumping
	Machinery/Equip.	110070	Replace Screw Pump #6	ME	52,658.00	23,696	2010	1.159	61,041	33,573	Treatment - Pumping
RETURNPUMP	Machinery/Equip.	100134	Screw Pump #3	ME	52,658.00	52,658	2010	1.159	61,041	0	Treatment - Sludge Pumping
RETURNPUMP	Machinery/Equip.	100135	Screw Pump #4	ME	52,658.00	52,658	2010	1.159	61,041	0	Treatment - Sludge Pumping
WPC	Machinery/Equip.	110006	2011 Ford F250	ME	26,367.00	23,730	2010	1.159	30,565	3,056	Treatment - General
WPC	Machinery/Equip.	110005	2011 Ford Ranger	ME	17,814.00	16,033	2010	1.159	20,650	2,065	Treatment - General
WPC	Machinery/Equip.	110010	2011 Ford Ranger	ME	13,010.00	11,709	2010	1.159	15,081	1,508	Treatment - General
SWMTN	Sewer	100033	Sullair Compressor w/trailer	ME	12,877.00	12,877	2010	1.159	14,927	0	Collection & Conveyance
SWMTN	Sewer	100022	Dump Body	ME	12,798.00	12,798	2010	1.159	14,835	0	Collection & Conveyance
	Machinery/Equip.	100027	19" Digitl Video Recorder	ME	6,675.00	6,675	2010	1.159	7,738	0	Admin. & General
	Machinery/Equip.	120025	2012 Intern'l Vactor RamJet	ME	199,277.00	139,494	2011	1.144	227,978	68,394	Collection & Conveyance
	Machinery/Equip.	120046	ENPRO Polymer Blending Unit	ME	21,625.00	15,138	2011	1.144	24,740	7,422	Treatment - Sludge
	Machinery/Equip.	120047	ENPRO Polymer Blending Unit	ME	21,625.00	15,138	2011	1.144	24,740	7,422	Treatment - Sludge
	Machinery/Equip.	120048	ENPRO Polymer Blending Unit	ME	21,625.00	15,138	2011	1.144	24,740	7,422	Treatment - Sludge
	Machinery/Equip.	120011	2012 Chevrolet Silverado	ME	21,512.00	15,058	2011	1.144	24,610	7,383	Admin. & General
	Machinery/Equip.	120012	2012 Chevrolet Silverado	ME	21,512.00	15,058	2011	1.144	24,610	7,383	Admin. & General
	Machinery/Equip.	120023	2012 Chevrolet Silverado	ME	20,986.00	14,690	2011	1.144	24,009	7,202	Admin. & General
WPC	Machinery/Equip.	120024	2011 Ford Ranger	ME	19,629.00	13,740	2011	1.144	22,456	6,737	Treatment - General
	Machinery/Equip.	120005	2011 Kawasaki Mule	ME	12,289.00	8,602	2011	1.144	14,059	4,218	Admin. & General
	Machinery/Equip.	120006	2011 Kawasaki Mule	ME	12,289.00	8,602	2011	1.144	14,059	4,218	Admin. & General
	Machinery/Equip.	120022	2011 StoAway Bumper Crane	ME	8,301.78	5,811	2011	1.144	9,497	2,849	Admin. & General

Appendix A-11 Fixed Assets (6 of 6)

Location	Function	FA ID	Asset Description	Code	Original Cost	Accumulated Depreciation	Year in Service	Trend Factor	Trended Cost	Trended Cost Less Depr	Allocation
					$	$			$	$	
	Machinery/Equip.	130019	2012 Ford F450 SD	ME	30,122.00	15,061	2012	1.096	33,002	16,501	Treatment - General
	Machinery/Equip.	130022	2012 Ford F250 SD	ME	29,111.00	14,555	2012	1.096	31,894	15,947	Treatment - General
	Machinery/Equip.	130023	2012 Ford F250 SD	ME	29,111.00	14,555	2012	1.096	31,894	15,947	Treatment - General
	Machinery/Equip.	130030	2013 Dodge Durango SXT	ME	27,667.00	13,834	2012	1.096	30,312	15,156	Treatment - General
		130050	OZII Camera w/CPR Transporter	ME	24,827.00	12,413	2012	1.096	27,201	13,600	Collection & Conveyance
		130051	OZII Camera w/CPR Transporter	ME	24,827.00	12,413	2012	1.096	27,201	13,600	Collection & Conveyance
	Machinery/Equip.	130028	2012 Dodge Ram 3500	ME	23,432.00	11,716	2012	1.096	25,672	12,836	Treatment - General
	Machinery/Equip.	130027	2012 Dodge Ram 3500	ME	22,464.00	11,232	2012	1.096	24,612	12,306	Treatment - General
	Machinery/Equip.	130029	2012 Dodge Ram 3500	ME	22,464.00	11,232	2012	1.096	24,612	12,306	Treatment - General
	Machinery/Equip.	120040	2012 Chevrolet Silverado	ME	21,940.00	15,358	2012	1.096	24,038	7,211	Admin. & General
	Machinery/Equip.	120041	2012 Chevrolet Silverado	ME	21,940.00	15,358	2012	1.096	24,038	7,211	Admin. & General
	Machinery/Equip.	120054	2012 Transit Connect XLT Wagon	ME	21,703.00	15,192	2012	1.096	23,778	7,133	Admin. & General
		130014	Tiger Star mini truck	ME	14,199.00	7,100	2012	1.096	15,557	7,778	Treatment - General
		130015	Tiger Star mini truck	ME	14,199.00	7,100	2012	1.096	15,557	7,778	Treatment - General
		130016	Tiger Star mini truck	ME	14,199.00	7,100	2012	1.096	15,557	7,778	Treatment - General
		130017	Reading 8' Aluminum truck body	ME	12,282.00	6,141	2012	1.096	13,456	6,728	Treatment - General
		130018	Reading 8'Aluminum Truck body	ME	12,282.00	6,141	2012	1.096	13,456	6,728	Treatment - General
		120066	ELGA Rev Osmosis Water System	ME	6,523.00	4,566	2012	1.096	7,147	2,144	Laboratory
		140014	2013 JD 410K Backhoe Loader	ME	95,775.00	28,733	2013	1.056	101,128	70,790	Treatment - General
		130077	2012 Cat Portable Generator	ME	57,700.00	28,850	2013	1.056	60,925	30,462	Treatment - General
		130080	So 22nd St FX Pump Station	ME	43,000.00	21,500	2013	1.056	45,403	22,702	Pumping
		130054	Bobcat S650 Skid Steer Loader	ME	30,405.58	15,203	2013	1.056	32,105	16,052	Collection & Conveyance
		130069	Annihilator Grinder w/cont pan	ME	23,222.20	11,611	2013	1.056	24,520	12,260	Treatment - Grit Basin
		130070	Annihilator Grinder w/cont pan	ME	23,222.20	11,611	2013	1.056	24,520	12,260	Treatment - Grit Basin
		130071	Annihilator Grinder w/cont pan	ME	23,222.20	11,611	2013	1.056	24,520	12,260	Treatment - Grit Basin
		130072	Annihilator Grinder w/cont pan	ME	23,222.20	11,611	2013	1.056	24,520	12,260	Treatment - Grit Basin
		130073	Annihilator Grinder w/cont pan	ME	23,222.20	11,611	2013	1.056	24,520	12,260	Treatment - Grit Basin
		130079	Cummins Generator - So 22nd St	ME	18,300.00	9,150	2013	1.056	19,323	9,661	Treatment - General
		130059	Hasler 3000 Folder/Inserter	ME	13,868.66	6,934	2013	1.056	14,644	7,322	Treatment - General
		130040	25' Doolittle Trailer	ME	12,970.00	3,242	2013	1.056	13,695	10,271	Admin. & General
		130061	Knapheide utility Service Body	ME	8,768.00	4,384	2013	1.056	9,258	4,629	Treatment - General
		130062	Knapheide 1-Ton Dump Body	ME	7,795.00	3,898	2013	1.056	8,231	4,115	Treatment - General
		130063	Knapheide 1-Ton Dump Body	ME	7,795.00	3,898	2013	1.056	8,231	4,115	Treatment - General
		40007	2003 CHEVY S-10 PICKUP	ME	12,218.00	12,218	2014	1.017	12,431	0	Admin. & General
SWMTN		140062	2014 Vactor 2110 Sewer Cleaner	ME	243,962.00	73,189	2014	1.017	248,223	173,756	Collection & Conveyance
SWMTN		140052	2015 International 7500	ME	93,927.00	28,178	2014	1.017	95,568	66,897	Admin. & General
WPC		140043	2014 Ford E350 SD	ME	23,858.00	7,157	2014	1.017	24,275	16,992	Admin. & General
WPC		140042	2014 Ford F250 SD	ME	22,155.00	6,647	2014	1.017	22,542	15,779	Admin. & General
					12,577,992	11,572,028			32,885,416	1,117,051	
				PDF check	12,577,992	11,572,028					
OTHER											
	Sewer	110104	Ammonia Removal Facility	CP	23,211,918	0	2015	1.000	23,211,918	23,211,918	Treatment - Ammonia Project
	Sewer	110105	Eastside Wstwtr Improv Project	CP	14,093,802	0	2015	1.000	14,093,802	14,093,802	Collection & Conveyance
	Sewer	120108	Bio Solid Process Dryer	CP	2,549,972	0	2015	1.000	2,549,972	2,549,972	Treatment - Sludge
	Sewer	130103	Blacksnake Crk Strmwtr Sep	CP	3,870,523	0	2015	1.000	3,870,523	3,870,523	Collection & Conveyance
	Sewer	120105	Replace Grit Removal System	CP	5,036,450	0	2015	1.000	5,036,450	5,036,450	Treatment - Grit Basin
		150111	ROSECRANS LAGOON LINER	CP	80,224	0	2015	1.000	80,224	80,224	Treatment - General
SWMTN	Sewer	60200	SEWER LINES EXISTING	IN	55,569,360	31,699,358	2006	1.360	75,574,330	32,463,203	Collection & Conveyance
SWMTN	Sewer	70102	SEWER LINES FY07 ACCEPTED SUBD	IN	1,324,937	281,550	2007	1.291	1,710,678	1,347,159	Collection & Conveyance
SWMTN	Sewer	80128	FY08 Donated Sewers	IN	688,019	129,003	2008	1.226	843,823	685,606	Collection & Conveyance
SWMTN	Sewer	90124	FY09 Donated Sewers	IN	262,400	42,640	2009	1.155	302,998	253,760	Collection & Conveyance
INFRAS	Sewer	90122	Greystone Sewers	IN	3,174,610	436,509	2010	1.166	3,700,688	3,191,844	Collection & Conveyance
SWMTN	Sewer	100202	FY10 Donated Sewers	IN	1,460,200	200,777	2010	1.166	1,702,176	1,468,127	Collection & Conveyance
SWMTN	Sewer	80123	Riverside Rd Sewer Extension	IN	1,203,908	165,537	2010	1.166	1,403,413	1,210,444	Collection & Conveyance
SWMTN	Sewer	80122	Woodbine Rd Sewer Extension	IN	96,966	13,333	2010	1.166	113,035	97,492	Collection & Conveyance
STATIONS	Sewer	80121	Roy's Branch Sewer Separation	IN	1,921,450	172,931	2011	1.125	2,161,631	1,967,084	Collection & Conveyance
SWMTN	Sewer	110203	FY11 Donated Sewers	IN	127,300	14,321	2011	1.125	143,213	127,101	Collection & Conveyance
SWMTN	Sewer	120202	2012 Donated Sewers	IN	878,440	76,863	2012	1.076	944,825	862,153	Collection & Conveyance
SWMTN	Sewer	130203	2013 Donated Sewers	IN	11,120	695	2013	1.037	11,535	10,814	Collection & Conveyance
SWMTN		140201	2014 Donated Sewers	IN	15,800	593	2014	1.036	16,361	15,748	Collection & Conveyance
GARAGE	Sewer	960810	MOUNTED TRASH PUMP	OF	15,194	15,194	1996	1.981	30,093	0	Admin. & General
SWMTN	Sewer	990021	MINOLTA MICROFILM READ PRINTER	OF	3,775	3,775	1998	1.918	7,242	0	Admin. & General
	Sewer	110076	LabCal Water Info Mgmt System	OF	9,010	9,010	2011	1.125	10,136	0	Laboratory
TECHSERV		140049	Integrity HTML5 Mob GIS Webste	OF	7,500	3,750	2013	1.037	7,780	3,890	Admin. & General
	Sewer	120103	Accela Management Software	OF	435,022	217,511	2014	1.036	450,479	225,240	Admin. & General
	Sewer	120109	Springbook Swr Billing Softwre	OF	237,882	118,941	2014	1.036	246,334	123,167	Customer
		140071	Replace Radio & Comm Equipment	OF	145,285	21,793	2014	1.036	150,448	127,881	Treatment - General
		150002	GEO 7X Handheld GPS	OF	10,420	1,737	2014	1.036	10,790	8,992	Admin. & General
WPC		150054	Mayline 20' Conference Table	OF	5,529	553	2015	1.000	5,529	4,976	Admin. & General
					116,447,016	33,626,373			138,390,425	93,037,568	
			Less Contributed Assets		(3,443,279)				(3,964,930)	(3,423,309)	Contribution - C&C Mains
					113,003,737				134,425,495	89,614,259	
					232,411,228	74,542,060			324,085,380	171,231,710	

Appendix A-12 Ammonia Project Allocations

		[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[L]
			Common to Retail					Common to All					SSJISD	
Line No.	Description	Total Costs	Volume	Capacity	BOD	Suspended Solids	FOG	Volume	Capacity	BOD	Suspended Solids	Ammonia	Pump Station	Basis of Allocation
1	Site Planning	$ 5,742,871	$ -	$ -	$ -	$ -	$ -	$ 916,102	$ 163,353	$ 3,495,736	$ 175,492	$ 992,187	$ -	Ammonia Asset Allocation
2	Construction Administration	$ 2,281,372	$ -	$ -	$ -	$ -	$ -	$ 363,924	$ 64,893	$ 1,388,691	$ 69,715	$ 394,149	$ -	Ammonia Asset Allocation
3	Operations Building Modifications	$ 246,846	$ -	$ -	$ -	$ -	$ -	$ 39,377	$ 7,021	$ 150,257	$ 7,543	$ 42,647	$ -	Ammonia Asset Allocation
3	Roughing Filter Modifications	$ 154,279								$ 154,279				BOD
4	Intermediate Pump Station	$ 399,890							$ 399,890					Common to All Capacity
4	PE Diversion Splitter Box and Meter Vault	$ 241,909							$ 241,909					Common to All Capacity
5	Domestic Aeration Basin Modifications	$ 3,092,980								$ 2,404,573		$ 688,407		CTA BOD 78% Ammonia 22%
5	Final Clarifier Splitter Box	$ 190,071								$ 103,134	$ 57,411	$ 29,526		CTA BOD 54% SS 30% Ammonia 16%
6	Pump Station No. 2	$ 1,212,014								$ 657,645	$ 366,091	$ 188,278		CTA BOD 54% SS 30% Ammonia 16%
7	Industrial Splitter Box 1	$ 55,540								$ 30,136	$ 16,776	$ 8,628		CTA BOD 54% SS 30% Ammonia 16%
7	Industrial Aeration Basin	$ 12,402,775								$ 9,642,280		$ 2,760,495		Design BOD 78% Ammonia 22%
8	Blower Building	$ 4,771,532								$ 3,709,529		$ 1,062,004		Design BOD 78% Ammonia 22%
8	Industrial Final Clarifier Splitter Box	$ 118,486						$ 106,637		$ 9,211		$ 2,637		CTA Volume 90% BOD 8% Ammonia 2%
9	Industrial Final Clarifier	$ 5,103,540						$ 4,593,186		$ 396,764		$ 113,590		CTA Volume 90% BOD 8% Ammonia 2%
9	RAS Pump Station No. 1	$ 1,108,338								$ 601,390	$ 334,776	$ 172,172		CTA BOD 54% SS 30% Ammonia 16%
10	DAFT Feed Pump Wet Well	$ 133,297								$ 72,328	$ 40,263	$ 20,707		CTA BOD 54% SS 30% Ammonia 16%
10	Filtrate Equalization Basin	$ 196,243							$ 196,243					Common to All Capacity
11	Belt Filter Press Building	$ 281,404								$ 152,691	$ 84,999	$ 43,714		CTA BOD 54% SS 30% Ammonia 16%
		$ 37,733,390	$ -	$ -	$ -	$ -	$ -	$ 6,019,227	$ 1,073,310	$ 22,968,646	$ 1,153,066	$ 6,519,141	$ -	
	Ammonia Site Planning Allocation		0.00%	0.00%	0.00%	0.00%	0.00%	15.95%	2.84%	60.87%	3.06%	17.28%	0.00%	
	Ammonia Phase I Allocation		0.00%	0.00%	0.00%	0.00%	0.00%	15.95%	2.84%	60.87%	3.06%	17.28%	0.00%	
12	Adjusted Amount	$ 19,550,896	$ -	$ -	$ -	$ -	$ -	$ 3,118,757	$ 556,117	$ 11,900,802	$ 597,441	$ 3,377,779	$ -	

Appendix A-13 Construction Work in Progress Allocations

		[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	[O]	[P]	[Q]
			Common to Retail						Common to All									
Line No.	Description	CWIP	Volume	Capacity	BOD	Suspended Solids	Ammonia	FOG	Volume	Capacity	BOD	Suspended Solids	Ammonia	FOG	SSJISD Pump Station	Septage	Billing	Allocation Basis
1	Eastside Wastewater Improvement Project	16,363,450		16,363,450														Common to Retail Capacity
2	Bio Solids Dryer	5,651,469									3,847,210	1,804,259	-					Appendix A-1 (Secondary Treatment)
3	Grit Removal	2,256,661			102,720	2,153,941												CTR BOD 5% SS 95%
4	Blacksnake Creek Stormwater Separation Project	1,867,609		1,867,609														Common to Retail Capacity
5	Whitehead Creek Stormwater Separation Conduit Design	1,027,294		1,027,294														Common to Retail Capacity
6	Contracted Mainline Sewer Repairs	946,652		946,652														Common to Retail Capacity
7	Laboratory Additions to Admin Building with HVACRepairs &	880,292							880,292									Common to All Volume
8	Sewer Extension Agreements	994,381		994,381														Common to Retail Capacity
9	CMOM (Capacity Management OperationMaintenance) - Asse	710,910		710,910														Common to Retail Capacity
10	Rehab Existing Secondary Clerifiers	654,068							588,661		65,407		(0)					BOD & SS
11	Separated Sewer Hydraulic Model	483,427	8,684	27,518	13,412	67,751	-	4,549	41,200	207,238	84,914	23,799	-	-	-	4,362	-	General Treatment
12	Reconditioning Two Belt Filter Presses	457,524			51,242.69	100,655	-	17,386			196,278	91,962	-	-				Appendix A-1
13	Whitehead Pump Station Forcemain Meter Vaults	269,062		269,062														Common to Retail Capacity
14	SSJISD Flow Metering Structure	182,749													182,749			SSJISD Pump Station
15	Water Quality Education Program	175,484	3,152	9,989	4,868	24,594	-	1,651	14,956	75,228	30,824	8,639	-	-	-	1,583	-	General Treatment
16	Main Manhole Inspections	152,600		152,600														Common to Retail Capacity
17	Odor Control Parkway A	102,919	1,849	5,859	2,855	14,424	-	968	8,771	44,120	18,078	5,067	-	-	-	929	-	General Treatment
18	Northeast Parkway Investigation	59,063		59,063														Common to Retail Capacity
19	MCC Brown's Branch Pump Station	24,916		24,916														Common to Retail Capacity
20	Faraon Street Pump Station Odor Control	24,900		24,900														Common to Retail Capacity
21	Update Arial Photography	14,277	256	813	396	2,001	-	134	1,217	6,120	2,508	703	-	-	-	129	-	General Treatment
22	CMOM GPS Equipment	7,500	135	427	208	1,051	-	71	639	3,215	1,317	369	-	-	-	68	-	General Treatment
23	**Total**	33,307,208	14,075	22,485,444	175,702	2,364,417	-	24,759	1,535,736	335,921	4,246,535	1,934,798	(0)	-	182,749	7,071	-	
24	**Allocation**	100.00%	0.20%	67.50%	0.50%	7.10%	0.00%	0.10%	4.60%	1.00%	12.70%	5.80%	0.00%	0.00%	0.50%	0.00%	0.00%	

Appendix A-14 Capital Cost Allocation Factors

		[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	[O]	[P]	[Q]
			Common to Retail						Common to All									
Line No.	Description	Total	Volume	Capacity	BOD	Suspended Solids	Ammonia	FOG	Volume	Capacity	BOD	Suspended Solids	Ammonia	FOG	SSJISD	Septage	Billing	Basis of Allocation
	COLLECTION & CONVEYANCE																	
1	Collection and Conveyance Mains	100%		100.0%														Primary Capacity
2	Pumping & Lift Stations	100%		100.0%														Primary Capacity
3	SSJISD Pump Stations	100%													100.0%			SSJISD
	TREATMENT																	
4	Grit Basins	100%				100.0%												Suspended Solids
5	Primary Clarifiers	100%	90.0%		3.0%	5.9%		1.0%										90% Primary Volume and Sludge Based on Appendix A-1 (Primary Only)
6	Other Primary	100%		100.0%														Primary Capacity
7	Pumping	100%		100.0%														Primary Capacity
8	Septage	100%														100.0%		Septage
9	Trickling Filters	100%									100.0%							Secondary Capacity
10	Blowers	100%									100.0%		0.0%					BOD & Ammonia on Appendix A-1
11	Aeration	100%									100.0%		0.0%					BOD & Ammonia on Appendix A-1
12	Secondary Clarifiers	100%							90.0%		10.0%		0.0%					90% Secondary Volume 10% Secondary BOD & SS
13	Other Secondary	100%							30.5%	10.5%	50.6%	8.4%	0.0%	0.0%				Secondary Treatment Plant
14	Sludge Pumping	100%			11.2%	22.0%		3.8%			42.9%	20.1%	0.0%					Appendix A-1
15	Aerobic Digesters	100%			11.2%	22.0%		3.8%			42.9%	20.1%	0.0%					Appendix A-1
16	Dissolved Air Flotation (DAF)	100%			11.2%	22.0%		3.8%			42.9%	20.1%	0.0%					Appendix A-1
17	Sludge Handling	100%			11.2%	22.0%		3.8%			42.9%	20.1%	0.0%					Appendix A-1
18	Outfall	100%								100.0%								Secondary Capacity
19	Meters	100%							100.0%									Secondary Volume
20	Laboratory	100%							100.0%									Secondary Volume
21	General	100%	5.3%	11.8%	2.8%	11.4%	0.0%	1.0%	18.9%	6.5%	31.3%	5.2%	0.0%	0.0%	0.0%	5.9%		Treatment Plant
	SECONDARY EXPANSION																	
22	Secondary Expansion - Secondary Clarifiers	100%							90.0%		10.0%		0.0%					90% Secondary Volume 10% Secondary BOD & SS
	ADMINISTRATIVE																	
23	Admin. & General	100%	4.3%	18.7%	2.3%	9.3%	0.0%	0.8%	19.5%	5.3%	26.1%	4.3%	0.0%	0.0%	0.0%	4.8%	4.5%	Total Treatment Plant
24	Billing Software	100%															100.0%	Billing
	CONTRIBUTIONS																	
25	Secondary Expansion - Secondary Clarifiers	100%							90.0%		10.0%		0.0%					90% Secondary Volume 10% Secondary BOD
26	Collection and Conveyance Mains	100%		100.0%														Primary Capacity
	AMMONIA PROJECT																	
27	Secondary Expansion - Ammonia Project	100%	0.0%	0.0%	0.0%	0.0%		0.0%	16.0%	2.8%	60.9%	3.1%	17.3%		0.0%			Appendix A-12
28	Ammonia Phase I	100%	0.0%	0.0%	0.0%	0.0%		0.0%	16.0%	2.8%	60.9%	3.1%	17.3%		0.0%			Appendix A-12

Appendix A-15 Capital Allocated Costs

Line No.	Description	Total	Common to Retail						Common to All						SSJISD	Septage	Billing	Basis of Allocation
		[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	[O]	[P]	[Q]
			Volume	Capacity	BOD	Suspended Solids	Ammonia	FOG	Volume	Capacity	BOD	Suspended Solids	Ammonia	FOG				
	COLLECTION & CONVEYANCE																	
1	Collection and Conveyance Mains	81,432,438	-	81,432,438	-	-	-	-	-	-	-	-	-	-	-	-	-	
2	Pumping & Lift Stations	1,944,055	-	1,944,055	-	-	-	-	-	-	-	-	-	-	-	-	-	
3	SSJISD Pump Stations	1,741,429	-	-	-	-	-	-	-	-	-	-	-	-	1,741,429	-	-	
4	Subtotal	85,117,922	-	83,376,493	-	-	-	-	-	-	-	-	-	-	1,741,429	-	-	
	TREATMENT																	
5	Grit Basins	5,113,987	-	-	-	5,113,987	-	-	-	-	-	-	-	-	-	-	-	
6	Primary Clarifiers	965,487	868,938	-	28,965	56,964	-	9,655	-	-	-	-	-	-	-	-	-	
7	Other Primary	511,481	-	511,481	-	-	-	-	-	-	-	-	-	-	-	-	-	
8	Pumping	2,495,340	-	2,495,340	-	-	-	-	-	-	-	-	-	-	-	-	-	
9	Septage	276,210	-	-	-	-	-	-	-	-	-	-	-	-	-	276,210	-	
10	Trickling Filters	1,711,879	-	-	-	-	-	-	-	-	1,711,879	-	-	-	-	-	-	
11	Blowers	552,538	-	-	-	-	-	-	-	-	552,538	-	-	-	-	-	-	
12	Aeration	794,593	-	-	-	-	-	-	-	-	794,593	-	-	-	-	-	-	
13	Secondary Clarifiers	3,617,853	-	-	-	-	-	-	3,256,068	-	361,785	-	-	-	-	-	-	
14	Other Secondary	91,344	-	-	-	-	-	-	27,825	9,595	46,209	7,714	-	-	-	-	-	
15	Sludge Pumping	668,557	-	-	74,878	147,083	-	25,405	-	-	286,811	134,380	-	-	-	-	-	
16	Aerobic Digesters	10,005,992	-	-	1,120,671	2,201,318	-	380,228	-	-	4,292,570	2,011,204	-	-	-	-	-	
17	Dissolved Air Flotation (DAF)	15,079	-	-	1,689	3,317	-	573	-	-	6,469	3,031	-	-	-	-	-	
18	Sludge Handling	3,437,347	-	-	384,983	756,216	-	130,619	-	-	1,474,622	690,907	-	-	-	-	-	
19	Outfall	26,730,214	-	-	-	-	-	-	-	26,730,214	-	-	-	-	-	-	-	
20	Meters	34,275	-	-	-	-	-	-	34,275	-	-	-	-	-	-	-	-	
21	Laboratory	1,121,897	-	-	-	-	-	-	1,121,897	-	-	-	-	-	-	-	-	
22	General	4,988,625	264,119	586,932	140,277	569,030	-	47,541	940,447	324,292	1,561,790	260,731	-	-	-	293,466	-	
23	Subtotal	63,132,698	1,133,057	3,593,752	1,751,462	8,847,915	-	594,021	5,380,512	27,064,101	11,089,268	3,107,967	-	-	-	569,675	-	
	SECONDARY EXPANSION																	
24	Secondary Expansion - Secondary Clarifiers	12,881,704	-	-	-	-	-	-	11,593,533	-	1,288,170	-	-	-	-	-	-	
25	Subtotal	12,881,704	-	-	-	-	-	-	11,593,533	-	1,288,170	-	-	-	-	-	-	
	ADMINISTRATIVE																	
26	Admin. & General	3,069,314	132,955	574,498	70,614	286,445	-	23,932	598,981	163,246	800,144	131,250	-	-	-	147,728	139,521	
27	Billing Software	123,167	-	-	-	-	-	-	-	-	-	-	-	-	-	-	123,167	
28	Subtotal	3,192,481	132,955	574,498	70,614	286,445	-	23,932	598,981	163,246	800,144	131,250	-	-	-	147,728	262,688	
	CONTRIBUTIONS																	
29	Secondary Expansion - Secondary Clarifiers	(12,881,704)	-	-	-	-	-	-	(11,593,533)	-	(1,288,170)	-	-	-	-	-	-	
30	Collection and Conveyance Mains	(3,423,309)	-	(3,423,309)	-	-	-	-	-	-	-	-	-	-	-	-	-	
31	**CWIP**	33,307,208	14,075	22,485,444	175,702	2,364,417	-	24,759	1,535,736	335,921	4,246,535	1,934,798	(0)	-	182,749	7,071	-	Appendix A-13
32	Subtotal Existing Plant	181,327,000	1,280,088	106,606,878	1,997,779	11,498,778	-	642,712	7,515,230	27,563,268	16,135,947	5,174,014	(0)	-	1,924,178	724,474	262,688	
	AMMONIA PROJECT																	
33	Secondary Expansion - Ammonia Project	23,211,918	-	-	-	-	-	-	3,702,763	660,253	14,129,299	709,315	4,010,288	-	-	-	-	
34	Ammonia Phase I	19,550,896	-	-	-	-	-	-	3,118,757	556,117	11,900,802	597,441	3,377,779	-	-	-	-	
35	Subtotal	42,762,814	-	-	-	-	-	-	6,821,521	1,216,369	26,030,101	1,306,756	7,388,067	-	-	-	-	
36	**TOTAL**	224,089,814	1,280,088	106,606,878	1,997,779	11,498,778	-	642,712	14,336,751	28,779,638	42,166,048	6,480,770	7,388,067	-	1,924,178	724,474	262,688	
37	Existing Plant	100.0%	0.9%	56.8%	1.2%	6.2%	0.0%	0.4%	4.0%	18.4%	8.0%	2.2%	0.0%	0.0%	1.2%	0.5%	0.2%	
38	Plant Including CWIP	100.0%	0.7%	58.8%	1.1%	6.3%	0.0%	0.4%	4.1%	15.2%	8.9%	2.9%	0.0%	0.0%	1.1%	0.4%	0.1%	
39	Existing Debt Service	11,807,800	83,421	6,942,114	130,093	748,787	-	41,853	489,383	1,794,887	1,050,754	336,926	(0)	-	125,300	47,177	17,106	Plant Including CWIP
40	Less: Misc Revenues	(3,949,400)	(27,902)	(2,321,955)	(43,513)	(250,450)	-	(13,999)	(163,686)	(600,343)	(351,450)	(112,693)	0	-	(41,910)	(15,779)	(5,721)	Plant Including CWIP
41	Transfer to Capital Fund	7,208,300	50,926	4,237,948	79,418	457,111	-	25,550	298,753	1,095,724	641,453	205,683	(0)	-	76,492	28,800	10,443	Plant Including CWIP
42	Proposed Debt	757,400	5,351	445,295	8,345	48,030	-	2,685	31,391	115,131	67,400	21,612	(0)	-	8,037	3,026	1,097	Plant Including CWIP
43	Net Capital for Rates	15,824,100	111,795	9,303,402	174,343	1,003,479	-	56,088	655,841	2,405,400	1,408,157	451,527	(0)	-	167,920	63,224	22,924	
44	Less: Debt Service for Ammonia Project	1,836,200							244,721	897,554	525,441	168,483						
45	Net Capital for Rates Less: Ammonia Project	13,987,900	111,795	9,303,402	174,343	1,003,479	-	56,088	411,120	1,507,846	882,715	283,044	(0)	-	167,920	63,224	22,924	